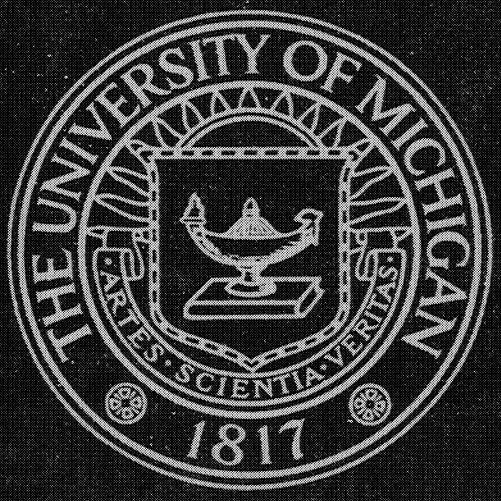
THE UNIVERSITY OF MICHIGAN

Department of Pathology

ANNUAL REPORT



1 July 1987-30 June 1988

THE UNIVERSITY OF MICHIGAN

Department of Pathology

ANNUAL REPORT

1 July 1987-30 June 1988

LIST OF FACULTY

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Name	Rank	Institutional Affiliation
Abell, Murray R.	Professor Emeritus	The University of Michigan
Abrams, Gerald D.	Professor and Director, Anatomic Pathology	The University of Michigan
Annesley, Thomas M.	Assistant Professor	The University of Michigan
Appelman, Henry, D.	Professor	The University of Michigan
Barnes, Barbara A.	Assistant Professor	The University of Michigan
Barr Jr., Mason+	Professor	The University of Michigan
Beals, Theodore F.	Assistant Professor	Veterans Administration Medical Center
Blaivas, Mila I.	Clinical Assistant Professor	The University of Michigan
Bonadio, Jeffrey F.	Assistant Professor	The University of Michigan
Burkholder, Peter M.	Professor	Veterans Administration Medical Center
Capps, Rodney D.	Assistant Professor	The University of Michigan
Chensue, Stephen	Assistant Professor	Veterans Administration Medical Center
Courtney, Richard M.*	Assistant Professor	The University of Michigan
D'Amato, Constance J.	Assistant Professor	The University of Michigan
de la Iglesia, Felix**	Adjunct Research Scientist	Warner-Lambert;Parke Davis
Dixit, Vishva M.	Assistant Professor	The University of Michigan
England, Barry G.	Associate Professor	The University of Michigan
Fantone, Joseph C.	Associate Professor	The University of Michigan
Flint, Andrew	Associate Professor	The University of Michigan
Friedman, Bruce A.	Professor	The University of Michigan
Giacherio, Donald	Assistant Professor	The University of Michigan

Name	Rank	Institutional Affiliation
Gikas, Paul W.	Professor	The University of Michigan
Hanks, Carl T.*	Associate Professor	The University of Michigan
Hanson, Curtis J.	Assistant Professor	The University of Michigan
Headington, John T.	Professor	The University of Michigan
Heidelberger, Kathleen P.	Professor	The University of Michigan
Hendrix, Robert C.	Professor Emeritus	The University of Michigan
Hicks, Samuel P.	Professor Emeritus	The University of Michigan
Hinerman, Dorin L.	Professor Emeritus	The University of Michigan
Hudson, Jerry L.	Assistant Professor	The University of Michigan
Johnson, Kent J.	Associate Professor	The University of Michigan
Judd, W. John	Associate Professor	The University of Michigan
Keren, David F.	Professor	The University of Michigan
Killen, Paul D.	Assistant Professor	The University of Michigan
Kunkel, Steven L.	Associate Professor	The University of Michigan
Lloyd, Ricardo V.	Associate Professor	The University of Michigan
Lowe, John B.	Assistant Professor	The University of Michigan
Marasco, Wayne	Research Investigator	The University of Michigan
McClatchey, Kenneth D.	Associate Professor, Associate Chairman, Director, Clinical Laboratories	The University of Michigan
McKeever, Paul E.	Associate Professor	The University of Michigan
Midgley, A. Rees*	Professor	The University of Michigan
Naylor, Bernard	Professor	The University of Michigan
Nickoloff, Brian J.	Assistant Professor	The University of Michigan
Oberman, Harold A.	Professor and Co-Director, Clinical Laboratories	The Unviersity of Michigan

Name	Rank	Institutional Affiliation
Phan, Sem H.	Associate Professor	The University of Michigan
Pierson, Carl L.	Assistant Professor	The University of Michigan
Regezi, Joseph A.*	Associate Professor	The University of Michigan
Remick, Daniel G.	Instructor	The University of Michigan
Robinson, J. Paul	Research Scientist	The University of Michigan
Rowe, Nathaniel H.*	Professor	The University of Michigan
Schmidt, Robert W.	Professor	The University of Michigan
Schnitzer, Bertram	Professor	The University of Michigan
Shope, Thomas C.+	Associate Professor	The University of Michigan
Silverman, Eugene M.	Clinical Associate Professor	The University of Michigan
Smolen, James E.+	Associate Professor	The University of Michigan
Stoolman, Lloyd	Assistant Professor	The University of Michigan
Till, Gerd O.	Associate Professor	The University of Michigan
Varani, James	Associate Professor	The University of Michigan
Ward, Peter A.	Professor and Chairman	The University of Michigan
Warren, Jeffrey S.	Lecturer	The University of Michigan
Weatherbee, Lee	Associate Professor	Veterans Administration Medical Center
Wolter, J. Reimer++	Professor	The University of Michigan

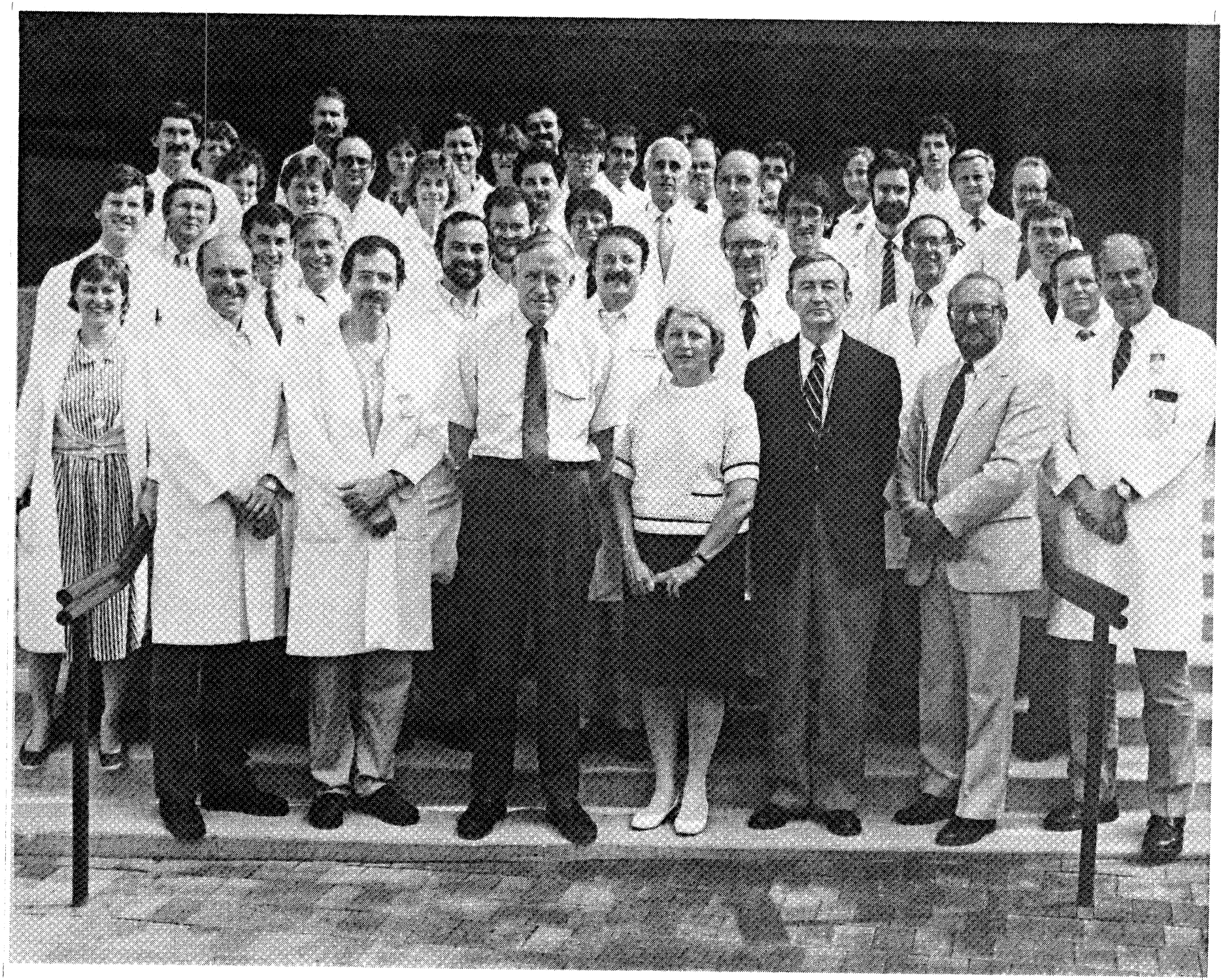
* Joint Appointment, Dental School
** Clinical Appointment, Warner-Lambert, Parke Davis
\+ Joint Appointment, Department of Pediatrics and Communicable Diseases
++ Joint Appointment, Department of Opthalmology

FACULTY PROMOTIONS EFFECTIVE 9/1/88

Doctor	Former Title	New Title
T. Annesley, Ph.D.	Assistant Professor	Associate Professor
K. Johnson, M.D.	Associate Professor	Professor
K. McClatchey, M.D., D.D.S.	Associate Professor	Professor
D. Remick, M.D.	Lecturer	Assistant Professor
J. Warren, M.D.	Lecturer	Assistant Professor

ENDOWED PROFESSORSHIPS

Doctor	Title
R.V. Lloyd, M.D., Ph.D.	Warthin/Weller Endowed Professorship
P.A. Ward, M.D.	Godfrey D. Stobbe Professor of Pathology



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DEPARTMENTAL OVERVIEW

DEPARTMENTAL OVERVIEW
1987/88

Over the past year both the Internal and External Department of Pathology Reviews have been completed. During the same period of time, two Departmental retreats have also occurred. These activities have, in general, indicated that the Department of Pathology is in a strong and solid position, both academically and financially. As would be anticipated, there are several areas that require adjustment and further development, all of which will be discussed below.

It should be pointed out that during the past year several changes have taken place. The Departmental **research programs** continue to grow, and we are continuing with the process of recruitment of scientists to expand the Department of Pathology's Molecular Biology Program which currently includes Drs. Steven L. Kunkel, Vishva Dixit and Paul Killen, together with Drs. John Lowe and Jeffrey Bonadio, the last two of whom hold appointments in The University of Michigan Howard Hughes Medical Institute. The assembled group represents expertise in the area of immunology and inflammation. To round out this group we anticipate recruitment of two additional molecular biologists with expertise in the oncogene area. This is necessary, not only for full development of the research programs, but also for the educational needs of medical students (during the Second Year Pathology Course) and Pathology House Officers, and for the rapidly expanding demands in the area of diagnostic clinical and anatomic pathology (especially involving surgical pathology and the autopsy service). The **educational programs**, which include undergraduate medical education (medical and dental students) and graduate-level activities, are in a state of evolution under the leadership of Dr. Joseph C. Fantone. A process for systematic evaluation of lecture and laboratory content and examination questions has been developed. The Pathology Teaching Laboratories have been changed, especially to take into account the differing needs of medical and dental students. A **new pathology course** designed to meet the needs of graduate students has been developed, and the Department is evaluating a program request for a Ph.D. Graduate Program in Pathobiology. (This consideration coincides with a strong recommendation by the External Review Committee.) We have also instituted a new format in the Pathology Residency Program. This includes clinical assignments in AP or CP, in blocks of time including three or six months and provides a more flexible training program for residents. A six month period of elective training during the last two years of the residency program is part of the new program.

The **service** activities of the Department should be viewed in the context of a steadily increasing volume involving both AP and CP activities. This is due to several factors: steadily increasing volume of inpatient and outpatient activities, increased consolidation of laboratories within the institution, and the continued growth of the M-Labs. With reference to consolidation of clinical laboratories, the Department of Pathology is currently engaged with the Hospitals in discussions to assume the administrative responsibility for the following Special Limited Function Laboratories: Cytogenetics (Pediatrics), Tissue Typing (Surgery), GI-Endocrine (Surgery), and Stat Blood Gas Laboratory (Anesthesiology). This is institutionally a highly desirable change, will provide the Hospitals with cost savings, and will enhance the educational

(residency) programs in the Department of Pathology. These developments, however, together with the continuing expansion of the AP/CP activities and growth of M-Labs, have implications for the ability of the Department to keep abreast of its service commitments, and will require additional faculty recruitments.

In February, 1988, a major event occurred in the Central Pathology Laboratories: installation of a new, advanced computer system linking both Anatomic and Clinical Pathology activities, including those for M-Labs, to a new rapid and highly automated reporting system. The expected minor problems developed and were quickly resolved. The new computer system provides for the first time an archival/retrieval function that has found immediate application in the area of Surgical Pathology. Details of the new Pathology Data System are provided in Appendix A.

Another aspect of service function meriting special acknowledgement is the outcome of intense efforts and commitment by both faculty and residents to reduce the backlog of uncompleted autopsy reports. As of May 1, Dr. Remick was able to report that the backlog was reduced from 52 outstanding cases in March to 11 cases in April, and down to 2 cases in May. This is a proud accomplishment that will be hopefully perpetuated.

The Department of Pathology has conducted a detailed review of the Anatomic Pathology activities in the Department based on three developments: Dr. Gerald Abrams has indicated his desire to be relieved of the administrative responsibilities in the area of Surgical Pathology; over the next decade a substantial number of our current surgical pathologists will be retiring; there continues to be a steadily increasing volume of Surgical Pathology service activities. In late March, 1988, three leading experts in Surgical Pathology (Dr. Cecilia Fenoglio-Preiser, University of New Mexico Medical School; Dr. Richard L. Kempson, Stanford University School of Medicine; and Dr. Juan Rosai, Yale School of Medicine) reviewed our Anatomic Pathology operation with two objectives in mind: to assess if the current activities could be more efficiently and effectively managed and to provide names of possible candidates for the position of Chief of Anatomic Pathology. The search process was activated in late Spring, 1988, and it is anticipated that in addition to the positions of Chief of Anatomic Pathology, two additional surgical pathologists (at the level of Assistant Professor) will be recruited. These numbers are in conformity with suggestions of the External Review Committee.

In June, 1988, the Department of Pathology established the Warthin/Weller Endowed Chair in Pathology. The establishment of this Endowed Chair reflects the great contributions of Drs. Aldred Scott Warthin and Carl Vernon Weller in the first half of this century, the two of whom consecutively occupied the Chairmanship of the Department of Pathology for a total period of 48 years. Dr. Ricardo Lloyd has been named as the first recipient of this Professorship. Dr. Lloyd has received acknowledgement for his contributions in the area of surgical pathology and has maintained a very active research program dealing with the regulation of hyperplastic and neoplastic changes in endocrine tissues. His large number of yearly publications in peer-reviewed journals and the wide recognition he has received for his diagnostic and research accomplishments are the hallmark of outstanding achievement. The naming of Dr. Lloyd to this Endowed Chair is a fitting tribute to him and for which both the Department and the Warthin and Weller families can take great pride.

Specific objectives for the Department of Pathology for the next academic year (1988/89) are:

1. Recruitment of two molecular biologists with expertise in Molecular Genetics (Oncogenes) to complete the Department of Pathology's Program in Molecular Genetics.

2. Recruitment of a new Chief of Anatomic Pathology and recruitment of two additional surgical pathologists.

3. Restoration of five slots to the Residency Training Program in Pathology (for a total of 20), as strongly suggested by the External Review Committee.

4. Development of a proposal for a new graduate program (Ph.D.) in Pathobiology.

5. For all of the above, strong efforts to attract under-represented minorities.

Respectfully Submitted,

Peter A. Ward, M.D.
Godfrey D. Stobbe,
Professor of Pathology
Professor and Chairman

PAW/mat

APPENDIX A
DEPARTMENTAL OVERVIEW RELATING TO PDS ACTIVITIES

The Department of Pathology, Pathology Data Systems, initiated its new Laboratory Information System (LIS) on February 13, 1988. The software vendor of the LIS is the Cerner Corporation. This software operates on a cluster of three DEC-VAX minicomputers (one model 785 and two 8700's) located in a computer room within the University Hospitals Pathology laboratory complex.

The Cerner PathNet LIS installation at U-M Hospitals is the alpha-test site for the Cerner version 300 software. Cerner Corporation considers U-M Hospitals their flagship site and as a result of this relationship between the Department of Pathology and Cerner, PDS personnel are in a position to strongly influence the future development of the LIS software to meet the current and future demands of the institution.

Initial analysis of utilization of the system by hospital physicians, house officers and medical students and other allied health staff reveals some remarkable figures. Their use of the Patient Result Inquiry (PRI) feature accounts for about 1,700 sessions per day. In addition, another 500 physician sessions are logged daily via telephone inquiry to the clinical laboratories. The 2,200 daily inquiry sessions amount to more than 5,000 test patient results being disseminated in any 24 hour period.

The LIS functions as a "node" on the hospital Local Area Network (LAN). As such, the LIS data base is accessible via terminals and microcomputers throughout the hospital complex and also within the Pathology Building. Steps are now being taken by Hospital Information Systems (HIS) to install a "bridge" between the hospital LAN and UMNet (MERIT). This would provide ready access to the laboratory data base by qualified research personnel in the Medical Science I, Medical Science II and Medical Science Research Buildings and elsewhere. The Department's electronic mail system is also served by LIS.

Current barriers to the development of such a bridge consist of both technical issues as well as to concerns about the security and confidentiality of patient data. At any rate, the LAN-UMNet link now lays the foundation for the integration of hospitals systems, particularly "medical" systems, into a Medical Campus and University-wide network.

One of the most challenging and exciting aspects of the new LIS is that it incorporates a true data base manager which can perform comparisons. For example, it is now possible to request the names of all female patients seen in the hospital in January, aged 20-40 years, with a total serum bilirubin level greater than 2 mg/dl. This is in contrast with the previous system which was designed only to create data files for individual patients and did not allow for such patient-to-patient comparisons.

Since 1981 we have been using the IBM 5520 computer as our primary word processing system. Initially this was only a shared resource system; however, with the development of personal computers (PCs), we have introduced terminals that can operate independently in the shared resource environment. Coupled with the 5520 word processing software, Microsoft Word has been selected as the word

processing software used in the independent environment. compatible IBM's) have been assigned to all faculty and adminis to allow them to perform their tasks in a more productive manner word processing, journals/abstracting inquiries, LIS clinical c spreadsheets and data base management.

The Medical Center now has at its disposal an integrate System that can analyze a complex and comprehensive lat consisting of about 10 million results per year. The Department c to pursue the goal of making these data readily and rapidly availa medical researchers who are authorized to access the data usi and UMNet as the means for system integration. The LIS v important tool for enhancing the service, research, and educatior comprising the Medical Campus.

INDIVIDUAL FACULTY REPORTS

GERALD D. ABRAMS, M.D.
PROFESSOR OF PATHOLOGY
DIRECTOR, DIVISION OF ANATOMIC PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Surgical Pathology Services - seven months.
B. Necropsy Service - on call.
C. Pathologist, Cardiac Transplant Team - full time.
D. Consultant for Gastrointestinal Pathology - full time.
E. Consultant for Cardiovascular Pathology - full time.

II. TEACHING ACTIVITIES:

A. Freshman Medical Class:
   1. ICS 500, Sequence Coordinator and Lecturer, "Basic Concepts of Disease" - 22 contact hours.
   2. Histology 501 - Clinical Correlation - 1 contact hour.
B. Sophomore Medical Class:
   1. ICS 600 - Clinicopathologic conferences - 8 contact hours.
   2. Pathology 600 - Lecture - 8 contact hours.
C. Graduate School/Dental School/College of LS&A:
   1. Pathology 630 - Course Co-Director, Lecturer - 24 contact hours.
   2. Biology 262 - Lecturer - 2 contact hours.
D. Hospital:
   1. Cardiovascular Pathology Conference - monthly.
   2. Internal Medicine CPC - monthly.
   3. Internal Medicine Necropsy Review - monthly.
   4. Gynecologic Pathology, Non-oncologic - monthly.
E. House Officers:
   1. Training in Surgical and Necropsy Pathology.
F. Class of 1988 - Class Marshall.
G. Class of 1990 - Excellence in Teaching Award.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Pathogenesis and modification of myocardial infarction (with B.R. Lucchesi et. al.).
B. Recovery from myocardial infarction - Anatomic and functional aspects (with K. Gallagher, et. al.).
C. Toxicity of mitometh (with D.E.Schteingart).
D. Natural history of myocarditis (Multi-center myocarditis study).

