

## SECTION II - PRIVILEGED COMMUNICATION

## BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME	TITLE	BIRTHDATE (Mo., Day, Yr.)	
Thomas C. Rindfleisch	Research Associate	12-10-41	
PLACE OF BIRTH (City, State, Country)	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date)	SEX	
Oshkosh, Wisconsin, USA	USA	<input checked="" type="checkbox"/> Male <input type="checkbox"/> Female	
EDUCATION (Begin with baccalaureate training and include postdoctoral)			
INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Purdue University, Lafayette, Ind.	B.S	1962	Physics
California Institute of Technology, Pasadena, CA	M.S	1965	Physics
	Ph.D	Thesis to be completed.	and examinations completed.
HONORS			
Purdue University, Graduated with Highest Honors, Sigma Xi.			
MAJOR RESEARCH INTEREST		ROLE IN PROPOSED PROJECT	
Space sciences, computer science and image processing		Technical Support	
RESEARCH SUPPORT (See instructions)			

RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)

- 1971-Present Stanford University Medical School, Department of Genetics, Stanford, CA.  
Research Associate - Mass Spectrometry, Instrumentation research.
- 1962-1971 Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA.  
Relevant Experience:  
1969-1971: Supervisor of Image Processing Development and Applications Group.  
1968-1969: Mariner Mars 1969 Cognizant Engineer for Image Processing  
1962-1968: Engineer - design and implement image processing computer software.

- Rindfleisch, T. and Willingham, D., "A Figure of Merit Measuring Picture Resolution," JPL Technical Report 32-666, September 1, 1965.
- Rindfleisch, T. and Willingham, D., "A Figure of Merit Measuring Picture Resolution," Advances in Electronics and Electron Physics, Volume 22A, Photo-Electronic Image Devices, Academic Press, 1966.

Thomas C. Rindfleisch  
PUBLICATIONS (cont'd)

3. Rindfleisch, T., "A Photometric Method for Deriving Lunar Topographic Information," JPL Technical Report 32-786, September 15, 1965.
4. Rindfleisch, T., "Photometric Method for Lunar Topography," Photogrammetric Engineering, March 1966.
5. Rindfleisch, T., "Generalizations and Limitations of Photoclinometry," JPL Space Science Summary Volume III, 1967.
6. Rindfleisch, T., "The Digital Removal of Noise from Imagery," JPL Space Science Summary 37-62 Volume III, 1970.
7. Rindfleisch, T., "Digital Image Processing for the Rectification of Television Camera Distortions," Astronomical Use of Television-Type Image Sensors, NASA Special Publication SP-256, 1971.
8. Rindfleisch, T., Dunne, J., Frieden, H., Stromberg, W., and Ruiz, R., "Digital Processing of the Mariner 6 and 7 Pictures," Journal of Geophysical Research, Volume 76, Number 2, January 1971.
9. Rindfleisch, T., "Digital Image Processing," To be published, IEEE Special Issue, July 1972.

## BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME Donald C. Harrison	TITLE Professor of Medicine	BIRTHDATE (Mo., Day, Yr.) 2/24/34
PLACE OF BIRTH (City, State, Country) Blount County, Alabama	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) U.S.	SEX <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female

## EDUCATION (Begin with baccalaureate training and include postdoctoral)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Birmingham Southern College, Ala.	B.S.	1954	Chemistry
Medical College of Alabama	M.D.	1958	Medicine

## HONORS

Omicron Delta Kappa, Phi Beta Kappa, Alpha Omega Alpha

MAJOR RESEARCH INTEREST Computer applications in Cardiology	ROLE IN PROPOSED PROJECT Collaborator
--	--

**RESEARCH SUPPORT (See instructions)** Medical Cardiology, HE-5866, NIH, 7/70-6/71, \$50,149 15% effort. Evaluation of Cardiovascular System During Various Circulatory Stresses, NGR-05-020-305, NASA, 9/70-8/71, \$66,431, 6% effort. Undergraduate-Clinical, HE-5107, NIH, 3/71-2/72, \$25,000, 5% effort. Investigative Cardiovascular Physiology & Pharmacology, HE-5709, NIH, 7/68-6/73, \$497,835, 17.5% effort. Cardiovascular Adrenergic Receptors-Effects of Drugs, HE-9058, NIH, 9/67-8/72, \$174,080, 17.5% effort.

**RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)**

1972- Professor of Medicine, Stanford Univ. School of Med., Stanford, Ca.  
 1968-72 Associate Prof. of Medicine, Stanford Univ, School of Med.  
 1967- Chief, Division of Cardiology, Stanford Univ. School of Med.  
 1965-68 Asst. Prof. of Medicine, Stanford Univ. School of Med.  
 1964-69 Asst. Program Director, Clinical Research Center, Stanford Univ.  
 1963-64 Instructor in Medicine and Chief Resident in Medicine, Stanford Univ. School of Med.  
 1961-63 Clinical Research Associate, National Heart Institute, NIH, Bethesda, Md.  
 1960-61 Research Fellow, Harvard Medical School, Boston, Mass.  
 1958-60 Intern and Asst. Resident in Medicine, Peter Bent Brigham Hospital, Boston, Mass.

Donald C. Harrison, M.D.

Bibliography

1. Stenson, R.E., Crouse, L., Henry, W.L., and Harrison, D.C.: A time-shared digital computer system for on-line analysis of cardiac catheterization data. Comput. Biomed. Res. 1: 605-614, 1968.
2. Henry, W.L., Crouse, L., Stenson, R., and Harrison, D.C.: Computer analysis of cardiac catheterization data. Amer. J. Cardiol. 22:696-705, 1968.
3. Harrison, D.C., and Miller, H.A.: The expansion of a conventional cardiac catheterization laboratory to a computer-assisted laboratory. Measurements for Medicine (Hewlett-Packard). 1971 (Booklet)
4. Harrison, D.C., Ridges, J.D., Sanders, W.J., Alderman, E.L., and Fanton, J.A.: Real-time analysis of cardiac catheterization data using a computer system. Circulation 44: 709-718, 1971.

## BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME Stenson, Robert E.	TITLE Asst. Prof. of Medicine	BIRTHDATE (Mo., Day, Yr.) 6/1/38	
PLACE OF BIRTH (City, State, Country) Pennsylvania	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) U.S.	SEX <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female	
EDUCATION (Begin with baccalaureate training and include postdoctoral)			
INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Massachusetts Institute of Tech. Harvard School of Medicine	M.S. M.D.	1960 1965	Elec. Engr.
HONORS Eta Kappu Nu-Honorary Society of Electrical Engineers Tau Beta Pi-Honorary Society of Engineers Sigma Xi-Honorary Scientific Society			
MAJOR RESEARCH INTEREST Computer Applications in Cardiology	ROLE IN PROPOSED PROJECT Collaborator		
RESEARCH SUPPORT (See instructions)			

RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)

1972- Assistant Professor of Medicine, Stanford University School of Medicine, Stanford, Cal.  
 1971- Clinical Instructor of Medicine, University of California, Davis, Cal.  
 1970-72 Major USAF, MC, Staff Cardiologist, Travis AFB, Cal.  
 1969-70 Sr. Resident, Stanford University Hospital, Stanford, Cal.  
 1967-69 Postdoctoral Fellow, Cardiology Division, Stanford University School of Medicine, Stanford, Cal.  
 1966-67 Resident, Beth Israel Hospital, Boston, Mass.  
 1965-66 Intern, Beth Israel Hospital, Boston, Mass.

Robert E. Stenson, M.D.

Bibliography

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 1:605, June 1968.
2. Henry, W.L., Crouse, L., Stenson, R.E., Harrison, D.C.: Computer Analysis of Cardiac Catheterization Data: Am. J. Cardiology, 22:696, Nov. 1968.
3. Stenson, R.E., Constantino, R., Harrison, D.C.: Interrelationships of Hepatic Blood Flow, Cardiac Output and Blood Levels of Lidocaine in Man: Circulation 43:205, Feb. 1971.
4. Stenson, R.E., Harrison, D.C.: Cardiac Output: Computer, Dow and Fick. (In press) Cardiovasc. Res., 1972.

## SECTION II - PRIVILEGED COMMUNICATION

## BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME Thomas A. Stamey, M. D.	TITLE Professor of Surgery Chairman, Division of Urology	BIRTHDATE (Mo., Day, Yr.) April 26, 1928
PLACE OF BIRTH (City, State, Country) Rutherfordton, N.C.	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) USA	SEX <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female

## EDUCATION (Begin with baccalaureate training and include postdoctoral)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Vanderbilt University, Nashville, Tenn.	A.B.	1948	
Johns Hopkins University School of Medicine	M.D.	1952	Medicine
Johns Hopkins University School of Medicine, Brady Urological House Staff Residency		1952-1956	Urology

**HONORS** Chairman, Comm. Renal Disease and Urology Training Grants, NIAMD, NIH; Member, Advisory Board, USPHS/Coop Study on Renal Disease and Pyelonephritis; Member, National Scientific Advisory Board, National Kidney Foundation; Member, Scientific Advisory Council, No. Calif. Kidney Foundation; Member, Research Comm., No. Calif. Kidney Fndtn; Editor, Urology Digest; Member, Editorial Board, Invest. Urol.; Member, Editorial Board,

MAJOR RESEARCH INTEREST Renal Physiology. Infectious Diseases.	ROLE IN PROPOSED PROJECT KIDNEY Collaborator
---	--

## RESEARCH SUPPORT (See instructions)

- 2 TO1 AM 05513 -- Training Grant in Urology  
Period 7/1/71-6/30/76
- 5 RO1 AI 09366 -- Urinary Infection Grant  
Period 1/1/70-12/31/72

## RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)

Professor of Surgery, Chairman, Division of Urology  
Stanford University School of Medicine 1964-present

Sabbatical year with Prof. Paul Beeson,  
Nuffield Dept. of Medicine  
Radcliffe Infirmary, Oxford, England 1967-1968

Assoc. Professor of Surgery, Chairman, Division of Urology  
Stanford University School of Medicine 1961-1964

Assoc. Professor of Urology  
Johns Hopkins University School of Medicine 1960-1961

Asst. Professor of Urology  
Johns Hopkins University School of Medicine 1958-1960

U. S. Armed Forces, United Kingdom-Urological Consultant 1956-1958

## PUBLICATIONS:

See list attached

PUBLICATIONSBooks

- Renovascular Hypertension. Baltimore: Williams & Wilkins Co., 1963.  
1st reprinting, Mar. 1967.
- Urinary Infections. Baltimore: Williams & Wilkins Co. (in press).

Chapters in Books

- Stamey, T.A. and Good, P.H.: Diagnostic tools in the evaluation of renal vascular disease. In: Hypertension, Recent Advances. Philadelphia: Lea & Febiger, 1961, pp. 189-203.
- Stamey, T.A.: Differential renal function studies. In: Diagnostic Urology: A Handbook of Urologic Diagnostic Technique. Edited by J. Glenn. New York: Harper & Row, Chapt. 9, 1964.
- Stamey, T.A.: Some observations on the filtration fraction, on the transport of sodium and water in the ischemic kidney, and on the prognostic importance of R.P.F. to the contralateral kidney in renovascular hypertension. In: Ciba Foundation Symposium on Antihypertensive Therapy. Edited by F. Gross. Heidelberg, Germany: Springer-Verlag, 1966, pp. 555-579.
- Stamey, T.A.: The diagnosis of urinary tract disease in the patient with gastrointestinal symptoms. In: Gastroenterologic Medicine. Edited by M. Paulson, Philadelphia: Lea & Febiger, Chapt. 49, 1969.
- Palmer, J.M. and Stamey, T.A.: History of differential renal function studies. In: History of Urology. Baltimore: Williams & Wilkins Co. (in press).
- Meares, E.M. and Stamey, T.A.: Bacterial prostatitis and recurrent urinary tract infection. In: Infectious Diseases. Edited by P.D. Hoeprich. New York: Harper & Row (in press).
- Stamey, T.A.: Renal vein renins or differential renal function studies in the diagnosis of curable, renovascular hypertension? W.W. Scott - Festschrift, Baltimore: Williams & Wilkins Co. (in press).

Scientific Papers

- Stamey, T.A.: The pathogenesis and implications of the electrolyte imbalance in ureterosigmoidostomy. S.G. & O., 103:736-758, 1956.
- Stamey, T.A. and Scott, W.W.: Ureteroileal anastomosis. S.G. & O. 104:11-24, 1957.
- Stamey, T.A., Nudelman, I.J., Good, P.H., Schwentker, F.N. and Hendricks, F.: Functional characteristics of renovascular hypertension. Medicine. 40:347-394, 1961.
- Stamey, T.A.: The diagnosis of curable unilateral renal hypertension by ureteral catheterization. Postgraduate Medicine, 29:496-504, 1961.
- Spencer, F.C., Stamey, T.A., Bahnson, H.T. and Cohen, A.: The diagnosis and treatment of hypertension due to occlusive disease of the renal artery. Ann. Surg., 154:674-697, 1961.
- Stamey, T.A.: Functional characteristics of renovascular hypertension with emphasis on the relationship of renal blood flow to hypertension. Circ. Res., 11:209-219, 1962.
- Stamey, T.A. and Pfau, A.: Some functional, pathological, bacteriological, and chemotherapeutic characteristics of unilateral pyelonephritis in man. (two articles: Part I and II). Invest. Urol. 1:134-172, 1963.
- Pfau, A. and Stamey, T.A.: Some functional characteristics of polycystic renal disease. Invest. Urol., 1:593-603, 1964.



## SECTION II - PRIVILEGED COMMUNICATION

## BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME Constantinou, Christos E.	TITLE Research Associate	BIRTHDATE (Mo., Day, Yr.) July 21, 1939	
PLACE OF BIRTH (City, State, Country) Limassol, Cyprus	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) United Kingdom (TI)	SEX <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female	
EDUCATION (Begin with baccalaureate training and include postdoctoral)			
INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Borough Polytechnic, London, England	HNC	1964	Elect. Engineering
Stanford University, Stanford, Calif.	M.Sc.	1968	Biomedical Engineering
	Ph.D.	Expected	
		1972	Biomechanics

**HONORS**

Member, Institute of Electrical and Electronic Engineers

MAJOR RESEARCH INTEREST Electrophysiology and biomechanics of the upper urinary tract.	ROLE IN PROPOSED PROJECT Collaborator
---	--

**RESEARCH SUPPORT (See instructions)**

NIH Training Grant in Urology - 2 T01 AM 05513  
July 1, 1971 - June 30, 1973

**RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)**

1969- Research Associate, Department of Surgery (Urology), Stanford University  
1966-1969 Research Assistant, Department of Surgery (Urology), Stanford University

Development of computer based system for the real time collection and analysis of experimental data from the surgical laboratory. Integration and construction of physiological monitoring devices in the study of the dynamics of transport in the ureter. Incorporation of new electrophysiological techniques with bio-mechanical transducers to evaluate static and dynamic parameters of the peristaltis.

Cooperation with the Radiology Department in the assessment of contrast media and other methods of visualizing the ureter, *in vivo*, using the technique described in the list of publications enclosed.

Participate in the training of research residents in the quantification of experimental data and teaching in biophysical and biostatistical techniques using the time shared computer.

Ph.D. candidate. Biomedical Engineering.

1965-1966 Research Assistant, Microwave Laboratory, Department of Radiotherapy, Laser research on parametric oscillators.