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

A. Director, Division of Anatomic Pathology, Surgical Pathology.
B. Member, Medical Service Plan Executive Committee.
C. Member, Chairman's Advisory Group.

MEDICAL SCHOOL/HOSPITAL:

A. Member, Inteflex Policy Committee, Medical School.
B. Member, Historical Collections Committee, Medical School.
C. Chair, Standing Committee for Investigation of Misconduct in Research, Medical School.
D. Member, Executive Committee on Clinical Affairs, Hospital.
E. Member, Ethics Committee, Hospital.
F. Member, General Surgery Search Committee.

REGIONAL AND NATIONAL:

A. Deputy Medical Examiner, Washtenaw County.
B. Vice President-President Elect, Gastrointestinal Pathology Society.
C. Member, Expert Panel, Performance Improvement Program, CAP.
D. Abstract Reviewer, International Academy of Pathology.
E. Editorial Board, Modern Pathology.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Stoller, D.K., Coran, A.G., Drongowski, R.A., Bank, E.R. and Abrams, G.D.: Physiologic assessment of the four commonly performed endorectal pull-throughs. Ann. Surg. 1987;206:586-594.
2. Abrams, G.D.: Pathogenesis of gastrointestinal infections. Amer. J. Surg. Pathol. 1988;12, Suppl 1:76-81.

THOMAS M. ANNESLEY, PH.D.
ASSISTANT PROFESSOR OF CLINICAL CHEMISTRY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Director, Drug Analysis and Toxicology Laboratory.
B. Associate Director, Section of Biochemistry.
C. Consultant to Veterans Administration Hospital, Ann Arbor, Michigan.

II. TEACHING ACTIVITIES:

A. House Officers.
   1. Participant, Clinical Pathology Rounds.
   2. Lecturer, Clinical Pathology Didactic Lecture Series.
   3. Daily sign-out and Interpretation of Laboratory Results.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Microbore Applications to the analysis of drugs.
B. Distribution of cyclosporine and metabolites in blood and tissues.
C. Lactate production during myocardial ischemia.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Director, Drug Analysis an Toxicology Laboratory.
B. M-Labs Technical Group.

MEDICAL SCHOOL/HOSPITAL:

A. Standardization of Procedures Committee.

REGIONAL AND NATIONAL:

A. Executive Committee, Michigan Section, American Association for Clinical Chemistry.
B. Education Committee, Michigan Section, American Association for Clinical Chemistry.
C. Chairman, American Association for Clinical Chemistry, Michigan Section.
D. Editorial Board, Toxicology and TDM Newsletter.
E. Member, NCAA Drug Testing Team.
F. Executive Committee, Therapeutic Drug Monitoring Clinical Toxicology Division, AACC.

G. ETS Advisory Board, Syva Corporation.

V. OTHER RELEVANT ACTIVITIES:

A. Reviewer, Clinical Chemistry.
B. Reviewer, Journal of Pharmaceutical Sciences.
C. Reviewer, Mayo Clinic Proceedings.
D. Reviewer, Transfusion.

INVITED LECTURES/SEMINARS:

1. "Biochemical factors affecting Cyclosporing distribution in blood", University of Windsor, Canada, October, 1987.
2. "Confirmatory techniques for drug screening", SYVA Conference on Drugs of Abuse Testing, Southfield, Michigan, October, 1987.
3. "Effect of Metabolites on Distribution of Cyclosporine in Blood", Henry Ford Hospital, Detroit, Michigan, January, 1988.
4. "Post-synthetic Variants of Creatine Kinase", Cleveland, Ohio, March, 1988.

NATIONAL AWARDS:

1. Awardee, Who's Who in the Midwest/America, 1987-1988.
2. Awardee, Who's Who of Emerging Leaders, 1988-1989

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Annesley, T.M., Matz, K., Giacherio, D., and Feldkamp, C.: Cyclosporine distribution in blood: Concomitant effect of Hematocrit, Concentration, Metabolites, and Temperature. J. Clin. Immunoassay, 1987;10:226.
2. Morady, F., Kou, W.H., Schmaltz, S., Annesley, T.M., DeBuitler, M., Nelson, S.D. and Kushner, M.A.: Pharmacodynamics of intravenous procainamide as used during acute electropharmacologic testing. Am. J. Cardiol. 1988;61:93.
3. Annesley, T.M. and Matz, K.: Liquid chromotographic analysis for flecainide with use of a microbore column and small sample volume. J. Liq. Chromatogr., 1988;11:1041.
4. Annesley, T.M. and Matz, K.: Liquid chromatographic analysis for flecainide with use of a microbore column and ultraviolet detection. J. Liq. Chromatogr., 1988;11:891.
5. Nelson, S.D., Kou, W.H., Annesley, T., DeBuitler, M. and Morady, F.: Significance of ST segment depression during paroxysmal supraventricular tachycardia. J. Amer. Coll. Cardiol., (In Press).
6. Fisher, G.J., Duell, E.A., Nickoloff, B.J., Annesley, T.M., Kowalke, J.K. and Voorhees, J.J.: Levels of cyclosporine in epidermis of treated psoriasis patients inhibit growth of keratinocytes cultured in serum free but not serum containing media. J. Investig. Dermatol., (In Press).
7. Annesley, T.M. and Judd, W.J.: Bleach and LISS: A potential hazard. J. Med. Labor. Sci., (In Press).

HENRY D. APPELMAN, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. General surgical pathology - 7 months.
B. Gastrointestinal and hepatic pathology consultation services - full time.
C. Pediatric surgical pathology - 2 weeks.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

A. Medical Students.
   1. Pathology 600 - 8 full class lectures.
   2. Senior medical student electives - 6 month instruction in surgical pathology in the reading room.
   3. Senior medical student elective in pathology rotation, supervisor 1 month.

B. House Officers:
   1. Surgical Pathology Conference - 1 hour per week.
   2. Autopsy service tutoring, 5-6 weekends and gross autopsy conference twice a week.
   3. Surgical pathology diagnosing room instruction for assigned house officer - 6 months.
   4. Gastrointestinal and hepatic pathology tutoring - full time.
   5. Mentor for house officers in gastrointestinal and liver pathology subspecialty - 1 month total.

C. Interdepartmental:
   1. Medical Gastrointestinal Pathology Conference - 2nd and 4th Wednesday of each month.
   2. G-I Tumor Conference - 4th Tuesday of each month.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None.

PROJECTS UNDER STUDY:

A. Hepatic histopathologic changes in methotrexate - treated psoriatics, with A. Flint and members of the Gastroenterology Division.
B. DNA content in gastric stromal tumors, with A. Flint.
C. Superficial Crohn's disease, with A. McQuillan.
D. Appendiceal epithelial neoplasia.
E. Peptic- associated and Campylobacter-associated gastritis and duodenitis with Grace Elta, Jeffrey Barnett and Tim Nostrant.
F. Cell markers in gastrointestinal stromal tumors with A. Pike and R. Lloyd.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Chairman, Advisory Committee on Appointments, Promotions and Titles.

MEDICAL SCHOOL/HOSPITALS:

A. Member, Cancer Work Group, University Hospital.
B. Member, Surgical and Procedural Case Review Committee, University Hospital.

REGIONAL AND NATIONAL:

A. Member, Program Committee, Michigan Society of Pathologists.
B. Reviewer of papers for Archives of Pathology and Laboratory Medicine, and Human Pathology and Gastroenterology.
C. Chairman, Publications Committee and Member, Executive Committee, Gastrointestinal Pathology Club.
D. Expert Pathologist, Large Bowel and Anal Canal Neoplasms and Gastric Neoplasms Panels, College of American Pathologists Performance Improvement Program.
E. Coordinator for Pathology, Randomized Therapeutic Trail in Cancer of the Esophagus, International Organization for Statistical Studies of Diseases of the Esophagus, Paris, France.
F. Visiting Pathologist for Regional Workshops on Pathologic Diagnosis in Inflammatory Bowel Disease, sponsored by the National Foundation for Ileitis and Colitis and the Johns Hopkins Medical Institution. Seminars conducted:
    1. Minneapolis, Minnesota, December 12, 1987.
    2. Detroit, February 20, 1988.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Visting Consultant: Department of Pathology, William Beaumont Army Hospital, El Paso, Texas, September 16-18, 1987 Lectures and seminars on:
    a. Biopsy Diagnosis of Inflammatory Bowel Disease.
    b. Stromal Tumors of the Gut.
    c. The Adenoma-Carcinoma Sequence in the Colon.
2. Lecture: Pathologic Findings in Patients with Colorectal Carcinoma and its Precursors. Conference on Colon And Rectal Neoplasia: An Update. Sponsored by American Cancer Society. New York State Division, Inc., Syracuse, New York, October 1, 1987.
3. Lectures: Eleventh Annual Gastroenterology Postgraduate Course, Tampa, Florida, December 4, 1987.
    a. Precursors of Esophageal and Gastric Cancer.
    b. Lymphomas of the Gastrointestinal Tract.
    c. Premalignant Lesions of the Colon.
    d. Dysplasia in IBD: New Histologic Criteria.

4. Moderator, Subspecialty Panel on Gastrointestinal Pathology, Annual Meeting, International Academy of Pathology, Chicago, Illinois, February 29, 1988.
5. Co-Director, with Harvey Goldman, Long Course in Gastrointestinal Pathology, International Academy of Pathology Annual Meeting, Washington, D.C., March 2, 1988.
6. Lecture: Mesenchymal tumors of the gut, Long Course, International Academy of Pathology, Washington, D.C., March 2, 1988.
7. Lecture: Adenoma-Carcinoma Sequence in the Colon and its Encores. Washington Society of Pathologists, Washington, D.C., April 28, 1988.
8. Lecture: Problem Solving Using the Adenoma-Carcinoma Sequence. Tumor Board, Washington Hospital Center, Washington, D.C., April 29, 1988.
9. Visiting Professor, Tufts University, New England Medical Center. Lecture: Dysplasia and Cancer in Colitis. Boston, May 6, 1988.
10. Lecture: Stromal tumors of the gut and Seminar on gastrointestinal pathology. New England Pathology Society, Spring Meeting, Worcester, Massachusetts, May 7, 1988.
11. Lectures: Current Issues in Surgical Pathology VII, Division of Continuing Education. The University of Texas Health Science Center, Dallas, Texas, May 18-20, 1988.
    a. Mucosal Expansion of the Stomach: Polyps and Giant Folds.
    b. Ulcerative Colitis and Dysplasia.
12. Seminar on Neoplastic Diseases of the Intestines, American Society of Clinical Pathologists, Course on Surgical Pathology of the Gastrointestinal Tract, Seattle, Washington, June 16, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Elta, G.H., Appelman, H.D., Behler, E.M. et al: A study of the correlation between endoscopic and histological diagnoses in gastroduodenitis. Am. J. Gastroenterol. 1987;82:749-753.
2. Edwards, J.D., Eckhauser, F.E., Knol, J.A., Strodel, W.E. and Appelman, H.D.: Optimizing surgical management of symptomatic solitary hepatic cysts. The American Surgeon, 1987;53:510-514.
3. Ruwart, M.J., Rush, B.D., Snyder, K.F., Peters, K.M., Appelman, H.D. and Henley, K.S.: 16,16-Dimethyl Prostaglandin E_2 delays collagen formation in nutritional injury in rat liver. Hepatology, 1988;8:61-64.
4. Lynch, H.T., Smyrk, T., Lanspa, S.J., Marcus, J.N., Kriegler, R.N., Lynch, J.F. and Appelman, H.D.: Flat adenomas in a colon cancer-prone kindred. Journal of the National Cancer Institute, In Press.
5. Johnson, T.L., Barnett, J.L., Appelman, H.D. and Nostrant, T.: Candida hepatitis: Histopathologic diagnosis. Accepted for publication, Am. J. Surg. Pathol.
6. Pike, A.M., Lloyd, R.V. and Appelman, H.D.: Cell markers in gastrointestinal stromal tumors. Human Pathology, In Press.
7. Keren, D.F., Kumar, N.B. and Appelman, H.D.: Quantification of IgG-containing plasma cells as an adjunct to histopathology in distinguishing acute self-limited colitis from active idiopathic inflammatory bowel disease. Pathol. Immunopathol. Res., In Press.

BOOKS AND CHAPTERS IN BOOKS:

1. Appelman, H.D.: Mesenchymal Tumors of the GI Tract. Chapter 15, in, Pathology of the Gastrointestinal Tract, S.G. Ming and H. Goldman, (eds), W.B. Saunders, Philadelphia, In Press.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Pathogenesis of Liver Diseases, edited by E. Farber, M.J. Phillips, and N. Kaufman. Arch. Pathol. Lab. Med. 1987;111:886. (Book Review).
2. Contemporary Issues in Surgical Pathology, Volume 8: Liver Pathology, Edited by R.L. Peters and J.R. Craig. Arch. Pathol. Lab. Med. 1987;111:886. (Book Review).
3. Elta, G., Kern, S., Nostrant, T. and Appelman, H.D.: Campylobacter-like organisms ir erosive gastroduodenitis. Gastroenterology, 1987;92:1382.
4. Ruwart, M.J., Vidmar, T.J., Kim, K.Y., Hahn, E.G., Schuppan, D., Snyder, K.F., Rush, B.D., Appelman, H.D., Peters, K.M. and Henley, K.S.: Diet-induced hepatic fibrosis in the rat: correlation of serum type III procollagen peptide, aniline blue stained hepatic collagen and hepatic hydroxyproline in the presence and absence of 16,16-dimethyl PGE. Gastroenterology, 1987;92:1769.
5. McQuillan, A.C. and Appelman, H.D.: Superficial Crohn's disease: a study of 8 patients. Lab. Invest., 1988;58:62A.
6. Smyrk, T., Lynch, H., Lanspa, S., Kriegler, R.N. and Appelman, H.D.: Adenomas in hereditary nonpolyposis colorectal cancer (HNPCC). Lab. Invest., 1988;58:86A.
7. Nostrant, T.T. and Appelman, H.D.: ASLC versus CUC: How to differentiate. Endoscopy Review, 1987;4:35-39.
8. Lanspa, S.J., Lynch, H., Smyrk, T., Marcus, J., Fitzgibbons, Jr., R., Kriegler, J., Lynch, J., Watson, P. and Appelman, H.D.: Multiple proximal adenomas with atypical features in hereditary colon cancer: a new syndrome? Gastroenterology, 1988;94:A250.
9. Barnett, J.J., Behler, E.M., Appelman, H.D. and Elta, G.H.: Campylobacter pylori is not associated with gastroparesis. Gastroenterology, 1988;94:A23.
10. Montbriand J.R., Cotner, E.K., Appelman, H.D., Nostrant, T.T. and Elta, G.H.: Eradiation of Campylobacter Pylori decreases Basal Gastric Acid Secretion. Gastroenterology, 1988;94:A308.
11. Murphy, R., Behler, E.M., Appelman, H.D., Barnett, J.L. and Elta, G.H.: Four year follow-up of gastroduodenitis and its assocation with Campylobacter Pylori. Gastroenterology, 1988;94:A317.

BARBARA A. BARNES, MT(ASCP) SBB
ASSISTANT PROFESSOR OF MEDICAL TECHNOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Coordinate quality assurance activities in Blood Bank Laboratory.
B. Coordinate training of Blood Bank Laboratory Staff.

II. TEACHING ACTIVITIES:

A. House Officers.
   1. Blood Banking Introductory Lecture Series, Lecturer.
   2. Blood Bank Laboratory and Seminar Course for house officers, a nine session tutorial given three times. Planned, coordinated and taught.

B. Blood Bank Staff.
   1. Coordinate and present at weekly Continuing Education Conference.
   2. Instruct and supervise new employees in clinical laboratory.

III. RESEARCH ACTIVITIES: None.

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

A. Participated in various committees responsible for communication and technical advice to the hospital Blood Bank.
B. Conducted individual courses of instruction for each of two new employees of the hospital Blood Bank.
C. Drafted and implemented a weekly schedule of in-service education for Blood Bank staff.
D. Coordinated Blood Bank/Coagulation experience for three Pediatric Hematology Fellows.
E. Presented in-service for Green Road M-Care Staff.
F. Designed and implemented Blood Bank orientation sessions for students and residents from other departments.

REGIONAL AND NATIONAL:

A. Inspector for the Inspection and Accreditation Program of the American Association of Blood Banks.
B. American Association of Blood Banks, District Advisory Group.
C. Michigan Association of Blood Banks, Education Committee. Designed workshop for presentation at several places around the state.

IV. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. "What's New in Blood Banking", lecture to Central Michigan Association of Medical Technologists, Mt. Pleasant, September 22, 1987.
2. "Prevention of Transfusion Reactions", lecture at MABB Workshop, Blood Bank III: Transfusion Reactions;Grand Rapids, MI, May 19, 1988.

VI. PUBLICATIONS: None.

MASON BARR JR., M.D.
PROFESSOR OF TERATOLOGY
DEPARTMENT OF PATHOLOGY;
PROFESSOR OF PEDIATRICS
DEPARTMENT OF PEDIATRICS;
PROFESSOR OF OBSTETRICS AND GYNECOLOGY
DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Medical Director, Myelodysplasia Unit: inpatient and outpatient services for children with spina bifida, 359 Clinic Visits.
B. Attending Physician Pediatrics Infant Ward: 4 months plus 1 month as backup attending.
C. Pediatric Genetics/Teratology Consultant for Holden and Women's Hospitals - inpatient and outpatient consultations and parent counselling.
D. Teratology Unit (see Research Activities).

II. TEACHING ACTIVITIES:

A. Teratology-Obstetrics Conference: weekly case review meeting of Obstetrics, Teratology, Neonatology for planning management of fetuses with prenatally detected malformations.
B. Genetics Clinical Conference - weekly reviews of consultation cases and 4 times yearly didactic presentations.
C. Pediatrics-Pathology Conference: organize and present CPC-type conferences to the Department of Pediatrics; Five per year.
D. Neonatology Pathology Conference: quarterly review and discussion of neonatal deaths.
E. Malformations lecture, Embryology (M-1) Course.
F. Malformations lecture, Pathology (M-2) Course.
G. Lecture/seminars (3) - in OB/GYN House Officer core curriculum, on Malformation and Genetic Counseling.
H. Appointed Professor of Obstetrics and Gynecology, University of Michigan.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None.

TERATOLOGY UNIT (DIRECTOR):

A. Detailed postmortem investigations of abortuses, stillborns and selected neonatal deaths for morphologic, pathologic and growth characteristics, correlations with family and prenatal histories, and counselling for future reproductive decisions by the parents.

B. Continuing investigation of normal and abnormal patterns of somatic and visceral growth. Detection of patterns of growth abnormalities associated with specific syndromes, exposures and obstetrical antecedents.
C. Quality control investigations for various prenatal diagnostic methodologies.
D. Teratology Unit Activities: 184 fetal/neonatal examinations; 91 inborn + 93 outborn (14 hospitals).

COLLABORATIVE RESEARCH:

1. Collection and allocation of fetal tissues for research projects in the Departments of Pediatrics (4), Pathology, (1), Obstetrics (1), Anatomy (2), Orthopedics (1), Internal Medicine (1), Genetics (2), and Howard Hughes Institute (1). Loan of fetal material for research investigations in the Department of Radiology.

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

A. Departmental - Pathology: none.
B. Departmental - Pediatrics: Editorial Board, Pediatric Rounds; House Officer Selection Committee, Internal Departmental Review Committee.
C. Steering Committee for DSCC-funded Cost of Comprehensive Care Study.

REGIONAL AND NATIONAL:

A. Reviewer for journals: Teratology, Pediatric Pathology, American Journal of Medical Genetics and New England Journal of Medicine.
B. Section Editor (Clinical Teratology), Teratology.
C. Publications Committee, Teratology Society.
D. Editorial Board, Birth Defects Encyclopedia.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. Lecture-symposium: Prenatal diagnosis of skeletal anomalies. Pediatric Genetics, Michigan State University, East Lansing, Michigan, July 24, 1987.
2. Lecture: Teratologic evaluation of chromosomally abnormal fetuses. Michigan Cytogenetics Group, Ann Arbor, Michigan, March 23, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Dasouki, M., Barr, M., Erickson, R. and Cox, B.: Translocation (1:22) in a child with bilateral oblique facial clefts. J. Med. Genet., Accepted for publication, 1987.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Barr, M. and Hayashi, R.H.: Fetal foot length as a predictor of fetal age (letter). Am. J. Obstet. Gynecol., 1988;158:218-219.
2. Barr, M.: Hindgut-cloacal atresias as a spectrum of caudal defects in the human fetus (platform and poster presentations), Presented to DW Smith Workshop on Malformations and Morphogenesis, Greenville, South Carolina, August 15-19, 1987.Proc. Greenwood Genet. Ctr., 1988;7:182-193.
3. Barr, M.: Visceral weight in human fetuses: What is normal? Presented to the Teratology Society, Palm Beach Florida, June 12-15, 1988.
4. Shi, M., Shepard, T.H., Barr, M. and Fellingham, G: Weight standards for organs from human fetuses. Presented to the Teratology Society, Palm Beach Florida, June 12-15, 1988. Teratology, 1988;37:492.

THEODORE F. BEALS, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Director, Diagnostic Electron Microscopy Unit, Veterans Administration Medical Center.
B. Cytopathology, Veterans Administration Medical Center.
C. Coordinator of Decentralized Hospital Computer Program in Laboratory Service, Veterans Administration Medical Center.
D. Fine Needle Aspiration, Veterans Administration Medical Center.
E. Surgical/Autopsy Pathology, Veterans Administration Medical Center.
F. Washtenaw County Deputy Medical Examiner.
G. Consultant: Diagnostic electron microscopy. VAMC, Allen Park.
H. Consultant: Cytopathology, VAMC, Battle Creek.

II. TEACHING ACTIVITIES:

A. Pathology House Officer monthly elective: Diagnostic Electron Microscopy, 3 months.
B. Diagnostic Electron Microscopy Case Conference, bi-weekly.
C. Pathology House Officers, fine needle aspiration technique and interpretation.
D. Thesis Committee for graduate student in School of Public Health.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Principal Investigator: Immunologically Active Cell Populations in First Set Liver Grafts, VAMC Merit Review ($81,300 annual) 1985-88.
B. Co-Investigator: Adjuvant Chemotherapy in Laryngeal Cancer (G. Wolf, Principal Investigator).
C. Pathologist for: VA Cooperative Study #268. A New Strategy to Preserve the Larynx in the Treatment of Advanced Laryngeal Cancer.
D. Marijuana-Bronchoscopy Project (Fligiel/Gong/Tashkin), NIH.
E. A Prospective, Controlled, Randomized and Double-Blind Multi-Center Clinical Evaluation of Monoclonal Antibody 17.13.C1.10 for its Capability to Detect Head and Neck Squamous Cell Carcinoma in Primary Site Malignancies and Lymph Nodes. (Co-investigators: Baker, Beals, Carey, Krause, McClatchey, Wolf).
F. Crescentic Nephritis -Core B- NIH Program Project, Consultant (Wiggins, Johnson).
G. Cytoskeletal alterations from cellular oxidant injury. VA Merit Review, Consultant (Hinshaw).

PROJECTS UNDER STUDY:

A. Clinical Relevance of Ultrastructural Characteristics of Small Cell Carcinoma (with R. Green, A. Forastiere).
B. Role of Plastic Embedded Cell-Blocks and Electron Microscopy in Fine Needle Aspiration.
C. Morphometric Analysis of Cells and Tissue using the Scanning Light Microscope.
D. Automatic Scanning Light Microscopy in Morphometric Analysis of Immunologically Labeled Cells.
E. Surface Markers for Antigen Localization in Scanning and Transmission Electron Microscopy.
F. Ultrastructural localization of Herpes Simplex and Cytomegalovirus Development in Cells using cDNA (with R. Wolber).
G. Bacteremia from indwelling catheters (with J. Gilsdorf).
H. Mechanism of Reactive Hyperemia in Coronary Arteries Following Angioplasty Induced Injury (with E. Bates).
I. Growth of Cells on Microcarriers (with J. Varani).
J. Morphology of Lymphokine Activated Killing (LAK) and NK Cell Killing (with J. Hiserodt).
K. Morphometric analysis of pneumocyte cultures (with P. Weinhold).

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Electron Microscopy Committee.
B. Resident Selection Committee.

MEDICAL SCHOOL/HOSPITAL:

A. Surgical Case Review Committee, Veterans Administration Medical Center.
B. Electron Microscopy Committee, Chair, Veterans Administration Medical Center.
C. Medical Records Review Committee, Veterans Administration Medical Center.
D. Implementation and Evaluation Subcommittee of the Computer Services Committee. Veterans Administration Medical Center.

REGIONAL AND NATIONAL:

A. Veterans Administration Central Office Electron Microscopy Review Group.
B. Practice of Pathology Committee, Michigan Society of Pathology.
C. Association of Veterans Administration Pathologists, Secretary-Treasurer.

V. OTHER RELEVANT ACTIVITIES:

1. Lecture to Pulmonary Division: Cytopathology and Electron Microscopy.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Wiggins, R., Glatfelter, A., Kshirsagar, B. and Beals, T.: Lipid microvesicles and their association with procoagulant activity in urine and glomeruli of rabbits with nephrotoxic nephritis. Lab. Invest. 1987;56:264-272.
2. Hom, D.B., Wolf, G.T., Beals, T.F. and Krause, C.J.: Routine bronchoscopy and bronchial cytology for the detection of occult pulmonary cancers in patients with squamous carcinoma of the upper aerodigestive tract. Trans. Am. Laryngol. Assoc. 1987;108:177-180.
3. Bates, E.R., McGillem, M., Beals, T., DeBoe, S., Nucjeksib, J. and Vogel, R.: Effect of angioplasty induced endothelial denudation versus medial injury on regional coronary blood flow. Circ. 1987;76:710-716.
4. Wolber, R.A., Beals, T.F., Lloyd, R.V., and Maassab, H.F.: Ultrastructural localization of viral nucleic acid by In Situ hybridization. (Accepted for publication in Lab. Invest., 1988).
5. Hinshaw, D.B., Armstrong, B.C., Burger, J.M., Beals, T.F. and Hyslop, P.A.: ATP and microfilaments in cellular oxidant injury. (Accepted for publication in Am. J. Pathol., 1988).

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Fligiel, S.E.G., Beals, T.F., Stuth, S., Gong, H. and Tashkin, D.P.: Morphology of Alveolar Macrophages from Marijuana Smokers. Cl. Res. 1987;35:533a.
2. Fligiel, S.E.G., Beals, T.F., Venkat, H., Stuth, S., Gong, H. and Tashkin, D.P.: Pulmonary Pathology in Marijuana Smokers. Proceedings of Marijuana-87 Conference, 1987.
3. Wolber, R., Beals, T. and Maassab, H.: Ultrastructural Localization of Herpes Simplex Virus RNA by In *Situ* hybridization. Lab. Invest. 1988;58:105A.
4. Beals, T., Fligiel, S., Stuth, S., Gong, H. and Tashkin, D.: Morphometry of Alveolar Macrophages from Smokers of Marijuana, Tobacco, and Cocaine. Lab. Invest. 1988;58:8A.

MILA BLAIVAS, M.D., PH.D.
CLINICAL ASSISTANT PROFESSOR
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Muscle biopsies and nerve biopsies done.
B. Six rotations in Autopsy Service.
C. Three weeks of full-time and 3 weeks of frozen section coverage at Central Michigan Community Hospital in Mt. Pleasant.
D. Visits to the Chelsea Community Hospital Laboratory, Albion Community Hospital, and coverage of M-Labs surgical pathology at the University of Michigan Hospital.

II. TEACHING ACTIVITIES:

A. Taught residents, fellows and staff in Neurology, Rheumatology and Pediatrics on muscle and nerve biopsies.
B. Taught pathology residents how to perform and read out autopsies.
C. Lectured on muscle and nerve pathology to residents in Pathology, Neurology and sophomore medical students.
D. Monthly conference on muscle and nerve cases with Neurology and Rheumatology department.
E. Biweekly muscle and nerve cases review with pathology residents.
F. Weekly conference with Neuromuscular staff.
G. Bimonthly conference with Neuroradiology.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Histology and histochemistry of orbicularis muscle.
B. Histochemistry of local anesthetic injection side in skeletal and ocular muscles.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Continuing improvement of interdepartmental coordination of muscle and nerve biopsy service.

REGIONAL AND NATIONAL:

A. Visits to Chelsea Laboratory.
B. Visits to Albion Community Hospital Laboratory.
C. Member, American Association of Neuropathologists.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Attended ASCP Meeting and courses in New Orleans - 1 week.
2. Attended American Association of Neuropathologists - 5 days.

VI. PUBLICATIONS:

ARTICLES SUBMITTED:

1. Higgs, J.B., Blaivas, M., Albers, J.W.: McArdle's disease presenting as treatment resistant polymyositis. Arthritis and Rheumatism.

2. Donofrio, P.D., Alessi, A.G., Albers, J.W., Knapp, R.H., Blaivas, M.: Electrodiagnostic evolution of carcinomatous sensory neuropathy. Muscle and Nerve.

BOOKS AND CHAPTERS IN BOOKS:

1. McKeever, P.E., Blaivas, M.: Surgical Pathology of the Brain, Spinal Cord and Meninges. In: Diagnostic Surgical Pathology. Stephen S. Sternberg (ed), Raven Press Ltd., NY. (In Press: 1989:315-369).

ABSTRACTS, BOOK REVIEWS PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Nelson, C.C., Blaivas, M., Rosculet, J.B., Ahrens, S.: The histological and histochemical characteristics of the orbicularis oculi muscle in children and adults. For "The Association for Research in Vision and Opthalmology". Meeting in May, 1988.
2. Blaivas, M., Nelson, C.C.: Histochemical likeness of normal orbicularis oculi muscle and diseased limb muscle. For the American Association of Neuropathologists Meeting, June, 1988.
3. Feldman, E.L., Blaivas, M., Gilmore, J., Bromberg, M.B.: Pandysautonomic neuropathy. The American Neurological Association.
4. Bromberg, M.D., Feldman, E.L., Blaivas, M., Albers, J.W.: Clinical course and pathological findings in two plasma exchange dependent patients with dysimmune polyradiculoneuropathy. The American Neurological Association.
5. Carlson, S.E., Rhee, S., Blaivas, M., Feldman, E.L., Albers, J.W.: Variegate porphyria presenting as an acute demyelinating neuropathy. AAEE.

JEFFREY BONADIO, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

None.

II. TEACHING ACTIVITIES:

A. Lecturer, Pathology 630.
B. Lecturer, Molecular Biology Series for Pathology Housestaff.
C. Supervision of three postdoctoral fellows (Thomas Saunders, Ph.D., Eric Patterson, Ph.D., and Gopa Majmudar, Ph.D.).
D. Mentor in the Minority High School Student Summer Research Program.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Principle Investigator, "Molecular Basis of Osteogenesis Imperfecta Type II, NIH-DK, AR38473-04 (50% effort), $44,520.00/year direct costs, ($194,771.00/5 years).

PROJECTS UNDER STUDY:

A. Projects have been designed to study the molecular pathogenesis of the lethal form of osteogenesis imperfecta (OI). We specifically are interested in understanding the relationship between structure and function for type I procollagen, the extracellular matrix molecule causally associated with lethal OI.

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL SCHOOL:

A. Member, Planning Committee, University of Michigan Skeletal Dysplasia Clinic.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. University of Michigan, Medical Genetics, Grand Rounds.
2. University of Michigan, Rehabilitation Medicine, Grand Rounds.
3. Henry Ford Hospital, Department of Pediatrics, Grand Rounds.

4. Molecular Medicine Series, University of Michigan, Department of Internal Medicine.
5. Baylor College of Medicine, Institute of Molecular Genetics, Weekly Seminar.
6. Guest lecturer, Baylor College of Medicine, 1st year Medical Student Course on Medical Genetics.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Byers, P.H., Tsipouras, P., Bonadio, J.F., Starman, B.J. and Schwartz, R.C.: Am. J. Hum. Genet. 1988;42: 237.
2. Byers, P.H., Bonadio, J.F., Cohn, D.H., Starman, B.J., Wenstrup, R.J. and Willing, M.C.: Ann. N.Y. Acad. Sci., (In Press.
3. Byers, P.H. and Bonadio, J.F.: CRC Critical Reviews, (In Press).

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Galactose is added to a Mutant Form of Type I Collagen in the RER, Second International Conference on Molecular Biology and Pathology of Matrix, 1988.
2. RNA Sequence Analysis of Perinatal Lethal OI Mutations, Second International Conference on Molecular Biology and Pathology of Matrix, 1988.

PETER M. BURKHOLDER, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Staff Pathologist for Anatomic Pathology Services (Surgical Pathology and Autopsy Pathology) at the Ann Arbor VA Medical Center.
B. Chief, Microbiology Laboratory, Laboratory Medicine Service, Ann Arbor VA Medical Center.

II. TEACHING ACTIVITIES:

A. Supervised and trained residents in Surgical Pathology and Autopsy Service at the Ann Arbor VA Medical Center.
B. Pathology 631, Laboratory histopathology for dental students.
C. Presentation of pathology case material at Tumor Board, Medical Morbidity and Mortality Conferences, and Nephrology Conferences, the Ann Arbor VA Medical Center.
D. M-2 Laboratory Histopathology for medical students.

III. RESEARCH ACTIVITIES:

A. Consulting Pathologist in project on renal ischemia in rat, VA Medical Center.

IV. ADMINISTRATIVE ACTIVITIES:

A. Chief, Microbiology Laboratory, Laboratory Medicine Service, Ann Arbor VA Medical Center.
B. Ad hoc reviewer for Laboratory Investigation, Archives of Pathology and Laboratory Medicine.
C. Member of VA Technical Advisory Group on Cancer, VA District #14.

V. OTHER RELEVANT ACTIVITIES:

A. Continuing postgraduate medical education:
   1. The role and the vision: Pathways to leadership and influence. National Conference on Health Care Leadership and Management. Amer. Acad. Med. Dir., San Diego, California, May, 1988.
   2. Hepatic Pathology, AFIP Course, August, 1987.

INVITED LECTURES AND SEMINARS:

1. Postgraduate medical education and research in an academically affiliated community hospital. Mercy Hospital, Pittsburgh, Pennsylvania, February, 1988.

2. Guinea Pig glomerular cells infected in vitro with SV-40; growth characteristics and fibronectin synthesis. Investigations in Cardiovascular Disease. A symposium in honor of Dr. George E. Murphy, New York, July, 1987.

VI. PUBLICATIONS: None.

STEPHEN W. CHENSUE, M.D., PH.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Director, Clinical Laboratories, Veterans Administration Medical Center.
B. Hematology/Coagulation, Veterans Administration Medical Center.
C. Surgical/Autopsy Pathology, Veterans Administration Medical Center.
D. Transfusion Review Committee, Veterans Administration Medical Center.
E. Special Chemistry/Immunology, Veterans Administration Medical Center.

II. TEACHING ACTIVITIES:

A. Pathology House Officers, Surgical Pathology/Autopsy supervision and instruction.
B. Technologists/technicians, Ongoing inservice lectures on clinical laboratory topics.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Principal Investigator: Production and regulation of granuloma macrophage mediators, VAMC Merit Review ($49,800 annual), 1987-1990.
B. Principal Investigator: VAMC Research Advisory Group ($20,700 annual), 1987-1988.
C. Consultant on NIH-HL-RO1-31237, Macrophage Function in Pulmonary Inflammation, Dr. S. Kunkel, Principal Investigator.

PROJECTS UNDER STUDY:

A. Role of interleukin 1 and tumor necrosis factor in granulomatous inflammation.
B. Dynamics of monokine production during the peritoneal exudative response.
C. Immunolocalization of TNF and IL-1 in mouse and human macrophages.
D. Regulation and orchestration of cytokine production during granulomatous inflammation.
E. In situ hybridization to demonstrate local cytokine induction and synthesis of monokine mRNA in cultured cells and tissue sections.
F. Regulation of monokine production by arachidonic acid metabolites.
G. Regulation of interleukins 2 and 4 during spontaneous modulation of the schistosome egg granuloma.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: None.

MEDICAL SCHOOL/HOSPITAL:

A. Transfusion Review Committee, Veterans Administration Medical Center.
B. Personnel employment and evaluation.
C. Clinical laboratory equipment evaluation.

REGIONAL AND NATIONAL:

A. Editorial, American Journal of Pathology.

V. OTHER RELEVANT ACTIVITIES:

1. Case presentations at GI and Hematology Conferences.
2. Case presentations at Morbidity and Mortality Conferences.
3. Tissue evaluation for clinical researchers.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Remick, D.G., Chensue, S.W., Hiserodt, J.C. Higashi, G.I. and Kunkel, S.L.: Flow cytometric evaluation of lymphocyte subpopulations in synchronously developing Schistosoma mansoni and Sephadex bead pulmonary granulomas. Am. J. Pathol., 1988;131:298.

BOOKS AND CHAPTERS IN BOOKS:

1. Johnson, K.J., Chensue, S.W., Kunkel, S.L. and Ward, P.A.: "Immunopathology", in, Pathology, E. Rubin and J.L. Farber (eds), J.B. Lippincott, Philadelphia, 1988.
2. Remick, D.G., Scales, W.E., Chensue, S.W. and Kunkel, S.L.: The Pathophysiology of Interleukins and Tumor Necrosis Factors, CRC Press, 1988.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Chensue, S.W., Kunkel, S.L., Otterness, I., McClinchey, K., Spengler, M. and Weng, A.: Monokine production by schistosome egg and foreign body granuloma macrophages. Fed. Proc. 1988;2:A1600.

RICHARD MITCHELL COURTNEY, D.D.S.
PROFESSOR OF DENTISTRY
DEPARTMENT OF ORAL PATHOLOGY
ASSISTANT PROFESSOR OF ORAL PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Oral Pathology Biopsy Service, Dental School.
B. Consultant in Oral Pathology for Veterans Administration Hospital.
C. Consultant in Dentistry for patients with head and neck malignancies, The University of Michigan Hospitals.

II. TEACHING ACTIVITIES:

GRADUATE DENTISTRY:

A. Oral Pathology 690--Seminar on current cases stressing clinical-microscopic characteristics (fall and winter terms) (one credit hour each term).
B. Oral Pathology 691--Seminar on diseases which affect the dental pulp and periapical tissues (fall term--two sections) (one hour credit).
C. Oral Pathology 694--Lectures on head and neck pathology (fall term) (two hours credit).
D. Oral Pathology 697--Seminar on diseases which involve the periodontium (fall term) (one hour credit).
E. Oral Pathology 698--Advanced seminar for graduate students in oral pathology (fall and winter terms) (two hours each term).

DDS PROGRAM:

A. Pathology 631--Microscopic general pathology for sophomore dental students (fall term) (three hours credit).
B. Oral Pathology 816 and 818--Lectures and discussions on oral pathology for senior dental students (fall and winter terms) (one hour each term).

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None.

PROJECTS UNDER STUDY:

A. Odontogenic tumors and oral malignancies.

IV. ADMINISTRATIVE ACTIVITIES:

DENTAL SCHOOL:

A. Director of Oral Pathology Biopsy Service.
B. Program Director, Oral Pathology Graduate Program.
C. Graduate Studies Committee.
D. Member of several Master's degree thesis committees.

MEDICAL SCHOOL/HOSPITAL:

A. Hospital Dentistry Department.
B. Consultant, VA Hospital, Ann Arbor, Michigan.

REGIONAL AND NATIONAL:

A. Director, American Board of Oral Pathology.
B. Past-President, American Academy of Oral Pathology.
C. Consultant to the Canadian Dental Association for the Evaluation of Oral Pathology Programs.
D. Consultant to the American Dental Association on Graduate Oral Pathology programs.
E. Consultant to the American Dental Association on Hospital Dentistry programs.

V. OTHER RELEVANT ACTIVITIES: None.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Regezi, J.A., Zarbo., R., Tomich, C., Lloyd, R., Courtney, R., and Crissman, J.: Immunoprofile of Benign and Malignant Fibrohistiocytic Tumors. J. Oral Path., 1987;16:260-265.
2. Regezi, J., Zarbo, R., McClatchey, K., Courtney, R., and Crissman, J.: Osteosarcomas and Chrondrosarcomas of the Jaws: Immunohistochemical Correlations. Oral Surg., Oral Med., Oral Path., 1987;64:302-307.

BOOKS AND CHAPTERS IN BOOKS:

1. Han, S.S., and Courtney, R.M.: Aging of Oral Tissues in Oral Development and Histology; Avery, James K., editor. Williams and Wilkins, Baltimore, 1987, pages 64-78.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Regezi, J.A., Courtney, R.M., Passo, S.A., and Hanks, C.T.: Oral Pathology: Clinical-Microscopic Correlations, 1982, University of Michigan, Dental School (revised 1986), 116 pages.

2. Courtney, R.M.: An Approach to the Diagnosis and Management of Oral Mucosal Abnormalities. Malyasian Dental Journal (in press).