Bibliography

Chapters in Books

- Constantinou, C.E., Dale, R.L., Briggs, E.M., and Govan, D.E.: Electro-physiological methods in the study of ureteral dynamics. In URODYNAMICS, ed. Boyarsky, S., Chapter 12, Academic Press, New York, 1971.
- Constantinou, C.E., Briggs, E.M., Dale, R.L., and Govan, D.E.: Real time digital computer system for ureteral physiology investigation. In URODYNAMICS, ed. Boyarsky, S., Chapter 33, Academic Press, New York, 1971.

Scientific Papers

- Constantinou, C.E. and Briggs, E.M.: Precision electrostatic urine flowmeter. J. Appl. Physiol., 29:396-397, 1970.
- Constantinou, C.E., Dale, R.L., Briggs, E.M., Perlash, I., Engelsgerd, G.L., and Govan, D.E.: Dynamics of the upper urinary tract: I. System for data collection and evaluation. Invest. Urol., 8:645-654, 1971.
- Dale, R.L., Constantinou, C.E., Briggs, E.M., and Govan, D.E.: Dynamics of the upper urinary tract: II. The effects of an indwelling ureteral catheter on ureteral peristalsis. Invest. Urol., 8:655-672, 1971.
- Constantinou, C.E., Sands, J.P., and Govan, D.E.: Computer monitoring and control instrumentation in urology research. Proceedings of the 8th Annual Rocky Mountain Bioengineering Symposium. pp. 147-151, 1971.
- Constantinou, C.E. and Butler, E.D.: Medical application of computer displays in the rapid examination of developing abnormality patterns in the kidney. Digest of Society of Information Display International Symposium, pp. 72-74, 1971.
- Rosen, D.I., Constantinou, C.E., Sands, J.P., and Govan, D.E.: Dynamics of the upper urinary tract: III. The effects of changes in bladder pressure and volume on ureteral peristalsis. J. Urol., 106:209-213, 1971.
- Sands, J.P., Constantinou, C.E., and Govan, D.E.: Bladder pressure and its effect on mean arterial blood pressure. Invest. Urol., 10:6-17, 1972.
- Briggs, E.M., Constantinou, C.E., and Govan, D.E.: Dynamics of the upper urinary tract: IV. The relationship of urine flow rate and rate of ureteral peristalsis. Invest. Urol., 10:18-23, 1972.

Abstracts and Demonstrations

- Butler, E.D. and Constantinou, C.E.: The application of computers to urology. 64th Annual Meeting of the A.U.A., San Francisco, May 1969.
- Constantinou, C.E., Butler, E.D., and Govan, D.E.: Computer graphic techniques in urologic follow-up of myelodysplasia in children. 39th Annual Meeting of American Academy of Pediatrics, San Francisco, Oct. 1970.
- Friedland, G.W., Kohatsu, S., and Constantinou, C.E.: Relationship between motility of gastric sling fibers and distal esophagus. Proc. of 18th AUR Symposium. Invest. Radiol., p. 272 5(4)1970.
- Dale, R.L., Constantinou, C.E., and Govan, D.E.: Dynamics of the upper urinary tract: The effects of acute and chronic obstruction on peristalsis. Presented at the Society of University Urologists - Residents Meeting, New Haven, Conn., May 6-9, 1970.
- Granato, J.J., Constantinou, C.E., and Govan, D.E.: The effect of radiopaque contrast media on the ureter. Western Section, American Urological Association, Inc. July 2-7, 1972.

## SECTION II - PRIVILEGED COMMUNICATION

## BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME Elliott C. Levinthal	TITLE Assoc. Dean for Research, SU Med School, Director of IRL	BIRTHDATE (Mo., Day, Yr.) April 13, 1922
PLACE OF BIRTH (City, State, Country) Brooklyn, New York	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) USA	SEX <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female

## EDUCATION (Begin with baccalaureate training and include postdoctoral)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Columbia College	B.A.	1942	Physics
Massachusetts Institute of Technology	M.S.	1943	Physics and Math
Stanford University	Ph.D.	1949	Physics and Math

## HONORS

MAJOR RESEARCH INTEREST Medical Instrumentation Research	ROLE IN PROPOSED PROJECT Collaborator
---	--

## RESEARCH SUPPORT (See instructions)

Contract 952489 Mariner 71 Photo Interpretation, Current Year \$71,000 Total \$445,000  
Jet Propulsion Lab, 25% time  
Contract NAS-1-9687 Viking 75 Imaging, Current Year \$31,658 Total \$297,805  
Langley Res. Center, 20% time  
Grant NGR 05-020-064-513 Cytochemical Studies in Planetary Microorganisms,  
Current Year \$240,000 Total to date \$3,800,000, 25% time  
NIH Contract Proposed, Cell Separator Construction, Total \$240,000 10% time, no salary  
Grant GML7367-03 Automatic Cell Separation - Clinical and Biological Uses,  
Current Year \$132,000 Total \$364,455, 10% time, no salary (cont'd below)

## RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)

1970-present Associate Dean for Research Affairs, Stanford University School of Medicine  
1961-present Senior Scientist, Director of Instrumentation Research Laboratory,  
Dept. of Genetics, Stanford University School of Medicine  
1953-1961 President, Levinthal Electronic Products  
1952-1953 Chief Engineer, Century Electronics  
1950-1952 Research Director, Member of Board of Directors, Varian Associates  
1949-1950 Research Physicist, Varian Associates  
1946-1948 Research Associate, Nuclear Physics, Stanford University  
1943-1946 Project Engineer, Sperry Gyroscope Co., New York  
1943 Teaching Fellow in Physics, Massachusetts Institute of Technology

Research Support (cont'd)

Stanford Medical School Associate Dean for Research 25% time

Relevant Publications  
and Papers:

- E. C. Levinthal, "Detection of Extraterrestrial Life", Professional and Technical Group of Instrumentation and Measurements of I.E.E.E., April, 1963.
- E. C. Levinthal, "The Detection of Life Within Our Planetary System", Presented at WESCON, August, 1963.
- E. C. Levinthal, "The Biological Exploration of Mars", Presented at the Space Technology Laboratory's Invited Lecture Series, November 6, 1963.
- E. C. Levinthal, "The Biological Exploration of Mars", Presented at Moffet Field, Fullerton, Los Angeles and San Diego, April 27-30, 1964, as part of the University of California Extension Series Lectures - Horizons in Space Biosciences: Exobiology.
- E. C. Levinthal, J. Lederberg and L. Hundley, "Multivator - A Biochemical Laboratory for Martian Experiments", Life Sciences and Space Research II, COSPAR (Committee on Space Research) 1964.
- B. Halpern, J. W. Westley, E. C. Levinthal, J. Lederberg, "The Pasteur Probe: An Assay for Molecular Asymmetry", Life Sciences and Space Research, COSPAR (Committee on Space Research) 1966.
- E. C. Levinthal, "Space Vehicles for Planetary Missions", in: Biology and the Exploration of Mars, Nat. Acad. Sci., National Research Council.
- E. C. Levinthal, "Prospects for Manned Mars Missions", in: Biology and the Exploration of Mars, Nat. Acad. Sci., National Research Council.
- O. Reynolds, E. Levinthal, G. Soffen, "The Role of the Scientist in Automated Laboratory Systems", AIAA Paper No. 67-632, (1967).
- E. C. Levinthal, J. Lederberg and C. Sagan, "Relationship of Planetary Quarantine to Biological Search Strategy", Presented at COSPAR Meeting (Committee on Space Research), London, (1967)
- C. Sagan, E. C. Levinthal and J. Lederberg, "Contamination of Mars", Science, 159: 1191-1196 (1968)
- E. C. Levinthal, "The Role of Molecular Asymmetry in Planetary Biological Exploration", Gordon Research Conferences, Nuclear Chemistry Section, 1968. (Paper)

Relevant Publications(continued)

J. P. Kriss, W. A. Bonner, E. C. Levinthal. "Variable Time-Lapse Videoscintiscope: A Modification of the Scintillation Camera Designed for Rapid Flow Studies." J. Nuclear Med. 10, 249 (1969).