CONSTANCE J. D'AMATO, B.S.
ASSISTANT PROFESSOR OF NEUROBIOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Work daily with house officers and staff in Pathology and other departments in their gross and microscopic examination and diagnosis of brains at the autopsy and from autopsies at University Hospital.

B. Attend and participate in the removal of brains from all autopsies at University Hospital.

C. Work in a similar way with the people in "A" on autopsy brain material sent for consultative study from University-associated hospitals, other hospitals, and institutions.

D. Plan and participate in weekly Brain Cutting Conference with house officers, students and staff, for diagnosis and demonstrations of diagnostic methods, and teaching, using selected cases in A and B.

E. Plan and present gross and microscopic Neuropathology Conference on alternate months for the Neurology Department, and participate occasionally in their Grand Rounds.

F. Continuous review of quality control of diagnostic techniques, autopsy and surgical neuropathology, and search for improved and new methods.

II. TEACHING ACTIVITIES:

A. Neural and Behavioral Sciences 600 (NBS 600), Neuropathology for second year medical students, 18 hours, lectures and 10 hours of brain cutting sessions. Sequence coordinator for NBS 600, Neuropathology; responsible for implementing general plan of course, selection of much of the teaching material, coordination and integration of the lectures and brain cutting sessions of the course with other instructors.

B. Neuropathology for Pathology house officers. This exercise is integrated with Clinical Activities A,C,D, and E.

C. Neuropathology 858. Intensive laboratory-lecture course for house officers in Pathology, and in the several clinical services concerned with the nervous system, graduate students, and faculty; implement general plan of course. Annual, 16-18 hours. One credit hour elective.

D. Neuropathology for house officers from the several clinical services concernec with the nervous system, and senior medical students who take an elective rotation in Neuropathology.

E. Teach laboratory techniques and basic neuroanatomy and neuropathology to our laboratory technologists.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

None.

PROJECTS UNDER STUDY:

A. This research with Samuel Hicks has centered principally on the early development of the nervous system in experimental mammals: mechanisms by which embryos are malformed by, or are able to recover from, effects of radiation or mutant genes. We have also studied the pathologic aspects of diseases associated with later developmental periods and aging in humans, the dementias such as Alzheimer's Disease. Currently we are working on 1) the roles of basement membranes in the morphogenesis of a mutant rat which develops prenatal aqueduct stenosis and hydrocephalus, and 2) the possible harmful role that macrophages might play in the morphogenesis of brain malformations caused by prenatal irradiation of fetal rats. Macrophages can do harm as well as good in reactions to injury in some tissues, but their functions in fetuses, besides phagocytosis, is unknown. In these experiments we are dependent on collaboration with Drs. K. Sue O'Shea, Department of Anatomy and Cell Biology, James Varani, and Ricardo V. Lloyd, Department of Pathology, and Kenneth S. Weeks, Department of Radiation Oncology.

B. The pathologic examination of human autopsy brains from patients with clinical diagnosis of Alzheimer's, Huntington's, Pick's and other dementing diseases is being done in collaboration with Drs. A.B. Young and J.B. Penney, who are examining the brains biochemically.

C. Growth, spread and antigenicity of ENU-induced gliomas in rats, in collaboration with Paul E. McKeever, M.D., Ph.D. and Terry Hood, M.D., (Neurosurgery Section).

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Anatomic Pathology Committee.

MEDICAL SCHOOL/HOSPITAL:

A. Director of the Neural and Behavioral Sciences Program.
B. Basic Science Phase Committee.
C. Basic Science Academic Review Board.
D. Neural and Behavioral Sciences Curriculum Committee (Medical School).
E. Neural and Behavioral Sciences Examinations Committee.
F. Sequence Coordinator for Neural and Behavioral Sciences 600 (Neuropathology).
G. Preprofessional Counselor, premedical and health-related students

REGIONAL AND NATIONAL:

A. Reviewer of research grant applications for National Science Foundation Neurobiology Program.
B. Reviewer of journal manuscripts, Teratology, Experimental Neurology, and Science.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Rheinheimer, J.S.T., O'Shea, K.S., D'Amato, C.J. and Hicks, S.P.: Facial and neuroepithelial abnormalities in a neurological mutant with congenital hydrocephalus. A scanning electron microscope study. J. Neuropath. Exper. Neur. 1988;47:54-61.
2. O'Shea, K.S., Rheinheimer, J.S.T., D'Amato, C.J. and Hicks, S.P.: Alterations in the neuroepithelial basal lamina in a neurological mutant with prenatal hydrocephalus. J. Neuropath. Exp. Neur. (In Press).
3. Reiner, A., Albin, R.L., Anderson, K.D., D'Amato, C.J., Penney, J.B. and Young, A.B.: Differential loss of striatal projection neurons in Huntington's Disease. Natl. Acad. Sci. Proc. (In Press).
4. Young, A.B., Greenamyre, J.T., Hollingsworth, Z., Albin, R., D'Amato, C., Shoulson, I. and Penney, J.B.: NMDA receptor losses in Huntington's Disease putamen support a neurotoxic hypothesis. (Submitted for publication).
5. McKeever, P.E., Feldenzer, J., McCoy, J.P., D'Amato, C.J., Laug, M., Chandler, W., Varani, J. and Bromberg, J.: Flow cytometric analysis of cell cycle phases as prognostic indicators in glioma patients (Submitted for publication).

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Albin, R.L., Reiner, A., Anderson, K.D., D'Amato, C.J., Penney, J.B. and Young, A.B.: Juvenile-onset Huntington's Disease: Two cases studied with immunocytochemistry, cholinesterase histochemistry, and receptor autoradiography. Annual Meeting American Academy of Neurology, Cincinnati, Ohio, 1988. Neurol. 1988;38(Suppl):360.
2. D'Amato, C.J., Hood, T.W. and McKeever, P.E.: Serial transplantation of frozen ethylnitrosourea-induced glioma and neurinoma tissue in rats. Annual Meeting American Association of Neuropathologists, Charleston, South Carolina, (Abstract and Poster Exhibit), J. Neuropath. Exper. Neurol. 1988;47:376.

VISHVA M. DIXIT, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES: None.

II. TEACHING ACTIVITIES:

A. Supervised the following graduate students: Carol Laherty, B.S. and Mary East, M.D.
B. Supervised the following postdoctoral fellows: Dipak Ghosh, Ph.D., Rachel Yabkowitz, Ph.D., Vidya Sarma, Ph.D.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. American Heart Association - "Role of Thrombospondin in Platelet and Vascular Biology" - 7/1/87-6/30/89, $90,000 (3 years), Principal Investigator.
B. NIH-R01-HL39037-01-"Structure and Regulation of Human Platelet Thrombospondin" - 7/1/87-6/30/92, $100,605, first year direct costs, Principal Investigator.
C. American Cancer Society - PDT-324 - "Squamous Cell Carcinoma: Role for Thrombospondin" - 7/1/87-6/30/90, $333,090, Principal Investigator.
D. NIH-R01-HL39415-01 - "Role of Endothelial Cell Proteins in Developmental Hemostasis" - 6/1/87-5/31/90, $94,455, Principal Investigator.
E. NIH-R01-HD23867 - "Role of Thrombospondin in CNS Development" - 2/1/88-1/31/91, $103,745, Co-Principal Investigator.
F. Michigan Cancer Society - "Role of Thrombospondin (TSP) in Carcinoma Cells" - 11/1/86-10/31/87, $5,000, Principal Investigator.
G. Cancer Core - "Role of Thrombospondin" - 1/1/87-12/31/87, $15,000, Principal Investigator.

PROJECTS UNDER STUDY:

A. Structure function relationships in thrombospondin.
B. Mechanisms of action of tumor necrosis factor.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Participate in graduate school research program.
B. Interview prospective graduate students for a) Molecular and Cell Biology Program, and b) Medical Scientist Training Program.
C. Taught in granduate school course on Extracellular Matrix.
D. Taught in pathology resident course on molecular biology.

MEDICAL SCHOOL/HOSPITAL:

A. Review BMRC grants.
B. Taught in Cell and Molecular Biology course for fellows.

REGIONAL AND NATIONAL:

A. Reviewer for the following journals: Journal of Biological Chemistry, Journal c Clinical Investigation.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. Lecture, American Society for Cell Biology, St. Louis, 1987.
2. Lecture, Wayne State University, Department of Biochemistry, 1988.
3. Lecture, University of Minnesota, Department of Biochemistry, 1988.
4. Lecture, University of Michigan, Department of Genetics, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNAL:

1. Wikner, N.E., Dixit, V.M., Frazier, W.A., Clark, R.F.: Human keratinocytes synthesize and secrete the extracellular matrix portein, thrombospondin. J. Invest. Dermatology 1987;88:207-212.
2. Varani, J., Carey, T.E., Fligiel, S.E.G., McKeever, P.E. and Dixit, V.: Tumor type-specific differences in cell-substrate adhesion among human tumor cell lines. Int. J. Cancer, 1987;39:397-403.
3. Galvin, N., Dixit, V.M., Vance, P.M., Frik, B., Frazier, W.A.: Interaction of human thrombospondin with types I-V collagen: Direct binding and electron microscopy. J. Cell. Biol., 1987;104:1413-1423.
4. Majack, R.A., Milbrandt, J., and Dixit, V.M.: Induction of thrombospondin mRNA in ra aortic smooth muscle cells by PDGF. J. Bio. Chem., 1987;262:8821-8826.
5. Majack, R.A., Groodman, L.V. and Dixit, V.M.: Cell surface thrombospondin is functionally essential for vascular smooth muscle cell proliferation. J. Cell Biol., 1988;106:415-423.
6. Riser, B.L., Varani, J., Carey, T.E., Fligiel, S.E.G., Dixit, V.M.: Thrombospondin binding and thrombospondin synthesis by human squamous carcinoma and melanoma cells: relationship to biological activity. Exp. Cell Research, 1988;174:319-329.
7. Varani, J., Nickoloff, B.J., Riser, B.L., O'Rourke, K. and Dixit, V.M.: Role of thrombospondin in keratinocyte attachment and differentiation. J. Clin. Invest., 1988;81:1537-1545.

ARTICLES SUBMITTED FOR PUBLICATION:

1. Dixit, V.M., Gierman, T.M., Vogeli, G., Slightom, J. and Majack, R.: Complete amino acid sequence of human fibroblast thrombospondin. Gene, submitted.

2. O'Shea, K.S., Dixit, V.M.: Thrombospondin in the developing cerebellar cortex. J. Cell Biol., submitted.
3. Riser, B.L., Varani, J., Nickoloff, B.J. and Dixit, V.M.: Thrombospondin binding by keratinocytes: Modulation under conditions which alter thrombospondin biosynthesis. J. Cell Biochem., submitted.
4. Lowe, J., O'Rourke, K., and Dixit, V.M.: Expression of the heparin binding domain of thrombospondin in Exchericia coli. J. Biol. Chem., submitted.

BOOKS AND CHAPTERS IN BOOKS:

1. Grant, G.A., Dixit, V.M., Galvin, N.J., O'Rourke, K.M., Santoro, S.A., Frazier, W.A.: Mapping functional domains of human platelet thrombospondin with electroblotting and high sensitivity sequencing. Proceeding of the First Meeting of the American Society of Protein Chemistry, San Diego, CA, (In Press).

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Dixit, V.M., Lowe, J.B.: Expression of the cDNA for the heparin binding domain of human thrombospondin in E.Coli., (In Press).
2. O'Shea, K.S., Dixit, V.M.: Thrombospondin in the developing cerebellar cortex. Soc. for Neurosci., 1987, (In Press).

BARRY G. ENGLAND
ASSOCIATE PROFESSOR OF REPRODUCTIVE BIOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987- 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Director, Ligand Assay Laboratory.

II. TEACHING ACTIVITIES:

A. Instructor for Pathology House Officers Laboratory Rotation.
B. Instructor for Nuclear Medicien Residents Laboratory Rotation.
C. Thesis Committee Member for Three Graduate Students.
D. Participant, Clinical Pathology Grand Rounds.
E. Lecturer, Core Lectures in Clinical and Anatomical Pathology.

III. RESEARCH ACTIVITIES:

A. Spent Sabbatical Leave, July 1, 1987 through December 31, 1987 in the Laboratory of Dr. D.F. Steiner, Department of Biochemistry, University of Chicago. The Sabbatical Leave provided an opportunity to become conversent with molecular biology procedures that will be used in future research activities.

SPONSORED SUPPORT:

A. USPHS (NIAMDD) 5P60AM20572-10: Michigan Diabetes Research and Training Center; Director, Ligand Assay Core Facility, $117,000/yr., 1983-1987.
B. USPHS (NIDDKD) 2P60DK20572-11: Michigan Diabetes Research and Training Center; Director, Ligand Assays Core Facility, 174,448/yr., 1987-1992.
C. USPHS (NICHHD) 5P30HD18258-04: Center for the Study of Reproduction, Co-Director, Standards and Reagents Core Facility, $77,383/yr., 1984-1988.
D. USPHS (NICHD) 5T32HD07048-13: Training Program in Reproductive Endocriology, Co-Investigator, $193,082/yr., 1975-1990.
E. MELLON FOUNDATION: Grant to the Population Study Center and Reproductive Endocriology Program at The University of Michigan, Co-Investigator, $600,000 awarded for period July 1, 1985 - June 30, 1988.
F. NEW ENGLAND NUCLEAR CORPORATION: $1,776.66 for July 1, 1987 - June 30, 1988.
G. CIBA-GEIGY CORPORATION: Transdermal delivery of estradiol-17B in postmenopausal women. $12,000 for July 1, 1987 - June 30, 1988.
H. SCHERING CORPORATION: Bucchal delivery of estradiol-17B in postmenopausal women. $46,160 for July 1, 1987 - June 30, 1988.

I. UPJOHN COMPANY: Contract Research Project: $15,380 for July 1, 1987 - June 30, 1988.

PROJECTS UNDER STUDY:

A. Examination of Circulating Levels of Estradiol and Estrone Following Buccal and Trans-Dermal Administration of Estradiol-17B. B.G. England.
B. Characterization of Mutant Forms of Insulin and of the Insulin gene in Mature Onset Diabetes of the Young. B.G. England, A. Vinik and S. Fajans.
C. Determination of the Role of Steroid Receptors in Hormone Dependent Tumors and Cultured Cell Lines Derived from Various Tumors. S.J. Grenman, T.E. Carey and B.G. England.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

A. Director, Ligand Assay Laboratory.

MEDICAL SCHOOL/HOSPITAL:

A. Director, Ligand Assay Core Facility, Diabetes Research and Training Center.
B. Co-Director, Standards and Reagents Core Facility, Reproductive Endocrinology Center.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. B.G. England (1988), Present and Future Role of Molecular Biology in the Clinical Laboratory. 14th Annual Meeting of the Clinical Ligand Assay Society, Washington, D.C., May 9-11, 1988.
2. B.G. England (1988), Immunoaffinity Extraction and Immunological Analysis of Estrone and Estradiol. Ciba-Geigy Corporation, Tarrytown, New York, June 11, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Grenman, S., Roberts, J.A., England, B.G., Gronroos, M. and Carey, T.E.: In Vitro Growth Regulation of Endometrial Carcinoma Cells by Tamoxifen and Medroxy-Progesterone Acetate. Gynecologic Oncology, 1988, (In Press).
2. Henson, M.C., Piper, E.L., Perkins, J.L. and England, B.G.: Changes in Pelvic Conformation and Peripheral Estrone Levels in Pre- and Postpartum Beef Cows. Accepted, Domestic Animal Endocrinology.

ARTICLES SUBMITTED:

1. Grenman, S.J., VanDyke, D.L., Worsham, M.J., England, B.G., McClatchey, K.D., Hopkins, M., Grenman, R. and Carey, T.E.: UM-SCV-IA and UM-SCV-IB, Two New Tamoxifen-Sensitive Hypotetraploid Cell Lines Derived From Primary and Metastatic Tumors in a Patient with Squamous Cell Carcinoma of the Vulva.
2. Wagner, J.G., DiCarlo, Jr., L., England, B.G., Sakmar, E., Gonzalez, M.A. and Noonan, P.K.: Interaction Between Digoxin and the Calcium Antagonist Gallopamil. Clinical Pharmacology and Therapeutics.

BOOKS AND CHAPTERS IN BOOKS:

1. Smart, J.B. and England, B.G.: A Chemiluminescence Sensitive TSH Assay: How Does it Measure Up? in, Hamburger, L. (ed), Proceedings of the 3rd Symposium on Clinical Thyroidology, Sinai Hospital, Detroit, Michigan, April 21, 1988.
2. Carey, J.L. and England, B.G.: Leukocyte Antigens and Monoclonal Reagents: Production and Characterization, in, Keren, D.F. (ed), Flow Cytometry, Surface Marker Assays, and DNA Studies in Diagnostic Pathology, American Society of Clinical Pathologists, Chicago, (In Press).

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. McCully, M.J., Tue, D., England, B.G. and Smart, J.B.: Low End Performance of Twc Non-Radiometric TSH Assays as Compared to an IRMA TSH Assay. 11th Annual Meeting of the Midwest Clinical Ligand Assay Society, 1987, Abstract.
2. England, B.G.: Present and Guture Role of Molecular Biology in the Clinical Laboratory. 14th Annual Meeting of the Clinical Ligand Assay Society, Washington, D.C., May 9-11, 1988.

JOSEPH C. FANTONE, M.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Autopsy Service.
B. Occasional Surgical Pathology Interpretation.

II. TEACHING ACTIVITIES:

A. Course Director: Pathology 600.
B. Coordinator: Senior Medical Student Clerkships.
C. Sequence Coordinator and Lecturer - Sophomore Medical Students (ICS-600) Immunopathology.
D. Pulmonary Pathology Conference (monthly to Pulmonary Division - Internal Medicine).
E. Lecturer - Microbiology and Immunology 624.
F. Clinical Ischemic Syndromes: Continuing Medical Education.
G. Preceptor - Undergraduate and Medical Student Research.
H. Graduate Student Ph.D. Thesis Committee.
I. Preceptor for three Postdoctoral Fellows.

III. RESEARCH ACTIVITIES:

A. Regulation of phagocytic cell-mediated tissue injury.
B. Mechanisms of oxygen metabolite-mediated tissue injury.

SPONSORED SUPPORT:

A. Principal Investigator: Modulation of Immune Complex Lung Injury (NIH-R01-HL-32024; 1985-1990).
B. Principal Investigator: Phagocytic Cell and Glomerular Injury. Section IV of Renal Center Grant (NIH-P50-DK39255, 1987-1992).
C. Co-Investigator: Mechanisms and Genetic Regulation of Pulmonary Fibrosis. (S.H. Phan; Principal Investigator). (NIH-5-R01-HL-28737, 1986-1991).
D. Co-Investigator: Pharmacologic Studies on the Ischemic Heart. (B. Lucchesi, Principal Investigator)(NIH-R01-HL-19782).

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Chairman's Advisory Committee
B. Director - Educational Activities.
C. Departmental ACAPT Committee

D. Resident Applicant Selection Committee.
E. Department of Pathology Seven Year Internal Review Committee.
F. Stobbe Funds Committee.
G. Residency Review Committee.
H. Graduate Program Committee.
H. Department of Pathology Pre-Doctoral Fellowship Committee (Chairman).
I. Research Space Advisory Committee
J. Department Computer Committee

V. MEDICAL SCHOOL/HOSPITAL:

A. Medical Student Advisor (3rd and 4th year).
B. ICS - Executive Committee.
C. Associate Director - Sophomore Medical Student ICS Course (ICS 600/601).
D. Basic Science Phase Committee (Chairman).
E. Clinical Phase Committee.
F. Medical Student Basic Science Academic Review Board.
G. Medical Student Clinical Phase Academic Review Board.
H. Academic Affairs Committee.
I. Workshop on Medical Student Performance and Evaluation.
J. Committee on Medical Student Performance on NBME.

REGIONAL AND NATIONAL:

A. NIH Site Visit, Program Project: Sickle Cell Disease, University of Chicago, 1988.
B. NIH Site Visit, SCOR: ARDS, St. Louis University, 1988.
C. NIH Site Visit, SCOR: ARDS, University of Minnesota, 1988.
D. NIH Site Visit, Sickle Cell Disease, University of Chicago, 1988.
E. NIH RFA, Ischemia/Reperfusion Lung Injury, 1988
F. Reviewer, Veteran's Administration Research Grants.
G. Reviewer for: J. Clin. Invest., J. Immunol., Science, Am. J. Pathol., Lab. Invest. Prostaglandins, J. Biol. Chem., Clin. Immunol., Immunopathol., Am. Rev. Respir. Dis., J. Leuk. Biol., Circ. Res., Biochem. Pharm, Lung.

VI. INVITED LECTURES AND SEMINARS:

1. Chairman, Session on Ischemic/Traumatic Injury and Oxygen Radicals, Brooklodge Symposium on Oxygen Radicals and Tissue Injury, Upjohn Company, Augusta, Michigan, 1987.
2. Invited Seminar, Phagocytic Cells and Oxidant-Induced Tissue Injury, Department of Pathology, Dartmouth Medical School, Hanover, New Hampshire, 1987.
3. Invited Seminar, Regulation of Neutrophil Dependent Tissue Injury, Inflammation and Immunology Division, Pfizer Pharmaceutical Corporation, Groton, Connecticut, 1987.

VII. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Simpson, P.J., McKelson, J., Fantone, J.C., Gallagher, K.P., and Lucchesi, B.R.: Iloprost inhibits neutrophil function *in vitro* and *in vivo* and limits experimental infarct size in canine heart. Circulation Res. 60:666-673, 1987.
2. Simpson, P.J., Todd, R.F., III, Fantone, J.C. Mickelson, J.K., Griffin, J.D., and Lucchesi, B.R.: Reduction of experimental canine myocardial reperfusion injury by a monoclonal antibody (anti-MO1, anti-CD11b) that inhibits leukocyte adhesion. J. Clin. Invest. 81:624-629, 1988.
3. Simpson, P.J., Mickelson, J., Fantone, J.C., Gallagher, K.P., and Lucchesi, B.R.: Reduction of experimental canine myocardial infarct size with prostaglandin E_1: Inhibition of neutrophil migration and activation. J. Pharm. Exp. Therap. 244:619-624, 1988.
4. Fantone, J.C., and Phan, S.H.: Oxygen metabolite detoxifying enzyme levels in bleomycin-induced fibrotic lungs. Free Radical Biol. Med. (Accepted for publication.)
5. Vissers, M.C.M., Jester, S.A., and Fantone, J.C.: Rapid purification of human peripheral blood monocytes by centrifugation through Ficoll-Hypaque and Sepracell-MN. J. Immunol. Methods. (Accepted for publication.)
6. Mitsos, S.E., Kim, D., Lucchesi, B.R., and Fantone, J.C.: Modulation of myoglobin H_2O_2-mediated peroxidation reactions by sulfhydryl compounds. Lab. Invest. (Accepted for publication.)

BOOKS AND CHAPTERS IN BOOKS:

1. Fantone, J.C., and Ward, P.A.: Inflammation. in, Textbook of Pathology, E. Rubin and J. Farber., (Eds.) Lippincott Publishers, 1988.
2. Wiggins, R., Fantone, J.C., and Phan, S.H.: Mechanisms of Vascular Injury. in, +Renal Pathology, C. Tisher, M.D. and B. Brenner, M.D., (Eds.), J.B. Lippincott Co. Publishers, 1988.
3. Simpson, P.J., Fantone, J.C., and Lucchesi, B.R.: Oxygen free radicals in ischemia and reperfusion injury and the role of the neutrophil. Proceedings of the Brooklodge Symposium on Oxygen Free Radicals, Kalamazoo, MI, 1988.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Fantone, J.C., Brieland, J.K., and Phan, S.H.: Pulmonary macrophage O_2^- production following acute and chronic lung injury. IV. Int. Colloq. on Fibrosis. Gothenburg, Sweden, 1987.
2. Simpson, P.J., Smith, C.B., Jr., Mickelson, J., Fantone, J.C., Gallagher, K.P., Lucchesi, B.R.: Iloprost inhibits neutrophil function *in vitro* and *in vivo* and limits experimental canine myocardial infarction. Circ. Part 2, 1987;74:II-373.
3. Vissers, M.C.M., Wiggins, R., Fantone, J.C., Shayman, J.: Comparative ability of human neutrophils and monocytes to degrade glomerular basement membrane (GBM) *in vitro*. Xth International Congress of Nephrology, Cambridge, England, 1987.

4. Brieland, J., Vissers, M., Phan, S., and Fantone, J.: Human platelets mediate iron release from transferrin by adenine nucleotide independent mechanisms FASEB J. 2:A1164, 1988.
5. Fantone, J.C.: Regulation of human superoxide anion production by PGE_1: Effects of cell priming. Europ. J. Clin. Invest. 18:A39, 1988.
6. Simpson, P.J., Todd, R.F., Mickelson, J.K., Fantone, J.C., Gallagher, K.P., Tamura, Y., Lee, K.A., Kitzen, J.M., and Lucchesi, B.R.: Sustained limitation of myocardial reperfusion injury by a monoclonal antibody that inhibits leukocyte adhesion. FASEB J. 2:A1237, 1988.

ANDREW FLINT, M.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Surgical Pathology Rotations, August (2/4), September (4/4), October (4/4), November (2/4), December (4/4), February (4/4), March (2/4), April (2/4), May (2/4), June (3/4).
B. Establishment of the Clinical Image Analysis Facility.

II. TEACHING ACTIVITIES:

A. Pathology 600 Lectures:
   1. Chronic obstructive pulmonary disease.
   2. Pathology of the lung - infections of the lungs and bronchi.
   3. Pathology of the Lung - vascular disorders.
   4. Pathology of the Lung - idiopathic pulmonary fibrosis, sarcoidosis, asbestosis.
B. Group Leader: M4 student elective, September, 1987.
C. Clinico-Pathologic Conference, Department of Internal Medicine, December, 1987.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Pathology Consultant, Morphologic Studies of Diffuse Interstitial Lung Diseases, A Multi-Institution Project, Reuben M. Cherniak, M.D., National Jewish Hospital, Program Director.
B. Pathology Consultant, Prospective Investigation of Pulmonary Embolism Diagnosis, John G. Weg, M.D., Principal Investigator.
C. Monoclonal Antibodies to Bladder Tumor Antigens, H. Barton Grossman, M.D. (Principal Investigator), Andrew Flint, M.D. (Co-Investigator), July 1, 1987 - June 30, 1990.
D. Intensive Continuous Infusion High Dose Cisplatin, 5-Fluorouracil, and Mitoguazone (MGBG) Induction Chemotherapy for Advanced Head and Neck Cancer, Arlent A. Forastiere, M.D., (Study Coordinator), Andrew Flint, M.D., (Co-Investigator).

PROJECTS UNDER STUDY:

A. Wegener's Granulomatosis: Morphologic and Immunohistochemical analysis.
B. Pathologic Manifestations of Nasal Involvement by Wegener's Granulomatosis.

C. Inverted Papillomas of the Nasal Cavity: Prognostic value of DNA analysis and morphometric parameters.
D. The Tall Cell Variant of Papillary Carcinoma Thyroid Gland: The predictive value of Ploidy analysis.
E. A Comparison of the Ploidy Patterns and Morphometric Characteristics of invasive duct carcinoma, intraductal carcinoma, and tubular carcinoma.
F. The Pathologic manifestations of small airways disease (a multi-institution project, National Jewish Hospital).
G. The influence of biopsy site on the diagnosis of interstitial lung disease (multi-institution project, National Jewish Hospital).
H. The incidence of hepatic fibrosis during methotrexate therapy for psoriasis.
I. Adrenocortical adenomas (prediction of biologic behavior by Ploidy analysis).

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Coordinator, Residency Training Program.
B. Member, Residency Candidates Selection Committee.
C. Coordinator, Senior Staff Service Rotation.
D. Member, Anatomic Pathology Director Search Committee.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Flow Cytometry: Applications to Diagnostic Cytology. American Society of Cytology, New Orleans, Louisiana, 1987.
2. Tri-State Thoracic Society, Point Clear, Alabama - Guest Pathologist, 1988.
3. Pulmonary Pathology Didactic Seminars - Department of Pathology, University of Michigan, 1987.
4. Interstitial Lung Disease, Seminar, Division of Pulmonary Medicine, Department of Internal Medicine, University of Michigan, August, 1987.
5. Diffuse Infiltrative Lung Disease, Michigan Society of Pathologists, May, 1988.
6. Editorial Review for Human Pathology; American Review of Respiratory Diseases.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Flint, A., Oberman, H.A. and Davenport, R.D.,: Cytophotometric Measurements of Metaplastic Carcinoma of the Breast: Correlation with pathologic features and clinical behavior. Modern Pathology 1988;1:193-197.
2. Mazzara, P., Flint, A. and Naylor, B.,: Adenoma of the Nipple: Cytopathologic Features. Acta Cytologica (In Press).
3. Flint, A.: The Hamman Rich Syndrome Revisited: A reappraisal of the pathologic features (submitted).
4. Flint, A., Appelman, H.D. and Beckwith, A.L.: DNA Analysis of Gastric Stromal Neoplasms: Correlation with pathologic features. (Submitted).

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Bogin, R.M., Niccoli, S.A., Waldron, J.A., Cherniak, R.M., Thurlbeck, W.M., Flint, A. and Colby, T.V.: Respiratory Bronchiolitis Clinical Presentations and Broncho Alveolar Laphage Findings. Chest, 1988.
2. Flint, A., Davenport, R.D., Lloyd, R.V., Beckwith, A.L. and Thompson, N.W.: Cytophotometric Measurements of Hurthle Cell Tumors of the Thyroid Gland: Correlation with pathologic features and clinical behavior. Lab. Invest. 1988;58:31A.
3. Flint, A., Oberman, H.A. and Davenport, R.D.: DNA Analysis of Metaplastic Carcinoma of the Breast: Correlation with pathologic features and clinical behavior. Lab. Invest. 1988;58:31A.
4. Liebert, M., Goldstein, I.J., Flint, A. and Grossman, H.B.: Lectin Binding to Renal and Bladder Cancer Cell Lines. AACR 1988;29:384.

BRUCE A. FRIEDMAN, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Director, Pathology Data Systems (PDS).
   1. Supervised all PDS activities throughout the year including the installation of a new Laboratory Information System (PathNet, V. 300) on February 13, 1988.
B. Director, Phlebotomy Services/Central Distribution.
C. Staff supervision of the Autopsy Service.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

A. Program director of the Sixth Annual Clinical Laboratory Computer Symposium at the Towsley Center for Continuing Medical Education, June, 1987 (the Symposium attracted 145 registrants and 17 system vendors/laboratory consultants).

III. RESEARCH ACTIVITIES:

A. Social and organizational aspects of information systems in hospitals and other health care delivery settings
B. LIS ad hoc report generators as a quality assurance tool.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

A. Microcomputer Steering Committee (Chairman).
B. Quality Assurance Committee.
C. Editor of two intradepartmental publications (Pathology Electronic News and Spectrum).

MEDICAL SCHOOL/HOSPITAL:

A. Task Force on Medical Informatics (Chairman)
B. Advisory and Core Committees for the IAIMS Program.
C. Physicians' Liaison Committee
D. M-Line Advisory Committee

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. Information systems: Authority, responsibility, and operational control. A lecture delivered at a seminar on integration of information systems in academic health centers sponsored by Rhode Island Hospital and Brown University Medical School, Providence, Rhode Island, October 14, 1987, .
2. Physicians and medical information systems: A plan for the future. A lecture presented to the Medical Staff of Port Huron Hospital, Port Huron, Michigan, November 30, 1987.
3. Infectious disease control and the phlebotomist: How much is enough? A lecture delivered to a symposium on Technical and Management Perspectives of the Phlebotomy Team at the Towlsey Center, the University of Michigan Medical School, Ann Arbor, Michigan, April 28, 1988.
4. Moderator of a panel discussion on laboratory information systems at the Spring Scientific Meeting of the Michigan Society of Pathologists, St.Clair, Michigan, May 22, 1988.
5. The laboratory information system as a quality assurance tool in the Blood Bank. A lecture delivered to a symposium on Current Topics in Blood Banking at the Towlsey Center, the University of Michigan Medical School, Ann Arbor, Michigan, June 2, 1988.
6. Integration of the LIS with other hospital systems: Organizational and social perspectives. The keynote address to a seminar sponsored by the Healthcare Information Systems Sharing Group, Washington, D.C., June 5, 1988.
7. The what, how, and why of hospital system integration. A lecture delivered to the Clinical Laboratory Computer Symposium at the Towlsey Center, the University of Michigan Medical School, Ann Arbor, Michigan, June 10, 1988.

CONSULTATION:

A. Advisory Panel for the Office of Technology Assessment, U.S. Congress (Study of Veterans' Administration Hospital Information Systems). Panel meetings in July and September, 1987.

VI. PUBLICATIONS:

ABSTRACTS, BOOK REVIEWS, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Friedman, B.A. and Dieterle, R.C.: The impact of the installation of a local area network on physicians and the laboratory information system in a large teaching hospital. Proceedings of the 11th Annual Symposium on Computer Applications in Medical Care, IEEE Computer Society, 1987.
2. Friedman, B. A.: Laboratorians must control information systems. Clinical Chemistry News, August, 1987.

DONALD A. GIACHERIO
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Director, General Chemistry Laboratory.
B. Daily sign-out and interpretation of electrophoresis results.
C. Implementation of tests from the consolidation of Special Function Laboratories.
D. Chairman, Replacement Instrumentation Selection Committee, Biochemistry Section.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

A. House Officers.
   1. Lecturer, Clinical Pathology Rounds, "Laboratory Assessment of Fetal Lung Maturity".
   2. Lecturer, Clinical Pathology Didactic Lecture Series, "Core Lectures in Clinical Chemistry", 6 contact hours.
   3. Coordinator, Pathology House Officer Rotation through General Chemistry Lab.
   4. Review Daily sign-out and interpretation of electrophoresis results.
   5. Review of selected topics in Clinical Chemistry.

B. Medical Technologists.
   1. Program Director, Continuing Education Series for Medical Technologists (biweekly).

III. RESEARCH ACTIVITIES:

A. Comparison of Apolipoprotein B immunoassays in patients with hyperlipidemias.
B. Evaluation and validation of a two stage precipitation assay for subclasses of High Density Lipoproteins.
C. Evaluation of affinity column method for the quantification of glycosylated hemoglobin in a pediatric population.
D. Development of colorimetric and HPLC assays for homovanillic acid (HVA) in patients with neuroblastoma.
E. Development of assays for plasma oxalate in support of the treatment of a patient with Type I Primary Hyperoxaluria by combined hepatic and renal transplantation.
F. Development of electrophoretic methods to quantitate amylase isoenzymes in patients with pancreatic pseudocyst.
G. Evaluation of automated electrophoresis and luminescent immunoassay techniques for the measurement of the MB isoenzyme of creatine kinase.

H. Comparison of metods for the measurement of drugs of abuse in urine.
I. Measurement of intracellular cation concentration in patients with congestive heart failure.
J. Evaluation of ion selective electrode methods for the measurement of lithium and ionized calcium.
K. Investigation of the source and nature of serum enzyme elevations in a child with suspected carnitine palmitoyl transferase deficiency.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Quality Assurance Committee.
B. M-Labs Technical Operations Group.
C. Coordinator, Chemistry Lab Supervisors Meetings.
D. Biochemistry Section Directors Group.
E. Coordinator, Clinical Chemistry In-Service Education Program.

MEDICAL SCHOOL/HOSPITAL:

A. Quality Control Task Force for Review of Policies and Procedures of University Hospital Blood Gas Labs.

REGIONAL AND NATIONAL:

A. Coordinator, College of American Pathologists Clinical Chemistry Standards Assay Laboratory.
B. Program and Education Committees, Michigan Section, AACC.
C. Lipids and Lipoproteins Subgroup, AACC.

V. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Annesley, T., Matz, K., Giacherio, D. and Feldkamp, C.: Cyclospoine distribution in blood: Concomitant effect of hematocrit, concentration, metabolites, and temperature. J. Clin. Immunoasay 1987;10:226-231.
2. Judd, W.J., Steiner, E.A., Oberman, H.A. and Giacherio, D.A.: False-positive results with chemically modified anti-D do not indicate a need to use a separate immunologically inert Rh control reagent. Transfusion, 1988 (In Press).
3. White, F.R. McLaren, I.D., Martin, B.J., Mattson, A.M., Schork, M.A. and Giacherio, D.A.: Serum hemoglobin changes in vitro using veno-venous by-pass with and without whistle-tip adaptors. Transfusion, (submitted).
4. Nicklas, J.M., Giacherio, D.A., Moskowitz, D., Lemmer, J.H., Kirsh, M.J. and Grekin, R.J.: Natriuresis associated with elevated plasma atrial natiuretic hormone during supraventricular tachycardia. Circulation, (submitted).

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Giacherio, D.A., Matz, K. and Annesley, T.M.: Interference by phenytoin metabolites in the fluorescence polarization immunoassay of urine barbiturates. Clin. Chem. (submitted).

PAUL W. GIKAS, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Surgical Pathology - sixteen weeks.
B. Diagnostic EM - share nephropathology work with Dr. K. Johnson.
C. Consultation service for Uropathology.
D. Conduct monthly conference in Urologic Pathology with Urology Section.
E. Conduct monthly Rheumatology conference with Dr. M. Blaivas.
F. Participate in weekly Renal Biopsy Conference with Dr. K. Johnson.

II. TEACHING ACTIVITIES:

A. Lectures to Sophomore Pathology Class:
   1. Death Certification and Forensic Pathology.
   2. Pathogenesis of highway injuries.
B. Lecture to Sports Management Class on drug testing of athletes.
C. Lecture to North Central Section of American Urologic Association on Urologic Pathology.
D. Faculty, Northern Michigan Summer Conference (University of Michigan Medical School).

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Collaborate with Urology Staff and Radiology Staff on projects.
B. Radiological Diagnostic Oncology Group Prostate Study.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

A. Member, Advisory Committee on Appointments Promotion and Tenure.

MEDICAL SCHOOL/HOSPITAL:

A. Hospital Claims Control Committee.

UNIVERSITY:

A. Faculty Representative to Big Ten Intercollegiate Conference and National Collegiate Athletic Association (NCAA).
B. Board in Control of Intercollegiate Athletics.

REGIONAL AND NATIONAL:

A. Member, NCAA Drug Testing Committee.
B. Board of Directors, Physicians for Automotive Safety.
C. Board of Directors, Public Citizen, Inc. (Ralph Nader, initial Chairman and Founder).
D. Deputy Medical Examiner, County of Washtenaw.
E. Reviewer for Archives of Pathology and Laboratory Medicine.
F. Chairman, Big Ten Awareness Committee on Alcohol and Drug Abuse.

V. OTHER RELEVANT ACTIVITIES:

A. Sick leave for major surgery, December 17 - January 3 and February 1 - March 15.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Marasco, W.A., Gikas, P.W., Baumgartner, R.A., Hyzy, R., Eldredge, C.J. and Stross, J.: Ibuprofen-associated Renal Dysfunction. Pathophysiologic Mechanisms of Acute Renal Failure, Hyperkalemia, Tubular Necrosis, and Proteinuria. Arch. Int. Med., 1987;147:2107-2116.

CARL T. HANKS, D.D.S.
PROFESSOR OF DENTISTRY
DEPARTMENT OF ORAL PATHOLOGY
ASSOCIATE PROFESSOR OF ORAL PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES: None.

II. TEACHING ACTIVITIES:

D.D.S. LEVEL:

A. General Pathology 631. General Pathology Laboratory for sophomore dental students (3 credit hours).
B. Oral Pathology 624. Oral Pathology lecture course (three hours per week). Presented 9 of 30 hours in this course for 1988.
C. Oral Pathology 625. Oral Pathology Laboratory (one credit), laboratory teaching two afternoons per week, with one hour of lecture one of those afternoons, (Winter term, sophomore year).

DENTAL HYGIENE:

A. Oral Pathology 293. General and Oral Pathology Lectures (two credits), Course director and principal lecturer - 29 of 32 lectures, (Winter term, junior year).

GRADUATE LEVEL:

A. Oral Pathology 698. Graduate seminar in Oral Pathology (one credit). Histopathology seminar, two hours, participant, (Fall and Winter term).
B. Oral Pathology 694. Graduate core course in Advanced Oral Pathology, (two credits). Two, two hour lectures, (Fall Term).

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. National Institute of Dent. Res., Grant No. 1-R01-DE07987-01, "In Vitro Biocompatibility: Composite Resins and Bacteria, ", C.T. Hanks, (P.I.), 5/1/87-4/30/90.
B. Delta Dental Fund, Delta Insurance Co., "A Pulp Capping and Cavity Sealing Agent for Primary Teeth", J.K. Avery (P.I.), C.T. Hanks, L. Straffon, R.G. Craig and D.J. Chiego, Jr., co-investigators.

C. Dent. Res. Institute, University of Michigan. Final year of an Associate's program between laboratories of Oral Pathology, Biomaterials, and Microbiology. C.T. Hanks (P.I.). E.R. Adams, Associate. Project entitled: "In Vitro Biocompatibility Testing Using In Vitro Pulp Chamber."

D. Biomedical Research Committee, School of Dentistry, University of Michigan. Final year of support for project entitled: "Influence of Electric Fields on Cells ir Culture," C.T. Hanks, (P.I.).