W. E. Reynolds, V. A. Bacon, J. C. Bridges, T. C. Coburn, B. Halpern, J. Lederberg, E. C. Levinthal and E. Steed, "A Computer Operated Mass Spectrometer System" Anal. Chem. 42, 1122 (1970).

H. Masursky, R. Batson, W. Borgeson, M. Carr, J. McCauley, D. Milton, R. Wildey, and D. Wilhelms, B. Murray, N. Horowitz, R. Leighton, and R. Sharp, W. Thompson, G. Briggs, P. Chandeysson, and E. Shipley, C. Sagan and J. Pollack, J. Lederberg, E. Levinthal, W. Hartmann, T. McCord, B. Smith, M. Davies, G. DeVaucouleurs, C. Leovy. "Television Experiment for Mariner Mars 1971" Icarus 12, 10-45 (1970).

H. Masursky, R. M. Batson, J. F. McCauley, L. A. Soderblom, R. L. Wildey, M. H. Carr, D. J. Milton, D. E. Wilhelms, B. A. Smith, T. B. Kirby, J. C. Robinson, C. B. Leovy, G. A. Briggs, T. C. Duxbury, C. H. Acton, Jr., B. C. Murray, J. A. Cutts, R. P. Sharp, Susan Smith, R. B. Leighton, C. Sagan, J. Veverka, M. Noland, J. Lederberg, E. Levinthal, J. B. Pollack, J. T. Moore, Jr., W. K. Hartmann, E. N. Shipley, G. de Vaucouleurs, M. E. Davies. "Mariner 9 Television Reconnaissance of Mars and Its Satellites: Preliminary Results" Science, 175 (4019) 294 (1972).

## BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator.  
Use continuation pages and follow the same general format for each person.)

NAME	TITLE	BIRTHDATE (Mo., Day, Yr.)
Leonard A. Herzenberg	Professor of Genetics	Nov. 5, 1931
PLACE OF BIRTH (City, State, Country)	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date)	SEX
Brooklyn, New York	U.S.	<input checked="" type="checkbox"/> Male <input type="checkbox"/> Female

## EDUCATION (Begin with baccalaureate training and include postdoctoral)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Brooklyn College, Brooklyn, New York	A.B.	1952	Biology, Chemistry
California Institute of Technology, Pasadena	Ph.D.	1955	Biochemistry, Immunology
Pasteur Institute, Paris, Postdoctoral fellow			

## HONORS

Phi Beta Kappa, Sigma Xi,  
Distinguished Alumnus Award, Brooklyn College, 1970  
Genetics Study Section, National Institutes of Health

MAJOR RESEARCH INTEREST	ROLE IN PROPOSED PROJECT
Immunogenetics, somatic cell genetics	Collaborator

## RESEARCH SUPPORT (See instructions)

N.I.H. GM-17367, Automated Cell Sorting-Clinical and Biological Uses, \$115,072 current year, total funds for project \$364,355.  
N.I.H. AI-08917, Genetics of Immunoglobulins, \$44,044 current year, \$240,893 total funds for project period

## RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)

1969: present Stanford University School of Medicine, Stanford, California, Professor of Genetics  
1964-1969: Stanford University School of Medicine, Stanford, California, Associate Professor of Genetics  
1959-1964: Stanford University School of Medicine, Stanford, California, Assistant Professor of Genetics  
1957-1959: National Institutes of Health, Bethesda, Maryland. Officer, USPHS (Dr. Harry Eagle)  
1955-1957: Pasteur Institute, Paris, France (Prof. Jacques Monod, American Cancer Society Postdoctoral Fellow)  
1952-1955: Ph.D. California Institute of Technology, Pasadena, California. (Major: Biochemistry, Prof. H. K. Mitchell; Minor: Immunology, Prof. R. D. Owen)  
1948-1952: A.B. Brooklyn College, New York

## Publications since 1967:

- Herzenberg, L. A. and N. L. Warner. 1967. Genetic control of mouse immunoglobulins, p. In B. Cinader (Ed.), Regulation of the antibody response, Chapter XV. C. C. Thomas, Springfield, Illinois.
- Tyan, M. L., L. J. Cole and L. A. Herzenberg. 1967. Fetal liver cells: a source of thymus-dependent specific immunoglobulin production in radiation chimeras. Proc. of Sec. of Exp. Biol. & Med. 1161-1163.

3. Klein, J., J. Martinkova & L. A. Herzenberg. 1967. Analysis of the histocompatibility-2 (H-2) locus of NZB mice. *Transplantation* 5: 1335-1337.
4. Klein, J. & L. A. Herzenberg. 1967. Congenic mouse strains with different immunoglobulins allotypes. I. Breeding scheme, histocompatibility tests and kinetics of  $\gamma G_2$  globulin production by transferred cells for C3H. S.W. and its congenic partner CWB/5. *Transpl.* 5:1484-1495.
5. Welton, J., S. R. Walker, G. C. Sharp, L. A. Herzenberg, R. Wistar and W. P. Creger. 1968. Macroglobulinemia with bone destruction. Difficulty of distinguishing between macroglobulinemia and myeloma. *Amer. J. of Med.* 44:280-288.
6. Warner, Noel L. and L. A. Herzenberg. 1967. Immunoglobulin isoantigens (allotypes) in the mouse. IV. Allotypic specificities common to two distinct immunoglobulin classes. *J of Immunol.* 99:675-678.
7. Minna, J. D., G. M. Iverson & L. A. Herzenberg. 1967. Identification of a gene locus for  $\gamma G_1$  immunoglobulin H chains and its linkage to the H chain chromosome region in the mouse. *Proc. of Natl. Acad. of Sci.* 58:188-194.
8. Tyan, M. L., L. J. Cole & L. A. Herzenberg. 1967. Fetal liver cells: a source of specific immunoglobulin production in radiation chimeras, pp. 87-89. In J. Dausett, J. Hambruger, G. Mathe (Eds.) *Advance in transplantation. Proc. 1st Intl. Cong. Transpl. Soc., Paris, June 27-30* (Munksgaard, Publisher).
9. Herzenberg, L. A., Leonore A. Herzenberg, R. C. Goodlin & E. C. Rivera. 1967. Immunoglobulin synthesis in mice: suppression by anti-allotype antibody. *J. Exp. Med.* 126:701.
10. Herzenberg, L. A. J. D. Minna & Leonore A. Herzenberg. 1967. The chromosome region for immunoglobulin heavy chains in the mouse: allelic electrophoretic mobility differences and allotype suppression. *Cold Spring Harbor Symposia on Quantitative Biology* 32: 181-186.
11. Herzenberg, L. A. H. O. McDevitt & Leonore A. Herzenberg. 1968. Genetics of antibodies. *Ann. Rev. of Genetics* 2:209-244.
12. Tyan, M. L. & L. A. Herzenberg. 1968. Ontogeny of the mouse immune system. II. Immunoglobulin-producing cells. *J. of Immunol.* 101:446-450.
13. Tyan, M. L., H. O. McDevitt & L. A. Herzenberg. 1968. Genetic control of the antibody response to a synthetic polypeptide: transfer of response with spleen cells or lymphoid precursors. Abstract and paper submitted to 2nd Intl. Transpl. Cong. N.Y., Sept. 1968.
14. Herzenberg, L. A. and M. L. Tyan. 1968. Genetics of antibody formation: role of thymus in the evolution of the immune response. 12th Intl. Cong. of Genetics, Tokyo, Japan, Aug. 19-28.
15. Tyan, M. L. & L. A. Herzenberg. 1968. Immunoglobulin production by embryonic tissues: thymus independent. *Proc. of Soc. for Exp. Biol. & Med.* 128:952-954
16. Herzenberg, L. A. 1969. Rabbit Aa locus allotypes: quantitative comparisons in IgG, IgA, and IgM by inhibition of precipitation. *Fed. Proc.*, p. 435 (abstract)
17. Hulett, H. R., W. A. Bonner, J. Barrett and L. A. Herzenberg. 1969. Cell sorting: automated separation of mammalian cells as a function of intracellular fluorescence. *Science* 166:747.
18. Tyan, M. L., L. A. Herzenberg & P. R. Gibbs. 1969. Lymphoid precursors: thymus independent antibody production. *J. of Immunol.* 103:1283.
19. L'age-Stehr, J. and L. A. Herzenberg. 1970. Immunological memory in mice. I. Physical separation and partial characterization of memory cells for different Ig classes from each other and from antibody producing cells. *J. of Exp. Med.* 131:1093-1108.
20. Jacobson, E. B., J. L'age-Stehr & L. A. Herzenberg. 1970. Immunological memory in mice: II. Cell interactions in the secondary immune response studied by means of Ig allotype markers. *J. of Exp. Med.* 131:1109-1120.
21. Hulett, H. R., L. A. Herzenberg, W. A. Bonner, and P. L. Wolf. Rapid cell-sorter -- a new tool for cell study with clinical applications. *Laboratory Investigations* (abstract in press) Presented at 59th Annual Meeting of International Academy of Pathology, St. Louis, Missouri, March, 1970.