E. Biomedical Res. Comm., School of Dentistry, University of Michigan. Final year of funding for project entitled: "Effect of Piezo-Polymers In Vivo and *In* Vitro," C.T. Hanks, (P.I.).

PENDING: None.

IV. ADMINISTRATIVE ACTIVITIES:

SCHOOL OF DENTISTRY AND DEPARTMENT OF ORAL PATHOLOGY:

A. Master's Degree Thesis Committee for Dr. Janice Wilmot, Department of Orthodontics/Pedodontics, 1987-1989.
B. Admissions Committee, School of Dentistry, 1985-1988.
C. Nominations and Elections Committee, School of Dentistry, 1987-1990.
D. Hazardous Waste Committee, School of Dentistry, 1987-1990.
E. Dental School Reorganization Task Force on Bylaws and Promotions and Tenure Documents.
F. Director of Research of newly organized Dental School Department (Department of Oral Medicine, Pathology and Surgery, "OMPS").

REGIONAL AND NATIONAL:

A. Committee on Standardization of Biocompatibility Testing for Pulp Biology Group of International Association for Dental Research, Chair, 1987
B. ADA Subcommittee on Biological Evaluation of Dental Materials.
C. President-Elect (and Program Chairman, Annual AADR/IADR Meeting), Pulp Biology Research Group of the International Association for Dental Research.

V. OTHER RELEVANT ACTIVITIES:

PROFESSIONAL ORGANIZATIONS:

A. International Association for Dental Research.
B. American Academy of Oral Pathology.
C. American Association for the Advancement of Science.
D. Omicron Kappa Upsilon.
E. Tissue Culture Association (National).
F. Michigan Biomedical Materials and Prosthetic Group.
G. New York Academy of Sciences.
H. Sigma Xi.

EDITORIAL BOARDS:

A. Journal of Dental Research.
B. Journal of the American Dental Association.

INVITED LECTURES/SEMINARS:

A. 1988 - "Biocompatibility Testing in Dentistry", Seminar to Bioengineering Programs, School of Engineering, University of Michigan.
B. 1988 - "Determination of appropriate system (cell vs. organ culture) for in vitro biocompatibility testing". Part of a postgraduate course on Evaluation of Dental Biomaterials Systems (W.K. Kellogg Foundation Institute), School of Dentistry, University of Michigan.
C. 1988 - "In Vitro toxicity testing". Part of an NIH-sponsored Dental Student Research Conference, School of Dentistry, University of Michigan.
D. 1988 - "In Vitro cytotoxicity of dental materials". Seminar to Toxicology Programs, School of Public Health, University of Michigan.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Hanks, C.T., Craig, R.G., Diehl, M.L. and Pashley, D.H.: Cytotoxicity of dental composites and other materials in a new in vitro device, accepted by J. Oral Path., April, 1988.
2. Stephensen, B., Lopatin, D.E., Caffesse, R.G. and Hanks, C.T.: Blood group substances as differentiation markers in human dento-gingival epithelium. J. Perio. Res., 1987;22:451-455.
3. Stephensen, B., Caffesse, R.G., Hanks, C.T., Avery, J.K. and Wright, N.: Clinical effects of electromagnetic stimulation as an adjunct to periodontal therapy. J. Periodont., 1988;59(1):46-52.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Hanks, C.T., Craig, R.G., Syed, S.A. and Adams, E.R.: Dentin filtration reduces cytotoxic effects of setting composites in vitro. J. Dent. Res. 1987;66(Special Issue):287. (Abstract).
2. Craig, R.G. and Hanks, C.T.: Reactions of Balb/c 3T3 cells to various dental casting alloys. J. Dent. Res. 1988;67(Special Issue):262. (Abstract).
3. Hanks, C.T., Diehl, M., Makinen, K. and Makinen, P.L.: Relationship of phenol diffusion, dentin thickness and hydraulic conductance in vitro. J. Dent. Res. 1987;67(Special Issue):276 (Abstract).
4. White, J.M. and Hanks, C.T.: Cytopathic effects of orthodontic metals on L929 fibroblast cell cultures. J. Dent. Res. 1988;67(Special Issue):262 (Abstract).
5. Parkinson, W.C. (Department of Physics) and Hanks, C.T. (School of Dentistry): Search for resonance response in Ca^{++} transport in cells in vitro. Paper presented at Annual Meeting of Biophysical Society, March 2, 1988, (Abstract).

CURTIS A. HANSON, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1988 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Clinical Flow Cytometry Laboratory
B. Clinical Hematology Laboratory
C. Diagnostic Surgical Pathology, Hematopathology
D. Consultant for Hematopathology cases.

II. TEACHING ACTIVITIES:

A. Medical Students and Graduate Students.
   1. Dental students, Lecture on Hematologic Disorders.
B. House Officers
   1. Sign-out of bone marrow biopsies and aspirates
   2. Review of blood smears and body fluids in Hematology Laboratory
   3. Review of Flow Cytometry results and correlation with hematologic diagnosis.
C. Hematopathology teaching.
   1. Hematopathology Lectures/Monthly.
   2. Hematopathology unknown conferences/biweekly.
D. Clinical Pathology Grand Rounds (three lectures).
E. Residents Teaching Award (1987-1988)

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None

PROJECTS UNDER STUDY:

A. Regulation of *myc, fos, myb* Oncogene Expression in a Mouse Lymphoma Cell Line Treated with Anti-idiotype Monoclonal Antibodies.
B. Expression and Regulation of *ets* and other Oncogenes in Translocations Involving Chromosome 11q23.
C. Molecular Studies of Acute Lymphocytic Leukemia in Infants.
D. Adult Acute Lymphoblastic Leukemia: Morphologic, Immunophenotypic and Cytogenetic Analysis.
E. Genotypic Analysis of Adult Acute Lymphocytic Leukemia.
F. Multilobated Hairy Cell Leukemia: A New Variant with Morphologic Features similar to T-Cell Lymphoma.
G. Flow Cytometric Analysis of Cytologic Specimens in Hematologic Disease.
H. Immunohistochemical Analysis of True Histiocytic Lymphoma in Paraffin Section.
I. Ultrastructural Analysis of True Histiocytic Lymphoma.

J. Platelet-Associated and Serum Anti-platelet Immunoglobulin Detection by Flow Cytometry: Comparison with Staph Protein A and Radioimmunoassays.
K. Quality Control and Quality Assurance in the Clinical Flow Cytometry Laboratory.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Director, Clinical Flow Cytometry Laboratory
B. Associate Director, Clinical Hematology Laboratory
C. Leukemia Conference, biweekly

REGIONAL AND NATIONAL:

A. New Scientific Technology in Clinical Pathology Council, American Society of Clinical Pathologists.
B. Reviewer of articles for American Journal of Pathology, American Journal of Clinical Pathology, Laboratory Medicine and Clinical Immunology and Immunopathology.
C. Pathology Board Subspecialty Certification in Hematology.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Application of Neutrophil Assays in the Clinical Laboratory. Clinical Applications of Cytometry, Charleston, SC, October, 1987.
2. Acute Lymphoproliferative Diseases, Course presented at American Society of Clinical Pathologists (ASCP), October, 1987.
3. The Use of Monoclonal Antibodies in Diagnostic Hematopathology, Course presented at ASCP, October, 1987.
4. Nontraditional Applications of Flow Cytometry in Clinical Pathology, Symposium presented at ASCP, April, 1988.
5. Acute Lymphoproliferative Diseases, course presented at American Society of Clinical Pathologists, April, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Hanson, C.A., Gajl-Peczalska, K.J., Parkin, J.L. and Brunning, R.D.: Immunophenotyping of acute myeloid leukemia using monoclonal antibodies and the alkaline phosphatase anti-alkaline phosphatase technique. Blood 1987;70:83-89.
2. Hanson, C.A., Snover, D.C. and Dehner, L.P.: Fibroadenomatosis (fibroadenomatoid mastopathy): a benign breast lesion with composite pathologic features. Pathology 1987;19:393-396.
3. Savage, P.D., Hanson, C.A. and Kersey, J.H.: Identification of a restriction fragment length polymorphism involving the oncogene ETS-1 on chromosome 11q23. Blood 1987;70:327-329.

4. Hanson, C.A., Frizzera, G., Patton, D.F., Peterson, B.A., McClain, K.L., Gajl-Peczalska, K.J. and Kersey, J.H.: Clonal rearrangement for immunoglobulin and T-cell receptor genes in systemic Castleman's disease: Association with Epstein-Barr virus. Am. J. Pathol. 1988;131:84-91.
5. Hanson, C.A.: Applications of flow cytometry in diagnostic pathology. Am. J. Clin. Pathol. (In Press).
6. Hanson, C.A., Bolling, S.F., Stoolman, L.M., Schlegelmilch, J.A., Abrams, G.D., Miska, P.T. and Deeb, G.M.: Cytoimmunologic monitoring and cardiac transplantation. J. Heart Transplant. (In Press).
7. Hanson, C.A., Jaszcz, W., Swanson, P.D., Wick, M.R., Peterson, B.A., Gajl-Peczalska, K.J., Kersey, J.H. and Frizzera, G.: True histiocytic lymphoma: Histopathologic, immunophenotypic and genotypic analysis. Am. J. Pathol. (In Press).
8. Hanson, C.A. and Kersey, J.H.: A modified method of DNA extraction from blood and bone marrow specimens. Am. J. Hematol. (In Press).
9. Kueck, B.D., Hanson, C.A., Weissman, D.E. and Bayliss, K.: Primary lymph node presentation of angiocentric lymphoma associated with features of a hemophagocytic syndrime. Am. J. Hematol. (In Press).

BOOKS AND CHAPTERS IN BOOKS:

1. Hanson, C.A. and Gajl-Peczalska, K.J.: Monoclonal antibodies to lymphreticular and myeloid antigens, in, Wick, M.R. and Segal, G.P. (eds) Diagnostic Use of Monoclonal Antibodies in Clinical Immunohistochemistry. Marcel Dekker, New York, NY, 1988, pp 147-226.
2. Brunning, R.D., Parkin, J.L. and Hanson, C.A.: Hematopoietic and lymphoreticular neoplasms, in, Azar, H.A. (ed) Pathology of Human Neoplasms: An Atlas of Diagnostic Electron Microscopy and Immunohistochemistry, Raven Press, New York, NY, (In Press).
3. Hanson, C.A.: Non-traditional applications of flow cytometry, in, Keren, D.F. (ed) Flow Cytometry, Surface Marker Assays, and DNA Studies in Diagnostic Pathology, ASCP Press, Chicago, IL, (In Press).

ABSTRACTS, BOOK REVEIWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Frizzera, G. and Hanson, C.A.: The heterogeneity of so-called Castleman's disease. Presented at the Fourth Annual Japan Immunology Seminar; Saitama, Japan, August 1987.
2. Greenwood, J.H., Slade, H.B., Schwartz, S.A., Schlegelmilch, J.A., Riedy, M.C., Hudson, J.L. and Hanson, C.A.: Flow cytometric characterization of altered lymphocyte proliferative responses in a patient with marked clinical immunodeficiency. Presented at the Second Annual Meeting Clinical Applications of Cytometry; Charleston, SC, October 1987. Second Annual Meeting Clinical Applications of Cytometry 1987:27.
3. Schlegelmilch, J., Abrams, G.D., Deeb, G.M., Stoolman, L.M. and Hanson, C.A.: Cytoimmunologic monitoring (CIM) and flow cytometric analysis in cardiac transplantation. Presented at the Second Annual Meeting Clinical Applications of Cytometry; Charleston, SC, October 1987. Second Annual Meeting Clinical Applications of Cytometry 1987:25.

4. Hanson, C.A., Jaszcz, W., Gajl-Peczalska, K.J., Kersey, J.H. and Frizzera, G.: True histiocytic lymphoma: immunophenotypic and genotypic analysis. International Academy of Pathology, Washington, D.C., February 1988. Lab. Invest. 1988;58:37A.
5. Hanson, C.A., Kersey, J.H., Patton, D.F., Gajl-Peczalska, K.J., Peterson, B.A. and Frizzera, G.: clonal rearrangement for immunoglobulin and T-cell receptor genes in systemic castleman's disease: association with Epstein-Barr virus. International Academy of Pathology, Washington, D.C., February 1988. Lab. Invest. 1988;58:37A.
6. Hanson, C.A. and Schnitzer, B.: Flow cytometric analysis of cytologic specimens in hematologic disease. International Academy of Pathology, Washington, D.C., February 1988. Lab. Invest. 1988;58:37A.
7. Bolling, S.F., Hanson, C.A., Stoolman, L.M., Abrams, G.D. and Deeb, G.M.: Cytoimmunologic monitoring (CIM) in cardiac transplantation. International Society for Heart Transplantation. Los Angeles, April 1988.

JOHN T. HEADINGTON, M.D.
PROFESSOR OF PATHOLOGY AND DERMATOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Clinical Dermatology.
B. Dermatopathology, private consultations.
C. Dermatopathology, M-Labs.
D. Dermatopathology, UMH.
E. Dermatopathology, tutorials.

II. TEACHING ACTIVITIES:

A. Medical Students: (second year):
   1. Dermatopathology lectures.
B. Pathology and Dermatology House Officers:
   1. Dermatopathology.
C. Dermatology House Officers:
   1. Clinical Dermatology.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Effect of psoriasis on pilosebaceous epithelium.
B. Retinoic acids and aging.
C. Follicular mucinosis (alopecia mucinosa).
D. Immunodiagnosis of metastatic melanoma using monoclonal antibodies.
E. A clinical and immunohistochemical study of dermal eccrine mixed tumors.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Pigmented Lesion Clinic.

MEDICAL SCHOOL/HOSPITAL:

A. Dermatopathology Unit.
B. Co-Director, Clinical Microbiology Laboratory.

REGIONAL AND NATIONAL:

A. Editorial Board, Archives of Dermatology. American Board of Pathology.

B. Chairman, Task Force on Dermatopathology, The American Academy of Dermatology.
C. Test Committe For Dermatopathology.
D. Member, Council on Clinical and Laboratory Services, American Academy of Dermatology.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. Visiting Professor of Dermatopathology, University of Minnesota, Oct. 1987.
2. 10 Cases, Self Assessment Course, Am. Soc. of Dermatopathology, San Antonio, Texas Dec. 1987.
3. Advances in Pediatric Dermatopathology, Am Soc of Dermatopathology, Dec. 1987.
4. Histologic changes in photoaged skin. Platform presentation. Am Soc of Dermatopathology. San Antonio, Texas, Dec. 1987.
5. Cutaneous T cell lymphoma. St. Johns Hospital for Diseases of the Skin, (University of London) London, England, Feb. 1988.
6. Benign angioplastic lesions of skin, St. Thomas Medical School, London, England. Feb 1988.
7. The Diversity of Cutaneous T-cell lymphoma. Slade Hospital, Oxford University, Oxford, England. March 1988.
8. Androgenetic alopecia. S.A. Congress of General Practioners, Capetown, S.A., March 1988.
9. Langerhans cell syndromes. Groote Schoor Hospital, University of Capetown, Capetown S.A., April 1988.
10. Cutaneous manifestation of systemic disease. Annual meeting, S.A. Dermatology Society, Capetown S.A, April 1988.
11. The clinical diagnosis of hair loss. Annual meeting, S.A. Dermatology Society. Capetown, S.A. April 1988.
12. Clinical and histologic findings in alopecia. Department of Dermatology, Athens University, Athens Greece, May 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Wiss K., Solomon A.R., Rainer S.S., Lobe T.E., Gourley W. and Headington J.T.: Cutaneous rhabdomyosarcoma. Arch Dermatol. (In Press).
2. Solomon, A.R., Comite, S.L., Headington, J.T.: Epidermal and follicular calciphylaxis. J Cut Pathol. (In press).
3. Hendrick, S.J., Silverman, A.K., Solomon, A.R. and Headington, J.T.: Alpha-1-antitrypsin deficiency presenting with panniculitis. J Am Acad Dermatol 1988;18:684-692.
4. Auletta, M.J. and Headington J.T.: Purpura fulminans: A cutaneous manifestation of severe protein C deficiency. Arch Dermatol. (In Press).
5. Weiss, J.S., Ellis C.N., Headington J.T., Tancoff, T., Hamilton, T.A. and Voorhees, J.J.: Topical tretenoin improves photoaged skin. JAMA 1988;259:527-532.

5. Weiss, J.S., Ellis C.N., Headington J.T., Tancoff, T., Hamilton, T.A. and Voorhees, J.J.: Topical tretenoin improves photoaged skin. JAMA 1988;259:527-532.
6. Brown, M.D., Ellis, C.N., Billings, J., Cooper, K.B., Baadsgard, O., Headington, J.T. and Voorhees, J.J.: Rapid occurrence of nodular cutaneous T-lymphocyte infiltrates with cyclosporine therapy. Arch Dermatol., (In Press).
7. Gupta, A.K., Billings, J.K., Headington, J.T.: Multisystem crystalline deposits. Arch. Dermatol., (In Press).

ARTICLES SUBMITTED FOR PUBLICATION:

1. Maxon, B.M., Scott, R.F. and Headington, J.T.: Management of oral squamous cell carcinoma in situ with topical 5-FU and laser surgery. J Oral Med, Oral Surg, Oral Path.
2. Headington, J.T.: Male pattern baldness. J. S. Afr Gen Pract.
3. Hernandez RJ, Headington JT, Kaefan RA, Martel W: Fibroplastic rheumatism. Skeletal Radiology.
4. Fast, P.E., Riva, M.C., Blane, C.E., Headington, J.T., Roth, M. and Sullivan, D.B.: Multisystem inflammatory disease in an infant. J. Ped.

BOOKS AND CHAPTERS IN BOOKS:

1. Headington, J.T.: Neoplasms of hair follicle differentiation. Chapter in, Dermatopathology, Farmer, E. and Hood, T.F., (eds), Appelton-Lange.

KATHLEEN P. HEIDELBERGER, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Pediatric Surgical and Placental Pathology, daily, twelve months.
B. Pediatric Necropsies, daily, twelve months.
C. Pediatric Consultation Cases, daily, twelve months.
D. Adult Necropsy Service, 0.5 months.
E. Continued to organize and maintain the Michigan Cardiac Registry, twelve months.
F. Continued to direct and interpret the Lung Morphometric Program, twelve months.
G. Teratology Unit, histology, as necessary, approximately 40 cases per year.
H. Children's Cancer Study Group, coordinate all pathological material and data necessary for all children registered in national tumor protocols.
I. Bone Consultation Cases, intermittent backup for Lee Weatherbee.

II. TEACHING ACTIVITIES:

A. M2: Pathology 600, three whole class lectures on Pediatric Pathology.
B. M4: Pediatric Surgical Pathology, twelve months, while they were on their pathology electives.
C. Supervised M4s on Pathology elective, one rotation (four weeks).
D. House Officers in Pathology, daily reading of pediatric surgicals, twelve months.
E. House Officers in Pathology, gross and microscopic supervision of most pediatric necropsies, twelve months and adult cases 0.5 months plus call weekends.
F. Surgical Pathology Conference, one hour/week, twelve months.
G. Lectures on Pediatric Autopsy Pathology in Core Curriculum Series for House Officers in Pathology.
H. Lectures on Pediatric Tumors, Core Curriculum Series.
I. Gross Autopsy Conference, one hour/week, twelve months.
J. Supervised Pediatric Hematology Fellows (three) for AP elective period.
K. Conferences:
    1. Pediatric Cardiology Death Conference, monthly, all year.
    2. Pediatric Tumor Conference, twice monthly, all year.
    3. CPC/General Death Conference, approximately quarterly.

III. RESEARCH ACTIVITIES:

A. Multiphased, ongoing study with Pediatric cardiologists and Thoracic surgeons on effects of various congenital heart defects on the pulmonary vasculature.

B. Studies of regional variations in lung structure.
C. Compiling data base of morphometric characteristics of normal lungs a various ages.

PROJECTS UNDER STUDY:

A. Continued detailed study of the lethal neonatal chondrodysplasias and thei morphologic characterization.
B. Histologic studies of myocardium in hypoplastic left heart syndrome.
C. Participant in 14 institution study of associated lethal defects in hypoplastic le heart syndrome. (See Abstracts).
D. Description of extra-corporeal membrane oxygenator in patients post cardia transplant with cardiac and general surgeons.
E. Review of the effects of pulmonary artery banding on the lung biopsy findings in young children with complete atrioventricular septal defect with pediatric cardiologists and thoracic surgeons.
F. Study of aneurysm formation of repaired coarctation with pediatric cardiologists.
G. Autopsy study of aluminum breakdown products of ECMO heat exchanger.
H. Review of congenital lymphangiomas of bone in children.

IV. ADMINISTRATIVE ACTIVITES:

DEPARTMENTAL:

A. Departmental ACAPT.

MEDICAL SCHOOL/HOSPITAL:

A. Executive Committee for Mott/Women's/Holden Unit.
B. Executive Committee of the Medical School, 1987-.

REGIONAL AND NATIONAL:

A. Member, American Board of Pathology Test Committee for Pediatric Pathology.
B. Member of the Education Committee of the Society for Pediatric Pathology Subcommittee I, charged with the documentation and position preparation fo subspecialty qualification.

V. OTHER RELEVANT ACTIVITIES: None.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREE JOURNALS:

1. Gilbert, E.F., Yang, S.S., Langer, L., Opitz, J.M., Roskamp, J.O. and Heidelberger, K.P.: Pathologic changes of osteochondrodysplasia in infancy: A Review. Pathology Annual, 1987;Part II:283-345.

2. Rocchini, A.P., Gundry, S.P., Beekman, R.H., Gallagher, K.P., Heidelberger, K.P., Behrendt, D.M., Dysko, R.C. and Rosen, K.: A Reversible Pulmonary Artery Band: Preliminary Experience. J. Am. Coll. Cardiol. 1988;11:172-176.

SAMUEL P. HICKS, M.D.
PROFESSOR EMERITUS OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Neuropathologic examination of brains from autopsies and some biopsies at The University of Michigan and those sent from elsewhere.

II. TEACHING ACTIVITIES:

A. Lecture and laboratory instruction of medical students, house officers and graduate students. Neural and Behavioral Sciences 600 and Neuropathology 858.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

None.

PROJECTS UNDER STUDY:

This research with Constance J. D'Amato has centered principally on the early development of the nervous system in experimental mammals: mechanisms by which embryos are malformed by, or are able to recover from, effects of radiation or mutant genes. We have also studied the pathologic aspects of diseases associated with later developmental periods and aging in humans, the dementias such as Alzheimer's Disease. Currently we are working on 1) the roles of basement membranes in the morphogenesis of a mutant rat which develops prenatal aqueduct stenosis and hydrocephalus, and 2) the possible harmful role that macrophages might play in the morphogenesis of brain malformations caused by prenatal irradiation of fetal rats. Macrophages can do harm as well as good in reactions to injury in some tissues, but their functions in fetuses, besides phagocytosis, is unknown. In these experiments we are dependent on collaboration with Drs. K. Sue O'Shea, Department of Anatomy and Cell Biology, James Varani and Ricardo V. Lloyd, Department of Pathology, and Kenneth S. Weeks, Department of Radiation Oncology. We also provide neuropathology support to Drs. Anne B. Young and John B. Penney, Department of Neurology, in their biochemical studies of Alzheimer's, Huntington's and other diseases causing dementia.

IV. SERVICE ACTIVITIES:

A. See I and II.

MEDICAL SCHOOL/HOSPITAL:

A. Neural and Behavioral Sciences Curriculum Committee (Medical School).

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. O'Shea, K.S., Rheinhiemer, J.S.T., D'Amato, C.J. and Hicks, S.P.: Neuroepithelial basal lamina alterations in rat embryos with prenatal hydrocephalus. Electron microscopy and immunocytochemistry. J. Neuropath. Exp. Neur. (In Press, 1988).
2. Rheinheimer, J.S.T., O'Shea, K.S., D'Amato, C.J., and Hicks, S.P.: Facial and neuroepithelial abnormalities in a neurologic mutant with congenital hydrocephalus. A scanning electron microscopic study. J. Neuropath. Exp. Neur. 1988;47:54-61.

JERRY L. HUDSON, PH.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Cytometry Laboratories.

II. TEACHING ACTIVITIES:

A. Lectures: Senior Medical Students: Automated Cytology - Clinical and Research Applications.
B. Lectures: Biomedical Engineering Program.
C. Faculty Advisor: Undergraduate Students' Honors Projects.
D. Faculty Advisor: Biomedical Engineering Program.
E. Faculty Advisor: Residents' Research Projects (Deparment of Surgery and Division of Allergy).
F. Faculty Advisor: College Work Study Program.
G. Faculty Advisor: Postdoctoral Fellows.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Cytometry Research and Development Project, EPICS Division, Coulter Corporation (J.L. Hudson, Ph.D.,Principal Investigator), 1984-present.
B. Inflammatory Cells and Lung Injury (Supplement) 5 PO1H131963-0352, NHLBI, (P. A. Ward, M.D., Principal Investigator; J.L. Hudson, Ph.D., and J.P. Robinson, Ph.D., Co-Investigators [Cytometry Core], July, 1986 through February, 1989, $659,717 direct costs.
C. Leukocyte Defects Associated with Thermal Injury (IR29GM38827-01), NIGMS, J.P. Robinson, Ph.D., Principal Investigator, J.L. Hudson, Ph.D., Consultant, July, 1987 through June, 1992, $350,000 direct costs.
D. Cytometric Immunostatus Assessment, The Proctor and Gamble Company, Miami Valley Laboratories, J.L. Hudson, Ph.D., Project Director, $30,000 per year gift grant for post doctoral positions. (Implementation delayed per request of JLH).
E. Clinical Trials of CP-248 in Osteoarthritis, The Pfizer Company, B.C. Richardson, M.D., Ph.D., Principal Investigator; J. Fantone, M.D., S. Kunkel, Ph.D., and J.L. Hudson, Ph.D., Co-Investigators, July, 1987-present.
F. Cytostatic Mechanisms of Adenosine Analogs, American Cancer Society, (ACS-CH310), L. Wotring, Ph.D., Principal Investigator; J.L. Hudson, Ph.D., Consultant, July, 1986 through June, 1988, $77,174 direct costs first year.
G. Automated Image Analysis Development Project, Coulter Corporation, J.L. Hudson, Principal Investigator, 1984-present.

H. Immunology of Head and Neck Cancer, Veterans Administration, G.T. Wolf, M.D., Principal Investigator, J.L. Hudson, Ph.D., K.A. Kimmel, Ph.D., and T.E. Carey, Ph.D., Co-Investigators, 1986-1991, $450,000 direct costs.

I. Microcomputer Instrumentation Grant, Biomedical Research Council, University of Michigan Medical School, J.L. Hudson, Ph.D. and J.Paul Robinson, Ph.D, Co-Investigators, 1988, $20,000.

J. Cytometry Core Laboratory, The University of Michigan Cancer Center, J.L. Hudson, Ph.D., Core Director; R.A. Todd, III, M.D., Ph.D., Laboratory Director, 1987-present, $24,000 per year.

PROJECTS UNDER STUDY:

A. A series of studies are in progress involving research and development for clinical applications, cellular pharmacology, genetic toxicity, and immunotoxicity assessment using automated cytology (flow cytometry and image analysis), including: cell surface marker analysis, immune cell function, cell surface receptor analysis, cell cycle analysis, cell membrane electronic potential, viscosity, and activation analysis, cytochemical analysis, neoplastic cell screening and diagnosis (immune system, breast, cervical, bladder, colon, neural, endocrine, and head and neck tissues), monitoring results of recombinant DNA/molecular biologic manipulation of cells, prototype instrumentation development, instrumentation/computer networking, and software development for cytometry data analysis and cytometry database systems.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Cytometry Laboratory.
B. M-Laboratories/Pathology Associates.

MEDICAL SCHOOL/HOSPITAL:

A. Cell Identification Center.
B. Faculty Senate Assembly.
C. Government Relations Committee/Senate Assembly.
D. Advisory Committee, Medical School Research Computing.
E. Database Task Force/Integrated Academic Information Management Systems (IAIMS).
F. Director, Cytometry Core, University of Michigan Cancer Center.

REGIONAL AND NATIONAL:

A. Reviewer:
   1. Cytometry, 1983-.
   2. CRC Press, 1985-.
   3. Brain Research, 1986-.
   4. J. Leukocyte Biology, 1986-.
   5. J. Histochemistry and Cytochemistry, 1987-.

B. Member, National Immunotoxicology Discussion Group

C. Founders Committee: Clinical Applications of Cytometry, Charleston, South Carolina, Annual, 1986-present.

D. Consultant:
   1. Coulter Corporation.
   2. The Pfizer Company.
   3. The Procter and Gamble Company
   4. Alcohol, Aging, and Immunity Center, University of Michigan.
   5. FDA/Immunotoxicology Project, Office of Toxicological Sciences, Center for Food Safety and Applied Nutrition, FDA.
   6. CDC/NIOSH, Clinical Biochemistry Branch, Center for Environmental Health.
   7. Lovelace Medical Foundation.
   8. NASA, Study Section, Flow Cytometry in Space.
   9. Cellular Bioengineering Program, The University of Michigan.
   10. Norwich Eaton Pharmaceuticals.
   11. The Upjohn Company.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Hudson, J.L.: Cytometric Immune Status Profile, St. Joseph's Health Centre of London, London, Ontario, 21 October, 1987.
2. Hudson, J.L.: Clinical Applications of Flow Cytometry, Providence Hospital, Cincinnati, Ohio, 26 October, 1987.
3. Hudson, J.L.: Immune Profiling, Cell Function Workshop, Clinical Applications of Cytometry Meeting, OMNI Hotel at Charleston Place, Charleston, South Carolina, 1 October, 1987.
4. Hudson, J.L.: Cytometric Immune Status Profiling, Rush Medical Center, Chicago, Illinois, 26 March, 1988.
5. Hudson, J.L.: Cytometric Immune Profiling, Department of Pathology, University of Miami, Florida, 28 May, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Wotring, L.L., Roti Roti, J.L., Hudson, J.L., Passiatore, J.E., Borysko, K.Z., Newcomb, R.D., and Townsend, L.B.,: Triciribine (TCN), a novel tricyclic adenosine analog with anticancer activity. Nucleos. and Nucleot., 1987;6:(1 and 2):95-109.
2. Wolf, G.T., Schmaltz, S., Hudson, J.L., Robson, H., Stackhouse, T., Peterson, K.A., Poore, J.A., and McClatchey, K.D.: Alterations in T-lymphocyte subpopulations in patients with head and neck cancer. Correlations with prognosis. Arch. Otolaryngol., Head and Neck Surg. 1987;113:1200-1206.
3. Robinson, J.P., Duque, R.E., Boxer, L.A., Ward, P.A., and Hudson, J.L.: Measurement of antineutrophil antibodies by flow cytometry: Simultaneous detection of antibodies against monocytes and lymphocytes. Diag. Clin. Immunol. 1988;5(4):163-170.

4. Goldbus, J., Salata, M., Greenwood, J., Hudson, J., and Richardson, B.: Increased immunoglobulin response to Gamma-Interferon by lymphocytes from patients with systemic lupus erythematosus. Clin. Immunol. Immunopath. 1988;46:129-140.
5. Slade, H.B., Greenwood, J.H., Hudson, J.L., Beekman III, R.H., Riedy, M.C., and Schwartz, S.A.: Lymphocyte phenotyping of infants with congenital heart disease: Comparison of cell preparation techniques. Diag. Clin. Immunol. 1988;5(5):249-255.
6. Loesche, W.J., Robinson, J.P., Flynn, M., Hudson, J.L., and Duque, R.E.: Reduced oxidative function in gingival crevicular neutrophils in periodontal disease. Infect. Immun. 1988;56(1):156-160.
7. Robinson, J.P., Bruner, L.H., Bassoe, C-F., Hudson, J.L., Ward, P.A., and Phan, S.H.: Measurement of intracellular fluorescence of human monocytes relative to oxidative metabolism. J. Leuk. Biol. 1988;43:304-310.
8. McLeod, M.K., Thompson, N.W., Hudson, J.L., Gaglio, J.A., Lloyd, R.V., Harness, J.K., Nishiyama, R., and Polley, C.Y.: Flow cytometric measurements of nuclear DNA and ploidy analysis in Hurthle Cell neoplasms of the thyroid. Arch. Surg. (In Press, 1988).
9. Winter, P.H., Wolf, G.T., Carey, T.E., Peterson, K.A., Poore, J.A., Hudson, J.L., and McClatchey, K.D.: Effects of recombinant Interleukin-2 on allogeneic and autologous cytotoxicity in patients with squamous cell carcinoma of the head and neck. Arch. Otolaryngol. Head and Neck Surg. (In Press, 1988).
10. Forrester, J., Goldbus, J., Brede, D., Hudson, J.L., and Richardson, B.: T and B cell activation in patients with active procainamide induced lupus. Ann. Int. Med. (In Press, 1988).

BOOKS AND CHAPTERS IN BOOKS:

1. Carey, T.E. and Hudson, J.L.: Potential use of flow cytometry in the diagnosis of metastatic cancer of the head and neck. In, Larson, D.L., Guillamondegui, O.M., and Ballantyne, A.J., (eds), Treatment of Metastatic Cancer of the Head and Neck, MacMillan Publishing Company, New York, New York, 1987.
2. Clinical Applications of Cytometry, in, LaVia, M., Hurtubise, P., Sites, D., and Hudson, J.L., (eds), Alan R. Liss, Inc., New York, New York, (In Press, 1988).

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Bruner, L.H., Robinson, J.P., Ward, P.A., and Hudson, J.L.: Oxidant production from neutrophils using flow cytometry, scopoletin oxidation, and cytochrome C reduction. Fed. Proc., 1987;46:989.
2. Bruner, L.H., Robinson, J.P., Ward, P.A., and Hudson, J.L.: Characterization of H2O2 production from rat blood neutrophils using dichlorofluorescin oxidation. 12th International Meeting of the Society for Analytical Cytology, Cambridge, England, 8-14 August, 1987.
3. McLeod, M.K., Thompson, N.W., Hudson, J.L., Lloyd, R.V., Gaglio, J.A., Harness, J.K., Nishiyama, R.H., and Cheung, P.S.: Flow cytometric measurements of nuclear DNA and ploidy analysis in Hurthle Cell neoplasms of the thryoid. Abstracts of the Surgical Forum, Dallas, Texas, November, 1987
4. Forrester, J., Goldbus, J., Brede, D., Hudson, J., and Richardson, B.: T and B cell activation in active procainamide lupus. Central American Rheumatism Association, Chicago, Illilnois, November, 1987.

5. Robinson, J.P., Comment, C., Bruner, L.H., Hudson, J.L., Ward, P.A. , and Phan S.H.: Neutrophil membrane fluidity changes can be correlated with oxidan production: Simultaneous flow cytometric determinations. 12th International Meetin of the Society for Analytical Cytology, Cambridge, England, 8-14 August, 1987.
6. Hudson, J.L., Brede, D.E., Kleedtke, G.E., Gaglio, J.A., Greenwood, J.H., Robinson, J.P., Bruner, L.H., and Ward, P.A.: Cytometric clinical immune status profile. 12th International Meeting of the Society for Analytical Cytology, Cambridge, England, 8-14 August, 1987.
7. Robinson, J.P., Loesche, W.J., and Hudson, J.L.: Flow cytometric evaluation of gingival crevicular neutrophils: A unique application for flow cytometry. Annual Meeting, Australian Society for Medical Research, Threadbo, NSW, Australia, 12-16 December, 1987.
8. Bruner, L.H., Robinson, J.P., Till, G.O., Ward, P.A., and Hudson, J.L.: H2O2 production from rat blood neutrophils after thermal injury. Poster Presentation at the Second Annual Meeting - Clinical Applications of Cytometry, OMNI Hotel at Charleston Place, Charleston, South Carolina, 30 September - 3 October, 1987.
9. Greenwood, J.H., Cohn, R.J., and J.L. Hudson: Flow cytometric analysis of human lymphocyte proliferative responses: Clinical applications. Poster Presentation at the Second Annual Meeting - Clinical Applications of Cytometry, OMNI Hotel at Charleston Place, Charleston, South Carolina, 30 September - 3 October, 1987.
10. Greenwood, J.H., Slade, H.B., Schwartz, S.A., Schlegelmilch, J.A., Riedy, M.C., Hudson, J.L., and Hanson, C.A.: Flow cytometric characterization of altered lymphocyte proliferative responses in a patient with marked clinical immunodeficiency. Poster Presentation at the Second Annual Meeting - Clinical Applications of Cytometry, OMNI Hotel at Charleston Place, Charleston, South Carolina, 30 September - 3 October, 1987.
11. Brede, D.E., Gaglio, J.A., Kleedtke, G.E., Armstrong, L.R., Kelley, S.M., Greenwood, J.H., Bruner, L.H., Robinson, J.P., and Hudson, J.L.: Cytometric immune status profile studies of cardiomyopathy, renal transplant, and surgical intensive care patients. Poster Presentation at the Second Annual Meeting - Clinical Applications of Cytometry, OMNI Hotel at Charleston Place, Charleston, South Carolina, 30 September - 3 October, 1987.
12. Comment, C.E., Kelley, S.M., Hudson, J.L., Phan, S.H., and Robinson, J.P.: Development and application of flow cytometric measurements of membrane fluidity in human leukocytes. Poster Presentation at the Second Annual Meeting - Clinical Applications of Cytometry, OMNI Hotel at Charleston Place, Charleston, South Carolina, 30 September - 3 October, 1987.
13. Robinson, J.P., Comment, C.E., Ward, P.A., Hudson, J.L., and Phan, S.H.: Membrane fluidity of human neutrophils alters with activation: Polarization measurement by flow cytometry. Annual Meeting of the Australian Society for Medical Research, Threadbo, NSW, Australia, 12 -16 December, 1987.
14. Brede, D.E., Gaglio, J.A., Kleedtke, G.E., Armstrong, L.A., Kelley, S.M., Greenwood, J.H., Bruner, L.H., Robinson, J.P., and Hudson, J.L.: Cytometric immune profile studies. Poster Presentation at the Coulter EPICS Users Meeting, Allerton Hotel, Chicago, Illinois, 11-14 November, 1987.
15. Aminoff, D., Gutowski, K.A., Brede, D.E., Kelley, S.M., and Hudson, J.L.: Flow cytometric analysis of human erythrocytes probed with FITC-labelled lectins and immunoglobulins. Poster Presentation at the International Conference on Sialic Acids, Japanisch-Deutsches Zentrum, Berlin, W. Germany, 18 - 21 May, 1988.

KENT J. JOHNSON, M.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Renal Pathology Service.
B. Immunopathological evaluation of skin biopsies.
C. Director, Electron Microscopy Service.

II. TEACHING ACTIVITIES:

A. Lecturer Genitourinary Pathology - Second year pathology course.
B. Lectures on Renal Pathology - Nephrology Fellows.
C. Lectures on Renal and Skin Immunopathology - Pathology Residents.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Lung Injury Produced by Oxygen Metabolites. National Institutes of Health, $507,078 for four years. Co-investigator with Peter A. Ward.
B. Immune Complex Injury of Lung and Oxygen Metabolites. National Institutes of Health, $245,304 for three years. Co-Investigator with Peter A. Ward.
C. Effectors in Pulmonary Hypertension from Monocrotaline. National Institutes of Health, $246,183 for three years. Co-investigator with Bob Roth.
D. Mediators in IgA and IgG Lung Injury. National Institutes of Health, $466,791 for five years.
E. Pathogenesis of Pancreatitis Induced Pulmonary Injury. National Institutes of Health, $285,558 for three years. Co-investigator with Karen Guice (Funded - December 1987).
F. Renal Center Grant. National Institutes of Health. Principal Investigator Section V and Core II. $444,520 for five years. (Funded August, 1987).

PENDING SUPPORT:

A. Anesthesia Center Grant. National Institutes of Health. Principal Investigator, Section VI and Core C. $747,160 for five years (submitted June 1988).
B. Oxidant and Protease Interaction in Acute Lung Injury. National Institutes of Health. Principal Investigator. $834,625 for five years (submitted June 1988).

PROJECTS UNDER STUDY:

A. Pathogenesis of IgG and IgA Immune Complex Lung Injury.
    1. Role of oxygen radicals.
    2. Role of proteases.
    3. Role of terminal components of the complement system.

B. Pathogenesis of Pancreatitis and Pancreatitis Induced ARDS.
C. Pathogenesis of Aspiration Pneumonitis.
D. Effect of Volatile Anesthetics on the Acute Inflammatory Response.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Director, Immunopathology Fellowship Program.
B. Renal Pathology Conference - Biweekly.
C. Departmental Appointment and Promotions Committee.
D. Space Utilization Committee.
E. Stobbe Funds Committee.
F. Chairman's Advisory Committee

REGIONAL AND NATIONAL:

A. Associate Editor-Laboratory Investigation
B. Reviewer for the following journals:
   1. American Journal of Pathology
   2. American Review of Respiratory Diseases
C. Consultant/Grant reviewer for the Veteran's Administration.