DO NOT TYPE IN THIS SPACE-BINDING MARGIN

22. Riblet, Roy J. and L. A. Herzenberg. 1970. Mouse lysozyme: production by a monocytoma, isolation, and comparisons with other lysozyme. *Science* 168:1595
23. Herzenberg, L. A. Gene interactions in immunoglobulins (in press). Presented at Symposium on Anti-Human Gamma Globulins, Lund, Sweden, Oct. 1969.
24. Herzenberg, L. A. 1970. From cell biology to immunology -- a short trip. *J. of Cellular Physiology* 76: 303-310.
25. Merrill, J. T., N. Veizades, H. R. Hulett, P. L. Wolf and L. A. Herzenberg. 1971. An improved cell-volume analyzer. *Review of Scientific Instruments* 42:1157-1163.
26. Bechtol, K. B., T. G. Wegmann, B. W. Chesebro, L. A. Herzenberg & H. O. McDevitt. 1971. The antibody response to (T,G) -A--L in tetraparental mice. *Federation Proceedings*, p. 1531 (abstract).
27. Riblet, R. J., L. A. Herzenberg & L. A. Herzenberg. 1971. Active allotype suppression in a cell transfer system. *Federation Proceedings*, p. 2552. (abstract)
28. Bonner, W. A., H. R. Hulett & L. A. Herzenberg. 1971. Highspeed sorting of fluorescence labelled cells. *Federation Proceedings*, p. E10. (abstract)
29. Mitchell, G. F., E. O. Chan, M. S. Noble, I. L. Weissman, R. I. Mishell and L. A. Herzenberg. 1971. Specific immunological memory to heterologous erythrocytes in both T-cell and B-cell populations and requirement for T-cell in expression of B-cell memory. Evidence using Anti  $\theta$  and anti-allotype sera with congenic mice. *J. Exp. Med.*, in press.
30. Mitchell, G. F., R. I. Mishell and L. A. Herzenberg. 1971. Studies on the influence of T-cells in antibody production. Presented at the 1st International Congress of Immunology, Washington D.C., August, 1971.
31. Herzenberg, Leonore, E. B. Jacobson, L. A. Herzenberg, and R. J. Riblet. 1971. Chronic allotype suppression in mice: an active regulatory process. *New York Academy of Sciences*. In press.
32. Herzenberg, L. A. 1971. Immunoglobulin genetics in cellular immunology. *New York Academy of Sciences*. In press.

## Selected publications before 1967:

1. Herzenberg, L. A. and Leonore A. Herzenberg. 1959. Adaptation to lactose. *Nutrition Review* 17:65-87.
2. Herzenberg, L. A. 1959. Studies on the induction of beta-galactosidase in a cryptic strain of *Escherichia coli*. *Biochimica et Biophysica Acta* 31:525-538.
3. Herzenberg, L. A. and Leonore A. Herzenberg. 1961. Association of H-2 antigens with the cell membrane fraction of mouse liver. *Proc. of Natl. Acad. of Sci.* 47:762-767.
4. Herzenberg, Leonard A. 1962. Part I. Steps toward a genetics of somatic cells in culture. Part II. Maternal isoimmunization as a result of breeding in the mouse.
5. Cann, H. M. and L. A. Herzenberg. 1963. *In vitro* studies of mammalian somatic cell variation II. Isoimmune cytotoxicity with a cultured mouse lymphoma and selection of resistant variants. *J. of Exp. Med.* 117:267-284.
6. Wunderlich, J. and L. A. Herzenberg. 1963. Genetics of a gamma globulin isoantigen (allotype) in the mouse. *Proc. of Natl. Acad. of Sci.* 49:592-598.
7. Erickson, R. P., D. K. Tachibana, L. A. Herzenberg and L. T. Rosenberg. 1964. A single gene controlling hemolytic complement and a serum antigen in the mouse. *J. of Immunol.* 92:611-615.
8. Herzenberg, L. A. 1964. A chromosome region for gamma 2<sub>A</sub> and beta 2<sub>A</sub> globulin H chain isoantigens in the mouse. Cold Spring Harbor Symposium of Quantitative Biology 29:455-464.

Total number of publications: 75.

DO NOT TYPE IN THIS SPACE-BINDING MARGIN



## BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME Bert S. Kopell, M. D.	TITLE Chief, Psyt. Research & Training Division, VA Hospital Palo Alto, California	BIRTHDATE (Mo., Day, Yr.) 2/11/31
PLACE OF BIRTH (City, State, Country) New York, New York	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) USA	SEX <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female

## EDUCATION (Begin with baccalaureate training and include postdoctoral)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Univ. of Geneva, Geneva, Switzerland	Medical Baccalaureate	1953	Medical Science
Univ. of Geneva, Geneva, Switzerland	M. D.	1958	
Maimonides Hospital, New York	Rotating Intern	1958-59	

## HONORS

Psychiatry Career Teaching Award--July, 1966 - June, 1968  
Diplomate of American Board of Psychiatry & Neurology in Psychiatry, 1966

MAJOR RESEARCH INTEREST Electrophysiological Studies of Drugs	ROLE IN PROPOSED PROJECT Collaborator
--	--

## RESEARCH SUPPORT (See instructions)

1. Current Research Support
  - a. 20% effort VA Part I funds "Electrocortical Measurement of Set and Attention in Psychiatric Patients". Grant terminates 6/20/72, \$15,000 for F. Y. 1972.
  - b. 10% effort to: MH 19918; total direct costs for May 1, 1971 to April 30, 1972--\$115,062.
2. Pending Applications
  - a. 40% effort "Brain Responses, Behavior and Drug States in Man: A General Research Proposal". Total amount requested for current year \$154,134. Total requested for a 5-yr. period \$635,801. To NIMH and the VA (See Below)

## RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)

1970-Present Chief, Psychiatry Research & Training Div., VA Hospital, Palo Alto, CA.  
 1970-Present Assoc. Professor, Stanford University Sch. of Medicine, Dept. Psychiatry  
 1969-Present Director, Medical Student Training Program in Psych., Stanford Univ.  
 1968-Present Director, Human Perception Lab., Stanford Univ. Sch. of Med., Dept. Psychi.  
 1965-1970 Assist. Professor, Stanford Univ. Sch. of Med., Dept. Psychiatry  
 1964-1966 Research Associate, Palo Alto Veterans Administration Hospital  
 1964-1965 Instructor, Stanford Univ. Sch. of Medicine, Dept. of Psychiatry  
 1962-1964 Chief, Psychiatric Services, Westover Air Force Base, Massachusetts  
 1959-1962 Resident, University of Colorado, Denver, Colorado  
 1958-1959 Rotating Intern, Maimondes Hospital, New York

See representative publications

2. Pending Applications (continued)
  - b. 20% effort "Brain Responses in Alcoholics During Drinking Cycle". Total amount requested for current year \$73,607. Total requested for a 3-yr. period \$222,699. Submitted to NIMH.

PUBLICATIONS

Stilson, D. W. and Kopell, B. S. The recognition of visual signals in the presence of visual noise by psychiatric patients. J. Ner. Ment. Dis., 139: 209-221, 1964.

Kopell, B. S., Noble, E. P. and Silverman, J. The effect of thiamylal and methamphetamine on the two-flash fusion threshold. Life Sciences, 4:2211-14, 1965.

Stilson, D. W., Kopell, B. S., Vandenberg, R., and Downs, M. P. Perceptual recognition in the presence of noise by psychiatric patients. J. Nerv. Ment. Dis., 142: 235-247, 1966.

Noble, E. P., Silbergeld, S., Kopell, B. S., McKinney, W., Wittner, W. K., and Butte, J. C. The effects of physiologic doses of corticosteroid on catecholamine metabolism in man. J. Psychiat. Res., 6: 159-167, 1968.

Kopell, B. S. and Wittner, W. K. The effects of chlorpromazine and methamphetamine on visual signal from noise detection. J. Nerv. Ment. Dis., 147:418-24, 1968.

Hilf, F. and Kopell, B. S. Non-contingent reinforcement and certainty. Psychonomic Science, 11: 211-213, 1968.

Macpherson, L. and Kopell, B. S. Systems approach to the measurement of slow evoked potential changes. Med. Biol. Eng., 6: 673-65, 1968.

Kopell, B. S., Lunde, D. T., Clayton, R. B., and Moos, R. H. Variations in some measures of arousal during the menstrual cycle. J. Nerv. Ment. Dis., 148: 180-187, 1969.

Moos, R. H., Kopell, B. S., Melges, F. T., Yalom, I. D., Lunde, D. T., Clayton, R. B., and Hamburg, D. A. Fluctuations in symptoms and mood during the menstrual cycle. J. Psychosom. Res., 13 37-44, 1969.

Kopell, B. S., Wittner, W. K. and Warrick, G. The effects of stimulus differences, light intensity and selective attention on the amplitude of the visual averaged evoked potential in man. Electroenceph. Clin. Neurophysiol., 26:619-22, 1969.

Kopell, B. S. The role of progestins and progesterone in brain function and behavior. In The Metabolic Effects of Gonadal Hormones and Contraceptive Steroids, Hilton A. Salhanick (ed.), New York: Plenum Press, 1969.

Kopell, B. S., Wittner, W. K., Lunde, D. T., Warrick, G., and Edwards, D. Cortisol effects on the averaged evoked potential, alpha rhythm, time estimation, and the two-flash fusion threshold. Psychosom. Med., 32: 39-49, 1970.

Roth, W. T. and Kopell, B. S. The auditory evoked response to repeated stimuli during a vigilance task. Psychophysiology, 6: 301-309, 1969.

Hilf, F. D., Wittner, W. K., Kopell, B. S. Feedback utilization styles of paranoid patients. J. Nerv. Ment. Dis., 149: 491-495, 1969.

Roth, W. T., Kopell, B. S., and Bertozzi, P. E. Effects of attention on averaged evoked response to speech sounds. Electroenceph. Clin. Neurophysiol., 29: 38-46, 1970.

Bert S. Kopell, M. D.  
Publications Continued

Kopell, B. S., Wittner, W. K., Lunde, D. T., Warrick, G. and Edwards, D. Influence of triiodothyronine on selective attention as measured by the averaged evoked potential in man. Psychosom. Med., 32: 495-502, 1970.

Zarcone, V., de la Pena, A., Kopell, B. S., and Dement, W. Visual evoked response following REM deprivation. Psychophysiology, 7: 301, 1970.

Kopell, B. S., Zarcone, V., de la Pena, A., and Dement, W. C. Changes in selective attention as measured by the visual averaged evoked potential following REM deprivation in man. Electroenceph. Clin. Neurophysiol., 32: 322-325, 1972.

Macpherson, L., Hutchings, M. D., and Kopell, B. S. An electrically operated skin resistance switch. Psychophysiology, 8: 673-675, 1971.

Macpherson, L. and Kopell, B. S. A zero-setter and voltage reference unit for EEG amplifier systems. Psychophysiology, in press. (1972).

Tinklenberg, J. R., Kopell, B. S., Hollister, L. E., and Melges, F. T. A comparison of the effects of marihuana and ethanol on memory, evoked potential, and contingent negative variation. Psychopharmacology Bulletin, in press. (1972).

Corby, J. C. and Kopell, B. S. Blink and eye movement EEG artifacts. Psychophysiology, in press. (1972).

Kopell, B. S., Maxim, P., and Koran, L. Influence of lithium on selective attention as measured by the averaged evoked potential in man. Submitted and accepted for publication by Psychopharmacologia.

Kopell, B. S., Wittner, W. K., Lunde, D. T., and Wolcott, L. L. Effect of amphetamines and barbiturates on selective attention as measured by the averaged evoked response. In preparation.

Kopell, B. S., Tinklenberg, J. R. and Hollister, L. E. Effects of marijuana and alcohol on the contingent negative variation. In preparation. To be submitted to Archives of General Psychiatry.

Kopell, B. S., Wittner, W. K., and Lunde, D. T. Influence of amphetamines and barbiturates on contingent negative variation. In preparation. To be submitted to Psychopharmacologia.

Corby, J. C. and Kopell, B. S. Effect of predictability on evoked response enhancement in selective attention. In preparation.

Lunde, D. T., Costell, R., Wittner, W. K. and Kopell, B. S. The electrocortical expression of sexual object preference in non-deviant male and female subjects. In preparation. To be submitted to Science.

Moos, R., Clayton, R., Kopell, B. S. and Hamburg, D. A. Progesterone and menstrual cycle symptomatology. In preparation.

## BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME Walton T. Roth, M.D.	TITLE Chief of Psychiatric Consultation Services	BIRTHDATE (Mo., Day, Yr.) 2/23/39
PLACE OF BIRTH (City, State, Country) Topeka, Kansas	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) USA	SEX <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female

## EDUCATION (Begin with baccalaureate training and include postdoctoral)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Harvard College	B.A.	1961	Biochemistry
New York University School of Medicine	M.D.	1965	

## HONORS

Harvard National Scholar, 1957-1961  
N.Y.U. Merit Scholar, 1961-1965  
AOA Medical Honor Society, elected 1965

Diplomate of American Board of  
Psychiatry and Neurology in  
Psychiatry, 1972

## MAJOR RESEARCH INTEREST

Human Electrophysiology

## ROLE IN PROPOSED PROJECT

Collaborator

## RESEARCH SUPPORT (See instructions)

1. Current Research  
None
2. Pending Applications
  - a. 50% effort "Brain responses in alcoholics during drinking cycle". Total amount requested for current year \$73,607. Total requested for a 3-year period \$222,699. Submitted to NIMH.
  - b. 50% effort "Brain responses, behavior and drug states in man: a general research proposal". Total amount requested for current year \$154,134. Total requested for a 5-year period \$635,801. To NIMH and VA.

## RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)

1971 - Present Chief of Psychiatric Consultation Services, V.A. Hospital, Palo Alto, Ca.  
1969 - 1971 National Institutes of Mental Health, Clinical Associate  
1966 - 1969 Resident in Psychiatry, Stanford Hospital  
1965 - 1966 Intern in Medicine, North Carolina Memorial Hospital  
1964 National Science Foundation Summer Fellowship, The Worcester Foundation  
for Experimental Biology  
1960 National Science Foundation Summer Fellowship, Harvard

See Representative Publications

Publications, Walton T. Roth, M.D.

Roth, W.T. The effect of LSD, mescaline, and d-amphetamine on the evoked "secondary discharge". Psychopharmacologia (Berl.), 9: 253-258, 1966.

Roth, W.T. and Kopell, B.S. The auditory evoked response to repeated stimuli during a vigilance task. Psychophysiology, 6: 301-309, 1969.

Roth, W.T., Kopell, B.S., and Bertozzi, P.E. The effect of attention on the average evoked response to speech sounds. Electroenceph. clin. Neurophysiol., 29: 38-46, 1970.

Stillman, R., Roth, W.T., Colby, K.M., and Rosenbaum, C.P. An on-line computer system for initial psychiatric inventory. Amer. J. Psychiat., 125: 7, Jan. 1969 suppl., 8-11.

Roth, W.T. and Cannon, E.H. Some features of the auditory evoked response in schizophrenics. Arch. Gen. Psychiat., in press, 1972.

Roth, W.T., Galanter, M., Weingartner, H., Vaughan, T., and Wyatt, R. The effect of marijuana and synthetic delta-9-THC on the auditory evoked response and background EEG in humans. Submitted for publication, 1972a.

Roth, W.T. Auditory evoked responses to unpredictable stimuli. Submitted for publication, 1972b.

## SECTION II - PRIVILEGED COMMUNICATION

## BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator.  
Use continuation pages and follow the same general format for each person.)

NAME Ronald D. Jantgaard	TITLE Facility Director (ACME)	BIRTHDATE (Mo., Day, Yr.) May 2, 1933	
PLACE OF BIRTH (City, State, Country) Sioux Falls, South Dakota	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) USA	SEX <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female	
EDUCATION (Begin with baccalaureate training and include postdoctoral)			
INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Augustana College, Sioux Falls, S.D. University of Minnesota University of Minnesota	A.B.	1957	coursework for M.A. in Pub. Admin.
HONORS			

MAJOR RESEARCH INTEREST Biomedical computing, communications systems	ROLE IN PROPOSED PROJECT Management Support
--	--

## RESEARCH SUPPORT (See instructions)

ACME Computing Facility, Stanford School of Medicine 95% time RRO0311  
S.U. Medical Center Computer Planning Funds 5%

## RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)

1970-present Director, Advanced Computer for MEDical Research (ACME) Stanford Medical School, Stanford Computation Center, Stanford University.

1969-1970 Manager of Administrative Services, Radiation Division, Varian Associates, Palo Alto, California.

1967-1969 Inter-Facility Associate Director, Stanford Computation Center, Stanford University.

1966- Executive Assistant to Director (Dr. W.K.H. Panofsky) Stanford Linear Accelerator Center, Stanford University.

1961-1966 Budget Officer, Stanford Linear Accelerator Center, Stanford University.

1958-1961 Management Trainee, Field Office Liaison Officer and Budget Analyst U.S. Atomic Energy Commission at Germantown, Maryland, and Idaho Falls, Idaho.

SECRET - PRIVILEGED COMMUNICATION

## BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME Gio C.M. Wiederhold	TITLE Lecturer, Consultant, and Senior Systems Designer	BIRTHDATE (Mo., Day, Yr.) June 24, 1936
PLACE OF BIRTH (City, State, Country) Varese, Italy	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) Permanent Resident Alien	SEX <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female

## EDUCATION (Begin with baccalaureate training and include postdoctoral)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
TMS Technicum, Rotterdam, Holland U.C. Berkeley, Calif. 1960-64	B.S.	1957	Aeronautical Eng. Coursework in heuristic programming, compiler design, etc.

## HONORS

Graduated cum laude from TMS Technicum.  
Listed in WHO's WHO IN AMERICA, vol . 35, 1968-69.

## MAJOR RESEARCH INTEREST

Use of computers in data reduction and medical applications of computers.

## ROLE IN PROPOSED PROJECT

Technical Staff

## RESEARCH SUPPORT (See instructions)

ACME Computing Facility, Computation Center, Stanford University. Supported under the Biotechnology Resources Branch of NIH, Grant No. RR00311-06. (30% time)

Department of Surgery, Div. of Cardiovascular Surgery, S.U. Medical Center, Stanford University, consultant. (10% time)

Hospital Data Processing, S.U. Hospital, Stanford University, technical assistant. (60% time)

## RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)

1970-present: User Services Manager, ACME and consultant to Director, S.U. Hospital, ADP.  
1965-70: Director, ACME Facility, Stanford Computation Center.  
1965-present: Lecturer, Computer Science Dept., Stanford University.  
1964-65: Visiting Professor, Indian Inst. of Technology, Kanpur, India under USAID.  
1961-64: Head of Programming, U.C. Berkeley, Calif.  
1958-61: IBM Service Bureau Corp., New York and San Jose, Programmer.  
1958: SHAPE Air Defense Technical Center, Europe - technical assistant.

Consultant to American Cyanamid Co. (1961-date); Optimum Systems Inc. (1967-date); Syntex Corp. (1968); U.C. Berkeley Center for Research and Management Science (1968-69); Reeves Telecom Corp., N.Y. and Detroit (1969-70). Consultant, National Center for Health Services, USPHS. Consultant, Polymorphic Corp., Palo Alto, Calif.

## Bibliography:

- 1) Wiederhold, G., Loewner, P. et al.: CSI/CSO Insurance Rate Tables. SBC Corp., 1959.
- 2) Wiederhold, G. and Tsao, C. C.: A program for evaluation equilibrium combustion. Kinetics, Equilibrium and Performance of High-Temperature Systems, 1962.
- 3) Wiederhold, G. and Potter, R. L.: Computation of the equilibrium composition of multi-component chemical systems. American Cyanamid Co., Stamford, Conn., 1962.
- 4) Wiederhold, G.: Control language for an interactive time-sharing system. SHARE TSS/67 Control Language Comm., 1966.

(continued)

Bibliography (continued)

- 5) Wiederhold, G.: Internal Documentation, U.C. Computer Center, Berkeley, Calif., 1962-65. FORFOR: A timesharing compiler system design; programming using Assembly Macros; FXMS: An error traceback procedure for FORTRAN IV and MAP Programs; MORT: A collection of Text Manipulating Procedures; Proposal for simple system allowing direct access to the computer; STUDENT: A Fast FORTRAN IV Compiler.
- 6) Wiederhold, G.: A Summary of the ACME System. ONR Computer and Psychobiology Conference Proceedings, Monterey, Calif., May 17, 1966.
- 7) Wiederhold, G.: A Summary of the ACME System. Conversation with a 50 Conference Proceedings, Chicago, Ill., October 31 - November 1, 1966.
- 8) Sanders, W.J., and Wiederhold, G., et al.: An Advanced Computer System for Medical Research. AFIPS Conference Proceedings 31, Anaheim, Calif., 1967.
- 9) Brietbard, G.Y., and Wiederhold, G.: PL/ACME: An Incremental Compiler for a Subset of PL/1. IFIP68 Congress Proceedings, Edinburgh, Scotland, August 1968.
- 10) Wiederhold, G. and Hundley, L.: A Time-Shared Data Acquisition System. Digest 1969 IEEE Computer Group Conf. on Real-Time Systems, IEEE, Minneapolis, Minn., pp. 190-196, June 1969.
- 11) Wiederhold, G.: Setting Up a General Purpose Data Acquisition System. Proceedings of IBM Scientific Computing Symposium on Computers in Chemistry, Data Processing Division, White Plains, New York, August 1969.
- 12) Wiederhold, G.: An Advanced Computer System for Medical Research. Proceedings of IBM Japan Computer Science Symposium, Research and Computer System, Tokyo, Japan, pp. B1-B15, November 1969.
- 13) Crouse, L. and Wiederhold, G.: An Advanced Computer System for Real-Time Medical Applications. Computer in Biomedical Research (Academic Press), vol. 2, 6, December 1969.
- 14) Wiederhold, G.: Internal Documentation (ACME Notes), Stanford Computation Center, ACME Computer Facility, Stanford, Calif., November 1965 - present.
- 15) Wiederhold, G.: Medical Uses of Computer (in Japanese) presented in Tokyo, Japan, November 1969, published in IBM Review No. 27, February 1970.
- 16) Wiederhold, G., Brietbard, G.: A Method for Increasing the Modularity of Large Systems. IEEE Computer Group News, vol. 3, 2, March-April 1970.
- 17) Girardi, S., Frey, R., Wiederhold, G.: A Filing System for Medical Research. Presented at Journees Internationales d'Informatique Medicale de Toulouse, France, March 4-6, 1970, and at The Eighth Annual Symposium on Biomathematics and Computer Science in the Life Sciences, Houston, Texas, March 23-24, 1970.
- 18) Crouse, L. and Wiederhold, G.: Interactive Use of a Timesharing System for Medical Laboratory Supports, San Diego Biomedical Symposium Computing On-Line, April 6-8, 1970.
- 19) Wiederhold, G., and Ehrman, J.: An inferred syntax and semantics of PL/S. Submitted to Sigplan Notices, A Journal of the ACM, September 1971.



## SECTION II - PRIVILEGED COMMUNICATION

## BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator. Use continuation pages and follow the same general format for each person.)

NAME Hundley, Lee	TITLE Assistant Director, ACME	BIRTHDATE (Mo., Day, Yr.) January 31, 1931
PLACE OF BIRTH (City, State, Country) Dallas, Texas	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) USA	SEX <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female

## EDUCATION (Begin with baccalaureate training and include postdoctoral)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Southern Methodist University, Dallas, Tex. San Jose State College, S.J., Calif.	B.S.	1960	Electrical Engineer coursework for MA

## HONORS

Sigma Tau - Engineering Honorary Fraternity  
Eta Kappa Nu - Electrical Engineering Honorary Fraternity  
Graduated second in a class of 92 from Southern Methodist University

MAJOR RESEARCH INTEREST Biomedical Computing Applications	ROLE IN PROPOSED PROJECT Technical Staff
--	---

## RESEARCH SUPPORT (See instructions)

ACME Computing Facility, Stanford School of Medicine 100% time RR00311

## RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)

1967-present Assistant Director ACME Computing Facility, Stanford University  
1966-67 Manager, Systems Engineering-Programming Manager, Data Pathing, Inc.  
Los Altos, Calif.  
1961-1966 Research Engineer, Instrumentation Research Laboratory, Genetics  
Department, Stanford School of Medicine.  
1959-1961 Research Scientist, University of Texas Southwestern Medical School.

**Publications:**

- Montgomery, P. O'B. and Hundley, L. L.: "The Use of Television in Scanning Techniques for Ultraviolet Irradiation of Cells." Digest of Technical Papers, 12th Annual Conference on Electrical Techniques in Med. and Biol. November 10-12, 1959, 19.
- Hundley, L. L. and Montgomery, P. O'B.: "Flying Spot Techniques in Microscopy." Digest of Technical Papers, 12th Annual Conference on Electrical Techniques in Med. & Biol. November 10-12, 1959, 20-21.
- Montgomery, P. O'B. and Hundley, L. L.: "The Use of Television and Scanning Techniques for Ultraviolet Irradiation Studies of Living Cells." IRE Trans. Med. Electr. ME 7:135-138 July 1960.
- Montgomery, P. O'B. and Hundley, L. L.: "The Effects of Selective Ultraviolet Irradiation of the Cytoplasm of Living Cells." Proc. Soc. Exp. Bio. & Med. 105:117-120, Oct. 1960.
- Montgomery, P. O'B., Bonner, Wm. A. and Hundley, L. L.: "Flying Spot Microscopy." Encyclopedia of Microscopy, Edited by George L. Clark, Reinhold Publishing Corp. pp. 334-338, 1961.
- Montgomery, P. O'B. and Hundley, L. L.: "Ultraviolet Microbeam Irradiation of the Nucleoli of Living Cells." Exp. Cell Res. 24:1-5, 1961.
- Montgomery, P. O'B., Bonner, W. A., Hundley, L. L. and Ashworth, C. T.: "Biological Effects of U. V. Irradiation in Chaos Chaos." Royal Microscopical Society. 80:19-24 (PT I) April 1961.
- Montgomery, P. O'B. and Hundley, L.L.: "A Flying Spot Interference Television Microscope." Nature. 192:4807, 1059-1060, December 1961.
- Montgomery, P. O'B., Van Orden, F., Hundley, L. L., Chapman, C. L. and Cook, J. E.: "Effects of Selective Ultraviolet Irradiation of the Nuclei of Living Cells." Proc. Soc. Exp. Biol. and Med. 108:2, 372-375, Nov. 1961.
- Hundley, L. L.: "A Flying Spot Interference Microscope." Annals of the New York Academy of Sciences, Vol. 97, Art. 2, pages 514-515, June 5, 1962.
- Levinthal, E., Hundley, L. L., and Lederberg, J.: Life Sciences and Space Research II: "Multivator - A Biochemical Laboratory for Martian Experiments," North Holland Publishing Company, June 3-12, 1963.
- Hundley, Coburn, Garwin and Stryer: "A Nanosecond Fluorimeter." Review of Scientific Instruments, 38-488-1967.
- Wiederhold, Gio, Lee Hundley: "A Time-Shared Data Aquisition System" Proceedings of the IEEE Computer Group Conference, March 1970

## BIOGRAPHICAL SKETCH

(Give the following information for all professional personnel listed on page 3, beginning with the Principal Investigator.  
Use continuation pages and follow the same general format for each person.)

NAME Regina Frey	TITLE Systems Programmer	BIRTHDATE (Mo., Day, Yr.) September 4, 1937
PLACE OF BIRTH (City, State, Country) Newton County, Indiana	PRESENT NATIONALITY (If non-U.S. citizen, indicate kind of visa and expiration date) USA	SEX <input type="checkbox"/> Male <input checked="" type="checkbox"/> Female

## EDUCATION (Begin with baccalaureate training and include postdoctoral)

INSTITUTION AND LOCATION	DEGREE	YEAR CONFERRED	SCIENTIFIC FIELD
Purdue University, Lafayette, Indiana	B.S.	1959	Mathematics

## HONORS

General Motors and Purdue University Alumni Association Scholarships

MAJOR RESEARCH INTEREST	ROLE IN PROPOSED PROJECT
Biomedical systems computing	Technical Staff

## RESEARCH SUPPORT (See Instructions)

ACME Computing Facility, Stanford University School of Medicine 100% time  
NIH BRR Grant RRO0311

## RESEARCH AND/OR PROFESSIONAL EXPERIENCE (Starting with present position, list training and experience relevant to area of project. List all or most representative publications. Do not exceed 3 pages for each individual.)

1968-present Systems programmer, ACME Facility, Stanford Computation Center,  
Stanford University  
1964-1967 Programmer, University of California at Berkeley, Linguistics Dept.  
1959-1964 Programmer-Analyst, Systems Development Corporation, Santa Monica,  
Calif.

Education

1959: Programmers Training School, System Development Corporation  
1970: Systems Science II, IBM Education

Papers

A Filing System for Medical Research, coauthored, BIOMEDICAL COMPUTING,  
vol. 2, 1971, Elsenier Publishing Company, Ltd., England.