V. OTHER RELEVANT ACTIVITIES:

A. Consultant on Dermatology and Nephrology training grants.

VI. PUBLICATIONS:

ARTICLES PUBLISHED IN REFEREED JOURNALS:

1. Ward, P.A., and Johnson, K.J.: Adult respiratory distress syndrome and neutrophils. New Eng. J. of Med. 1987;316:413.
2. Bruner, L.H., Johnson, K.J., Carpenter, L.J. and Roth, R.A.: Lack of effect of deferoxamine, dimethylsulfoxide and catalase on monocrotaline pyrrole pulmonary injury. J. Tox. Envir. Health, 1987;21:205-217.
3. Warren, J.S., Ward, P.A., Johnson, K.J. and Ginsburg, I.: Modulation of acute immune complex mediated tissue injury by presence of polyionic substances. Amer. J. Path., 1987;128:67-77.
4. Warren, J.S., Kunkel, R.G., Johnson, K.J. and Ward, P.A.: Comparative 0_2^- responses of lung and blood phagocytic cells in the rat: Possible relevance to IgA immune complex induced lung injury. Lab. Invest. 1987;57:311-320.
5. Warren, J.S., Kunkel, S.L., Johnson, K.J., and Ward, P.A.: In vitro activation of rat neutrophils and alveolar macrophages with IgA and IgG immune complexes: Implications for immune complex induced lung injury. Am. J. Pathol. 1987;129:578-588.
6. Carpenter, L.J., Johnson, K.J., Kunkel, R.G., and Roth, R.A.: Phorbol myristate acetate produces injury to isolated rat lung in the presence and absence of perfused neutrophils. J. Tox. App. Pharm. 1987;91(1):22-32.

7. Warren, J.S., Kunkel, S.L., Cunningham, T.W., Johnson, K.J. and Ward, P.A.: Macrophages-derived cytokines amplify immune complex-triggered 0_2^- responses by rat alveolar macrophages. Amer. J. Pathol. 1988;130(3):489-495.
8. Ward, P.A., Cunningham, T.W., McCulloch, K.K., Phan, S.H., Powell, J., and Johnson, K.J.: Platelet Enhancement of 0_2^- responses in stimulated human neutrophils: Identification of platelet factor as adenine nucleotide. Lab. Invest. 1988;58:37-47.
9. Oldham, K.T., Guice, K.S., Ward, P.A. and Johnson, K.J.: The role of oxygen radicals in immune complex injury. Free Rad. Bio. and Med., 1988;4:387-397.
10. Ward, P.A., Cunningham, T.W., McCulloch, K.K. and Johnson, K.J.: Regulatory effects of adenosine and adenine nucleotides on oxygen radical responses of rat and human neutrophils. Lab. Invest., 1988;58:438-447.

ARTICLES ACCEPTED FOR PUBLICATION:

1. Cohen, R., Johnson, K.J., and Humes, H.D.: Potentiation of aminoglycoside nephrotoxicity by vitamin-D induced hypercalcemia. Amer. J. Nephrol. (Min. and Elec. Metab.), (In Press).
2. Guice, K.S., Oldham, K.T., Johnson, K.J., and Ward, P.A.: Mechanisms of capillary endothelial cell injury in acute pancreatitis. Surgical Forum, (In Press).
3. Bruner, L.H., Johnson, K.J., Till, G.O. and Roth, R.A.: The role of the complement system in monocrotaline pyrrole-induced pulmonary injury. Amer. J. Phys., (In Press).
4. Ward, P.A., and Johnson, K.J.: Lung inflammatory mechanisms. J. of Human Path., (In Press).
5. Warren, J.S., Johnson, K.J., and Ward, P.A.: Oxygen radicals in cell injury and cell death. Immunopathol. Res., In press.
6. Ward, P.A., Warren, J.S., Remick, D., Varani, J., Gannon, D., Johnson, K.J.: Cytokines and oxygen radical mediated tissue injury. J. Crit. Care Med., (In Press).
7. Guice, K.S., Oldham, K.T., Johnson, K.J.: Anti-oxidant therapy (PEG-catalase) in acute pancreatitis. Amer. J. Surg., (In Press).
8. Guice, K.S., Oldham, K.T., Johnson, K.J., Kunkel, R.G., Morganroth, M.L. and Ward, P.A.: Pancreatitis induced lung injury: An ARDS model. Annal Surg., (In Press).
9. Ward, P.A., Warren, J.S., Johnson, K.J.: Oxygen radicals, inflammation and tissue injury. Free Rad. in Bio. Med., (In Press).
10. Warren, J.S., Ward, P.A., Johnson, K.J.: tumor necrosis factor: A plurifunctional mediator of acute inflammation. Review Article, Modern Pathol., (In Press).
11. Ward, P.A., Cunningham, T.W., Johnson, K.J.: Signal transduction events in stimulated rat neutrophils. Effects of adenine nucleotides. Clin. Immunol. Immunopath., (In Press).
12. Guice, K.S., Oldham, K.J., Johnson, K.J.: Failure of antioxidant therapy (PEG-catalase) in acute pancreatitis. Anal. Surg., (In Press).
13. Guice, K.S., Oldham, K.T., Johnson, K.J., Ward, P.A.: Mechanisms of capillary endothelial cell injury in acute pancreatitis. Surg. Forum, (In Press).

ARTICLES SUBMITTED FOR PUBLICATION:

1. Weinburg, J.M., Johnson, K.J., Dela Iglesia, F.A., and Allen, E.D.: Acute alterations of tissue Ca^{++} and lethal tubular cell injury during $HgCl_2$ nephrotoxicity in the rat. Submitted for publication.

2. Ward, P.A., Till, G.O., Kunkel, R.G. and Johnson, K.J.: Protection against neutrophil-mediated lung injury by platelet depletion. Submitted for publication.
3. Fligiel, S.E.G., Johnson, K.J., Johnson, R.D., Bendilow, M.J., He, X., and Varani, J.: The effect of oxygen metabolites on elastin degradation by purified enzymes and human neutrophils. Submitted for publication.
4. Warren, J.S., Kunkel, R.G., Johnson, K.J., and Ward, P.A.: Ultrastructural cytochemical demonstration of H_2O_2 production by alveolar macrophages in IgA immune complex induced lung injury. Submitted for publication.
5. Warren, J.S., Mandel, D.M., Johnson, K.J., and Ward, P.A.: Evidence for the role of platelet-activating factor in immune complex vasculitis in the rat. Submitted for publication.
6. Kennedy, T.P., Johnson, K.J., Ward, P.A., Knight, P.R., Finch, J.S.: Biphasic pathogenesis of acute acid aspiration pneumonitis. Amer. Soc. Anesth. Natl. Meeting. Submitted for publication.
7. Ward, P.A., Cunningham, T.W., Walker, B.A.M., Johnson, K.J.: Differing calcium requirements for regulatory effects of ATP, ATP S and adenosine on O_2^- responses of human neutrophils. Submitted for publication.

BOOKS AND CHAPTERS IN BOOKS:

1. Ward, P.A., Johnson, K.J. and Till, G.O.: Leukocyte oxygen radicals and acute lung injury, in, Proceedings of a Symposium on "Acute Lung Injury", PSG Publishing Co., Littleton, MA, (In Press).
2. Johnson, K.J., Chensue, S.W., Kunkel, S.L. and Ward, P.A.: Immunopathology, in, Rubin, E. and Farber, J.L. (eds.), Textbook of Pathology, Lippincott Inc., New York, NY, 1988.
3. Ward, P.A., Johnson, K.J., Till, G.O. and Warren, J.S.: Activated phagocytes, oxygen radicals and tissue injury, in, Chow, C. (ed.) Cellular Antioxidant Defense Mechanism, CRC Press, Marcell Deckker, Inc., New York, NY, (In Press).
4. Johnson, K.J., Rehan, A. and Ward, P.A.: Role of oxygen radicals in kidney disease, in, Halliwell, B. (ed.) Oxygen Radicals and Tissue Injury, Fed. Proc., 1987, (In Press).
5. Ward, P.A., Johnson, K.J., Warren, J.S. and Kunkel, R.G.: Immune complexes, oxygen radicals and lung injury, in, Halliwell, B. (ed.) Oxygen Radicals and Tissue Injury, Fed. Proc., 1987, (In Press).
6. Warren, J.S., Ward, P.A. and Johnson, K.J.: Immune complex injury, in, Cantor, J.D. (ed.) CRC Handbook of Animal Models of Pulmonary Disease, 1987, (In Press).
7. Ward, P.A., Till, G.O., Gannon, D.E., Varani, J.A. and Johnson, K.J.: The role of iron injury of endothelial cells in vitro and in vivo. Oxygen Radicals in Biology and Medicine. Fourth International Congress on Oxygen Radicals, 1987, (In Press).
8. Till, G.O., Johnson, K.J. and Ward, P.A.: Inflammation and oxygen radical-role of complement and neutrophils, in, Messmer, K. and Hammersen, F. (eds.), Prog. Appl. Microcirc., Vol. 12, Karger, Basel, 1987; pp. 132-142.
9. Ward, P.A., Warren, J.S., Till, G.O., Varani, J., Johnson, K.J.: Modification of disease by preventing free radical formation. A new concept in pharmacologic intervention. in, Iron Overload and Iron Chelation, (In Press).
10. Warren, J.S., Ward, P.A., Johnson, K.J.: The inflammatory response. In, W.J. Williams (ed)., Hematology, 4th Edition, (In Press).
11. Warren, J.S., Ward, P.A., Johnson, K.J.: Oxygen radicals as Mediators of Inflammation, in, P.M. Henson (ed.) The Handbook of Inflammation, Vol. 6, Elsevier Science Publishers, (In Press).

12. Johnson, K.J.: Inflammatory mediators in glomerulonephritis, in, Churg, J. and Sinniah, R. (eds.) Classification and Atlas of Infectious Disease of Kidney, WHO Vol. IV, AMer. Soc. Clin. Pathol., (In Press).
13. Warren, J.S., Johnson, K.J. and Ward, P.A.: Phagocytes and reactive oxygen substances as mediators of acute lung injury, in, Hyers, T. (ed.) Diffuse Alveolar Damage and Respiratory Failure, Futura Press, New York, (In press).
14. Ward, P.A., Warren, J.S., and Johnson, K.J.: Leukocytic oxygen products and their diverse biological effects, in, Mavot, H.Z. (ed.) Leukocyte Emigration and its Sequellae; Satellite Symposium of the 6th International Congress of Immunology, Karger, Basal, 1986, pp. 161-168.
15. Warren, J.S., Ward, P.A. and Johnson, K.J.: Mechanisms of damage to pulmonary endothelium, in, Ryan, U.S. (ed.) Endothelial cells, CRC Uniscience. Marcel Deckker, Inc., New York, NY, 1987, 107-119.
16. Ward, P.A., Johnson, K.J. and Till, G.O.: Leukocytic oxygen radicals and acute lung injury, in, Kazemi, H., Hyman, A.L. and Kadowitz, P.J. (eds.) Acute Lung Injury: Pathogenesis of Adult Respiratory Distress Syndrome, PSG Publishing Co., Littleton, MA, pp. 107-114, 1986.
17. Till, G.O., Johnson, K.J. and Ward, P.A.: Oxygen free radicals in inflammation, in, Messmer, K. and Hammersen, F. (eds.) Prog. Appl. Microcirc., Vol. 9, Karger, Basel, (In Press).
18. Ward, P.A., Johnson, K.J., and Till, G.O.: Oxygen radicals, neutrophils and acute tissue injury, in, Taylor A.E., Matalon S., Ward, P.A., (eds.) Physiology of Oxygen Radicals, Bethesda, MD, 1986, 145-150.
19. Warren, J.S., Ward, P.A. and Johnson, K.J.: The respiratory burst and mechanisms of oxygen radical mediated tissue injury, in, Sbsarra, A.J. and Strauss, R.P. (eds.) The Respiratory Burst and its Physiological Significance in Medicine, Plenum Press, New York, NY, In press.
20. Till, G.O., Warren, J.S., Gannon, D.E., Chensue, S.W., Kunkel, S.L., Varani, J., Johnson, K.J. and Ward, P.A.: Effects of pentoxifylline on phagocytic responses in-vitro and acute and chronic inflammatory reactions in-vivo, in, Novick, W. (ed.), Pentoxifylline and Leukocyte Function Symposium, Hoechst-Roussell Pharm., Somerville, NJ, (In Press).
21. Ward, P.A., Warren, J.S., Johnson, K.J., and Varani, J.: Cytokines and oxygen radical responses, in, Maier, R. (ed.), Proceedings of the 1st International Congress on The Immune Consequences of Trauma, Shock, and Sepsis: Mechanisms and Therapeutic Approaches", (In Press).

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Guice, K.S., Oldham, K.T., Johnson, K.J. and Ward, P.A.: Mechanism of pancreatic capillary endothelial injury in acute pancreatitis. Surgical Forum, 1987.
2. Warren, J.S., Kunkel, S.L., Johnson, K.J. and Ward, P.A.: Enhanced oxygen radical responses of immune complex stimulated rat alveolar macrophages by cytokines. Int. Conf. on Cytokines, Heidelberg, Germany, 1987.
3. Ward, P.A., Johnson, K.J., Warren, J.S. and Kunkel, R.G.: Immune complexes, oxygen radicals and lung injury. Brook Lodge Symposium on Oxygen Radicals and Tissue Injury, Kalamazoo, Michigan, April 1987.

4. Johnson, K.J., Rehan, A. and Ward, P.A.: The role of oxygen radicals in kidney disease. Brook Lodge Symposium on Oxygen Radicals and Tissue Injury, Kalamazoo, Michigan, April 1987.
5. Guice, K.S., Oldham, K.T., Johnson, K.J.: Antioxidant therapy (PEG-catalase) in acute pancreatitis. SSAT, 1988.
6. Oldham, K.T., Schmeling, D.J., Guice, K.S., Johnson, K.J.: Obliterative cholangitis: A model of biliary inflammation. ACS, 1988.
7. Guice, K.S., Oldham, K.T., Johnson, K.J., Ward, P.A.: Pancreatitis induced acute lung injury: mechanisms of injury. ACS, 1988.
8. Mandel, D.M., Warren, J.S., Johnson, K.J. and Ward, P.A.: Specific interactions between platelet-activating factor (PAF) and neutrophils in a rat model of immune complex vasculitis. Fed. Proc. 1988; 2:A414.
9. Yabroff, K.R., Warren, J.S., Johnson, K.J. and Ward, P.A.: Disparate patterns of susceptibility of pulmonary and dermal vascular beds to phagocyte-derived oxidant injury. Fed. Proc. 1988:2:A1175.
10. Kunkel, R.G., Warren, J.S., Johnson, K.J., and Ward, P.A.: Demonstration of the complement membrane attack complex (MAC) in IgA-immune complex induced acute lung injury. Fed. Proc. 1988;2:A1176.
11. Schmeling, D.J., Oldham, K.T., Guice, K.S., Johnson, K.J.: Noninfectious obliterative cholangitis: A model of biliary inflammation. Fed. Proc. 1988;2:A1177.
12. Kennedy, T.P., Johnson, K.J., Ward, P.A., Finch, J.S.: Conditions associated with maximal lung injury in an experimental model of aspiration penumonitis. Fed. proc. 1988;2:A1608.
13. Guice, K.S., Oldham, K.T., Johnson, K.J., Ward, P.A.: Pulmonary capillary endothelial injury in acute pancreatitis: Protection by oxygen radical scavengers. Fed. Proc. 1988;2:A1608.
14. Warren, J.S., Robert, M., Kunkel, S.L., Johnson, K.J., and Ward, P.A.: Modulation of interleukin I (IL-1) and tumor necrosis factor (TNF) production by monocytes and alveolar macrophages: Implications for immune complex-mediated lung injury. Fed. Proc. 1988;2:A1822.
15. Kennedy, T.P., Johnson, K.J., Ward, P.A., Knight, P.R., Finch, J.S.: Biphasic pathogenesis of acute acid aspiration pneumonitis. Amer. Soc. Anesth. Natl. Meeting, submitted, 1988.
16. Ward, P.A., Macconi, D., Sulavik, M.C., Till, G.O., Warren, J.S., Johnson, K.J. and Powell, J.: Rat neutrophil-platelet interactions in oxygen radical mediated lung injury. UCLA Symposium on Molecular and Cellular Biology, January, 1988, In press.
17. Ward, P.A., Warren, J.S., Gannon, D., Johnson, K.J., Phan, S.H., Varani, J.: Cytokines and oxygen radical mediated injury. Oxy. Radicals in Molecular Biology and Pathology, B025, 1988.

AUDIO-VISUAL EDUCATION MATERIALS:

1. Pathology Board Review Software, Elsevier Publishing Company, 1988.

W. JOHN JUDD F.I.M.L.S., M.I.BIOL.
ASSOCIATE PROFESSOR
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Director, Blood Bank Reference Laboratory.
B. Consultant, Veteran's Administration Medical Center, Ann Arbor.

II. TEACHING ACTIVITIES:

A. Coordinated 1987-88 Clinical Pathology Grand Rounds Conferences.
B. Coordinated 1987-88 Anatomic Pathology Conferences.
C. Coordinated Core-Lectures for 1st-year Pathology Residents, July, 1987.
D. Coordinated Core-Lectures for 1st-year Pathology Residents, January, 1988.
E. Attended and participated in weekly CP Grand Rounds Conferences.
F. Attended and participated in weekly CP Case-Study Conferences.
G. Trained Pathology, Hematology and Oncology, and Pediatric Hematology Residents in Immunohematology.
H. Provided instruction to CP Residents during their Blood Bank Rotations.
I. Director, Current Topics in Blood Banking Conference, Department of Post-Graduate Medicine, University of Michigan, June 1-3, 1988:
    1. Workshop Director - Lectins and Polyagglutination.
    2. Speaker - Compatibility Testing - Where Have We Been and Where are We Going?
    3. Moderator - Management Issues.
J. Visiting Lecturer, Specialist in Blood Banking Program, Wayne State University.
K. Workshop Director, Blood Group Biochemistry Update. American Association of Blood Banks Annual Meeting, Orlando, FL, November, 1987.

III. RESEARCH ACTIVITIES:

A. Butch S.H., Oberman, H.A., Judd, W.J.: Should hospitals draw donors? - a cost appraisal. Accepted for poster presentation at the International Society for Blood Transfusion Meeting, July 1988.
B. Annesley, T.M., Judd, W.J.: LISS, bleach and their admixture: potential hazards. Submitted for publication in Medical Laboratory Sciences.
C. Steiner, E.A., Hayashi, R.H., Judd, W.J., Oberman, H.A.: PUBS: a new role for the blood bank. Accepted for oral presentation at the International Society for Blood Transfusion Meeting, July 1988.
D. Judd, W.J., Steiner, E.A., O'Donnell, D.B., Oberman, H.A.: Reverse ABO typing problems due to prozone - how safe is the immediate-spin crossmatch? Accepted for poster presentation at the International Society for Blood Transfusion Meeting, July 1988.

E. McCoy-Pardington, D., Knafl, P., Butch, S.H., Judd, W.J.: ECMO: minimal inpact on the blood bank. Abstract submitted for presentation at the Annual Meeting of the American Association of Blood Banks, October, 1988.

F. Gilsdorf, J., Cinat, M.A., Judd, W.J.: Relationship of H. influenzae type b (Hib) Pili structure and adherence to human red blood cells. Abstract submitted for presentation at 1988 ICAAC Meeting, Los Angeles, California.

IV. SERVICE ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

A. Director, AABB Regional Reference Laboratory, University of Michigan Medical School.

REGIONAL AND NATIONAL:

A. National Committee for Clinical Laboratory Standards:
Chairman, Subcommittee on Lectins.

B. American Association of Blood Banks:
1. Associate Editor, AABB Technical Manual.
For the 10th Edition of the AABB Technical Manual (to be published in June of 1989):
a) wrote draft and revised chapter on pretransfusion testing
b) wrote draft and revised chapter on antibody identification
c) wrote draft and revised chapter on autoimmune and drug-induced hemolysis
d) edited initial drafts of all chapters
e) compiled and edited all special methods
2. Scientific Section Coordinating Committee:
a) Vice-Chairman
b) Communications Group Leader
c) Chairman, Subcommittee on Prenatal Testing

C. Michigan Association of Blood Banks:
Annual Meeting Program Committee.

D. Referee of articles submitted to Transfusion, Vox Sanguinus and Laboratory Medicine.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES:

1. Cost-containment in the hospital blood bank. Annual Meeting of the British Blood Transfusion Society, Stirling, Scotland, September, 1987.
2. Pretransfusion testing. Annual Meeting of the North Carolina Association of Blood Banks. Durham, NC, September, 1987.
3. The international blood transfusion establishment. Syva Corporation, Palo Alto, CA, November, 1987.
4. Significant and insignificant antibodies. SYVA Corporation, Palo Alto, CA, November, 1987.

5. Significant and insignificant antibodies. Bay Area Antibody Club, San Francisco, CA, November, 1987.
6. Cost-containment in the blood bank. American Red Cross Blood Service, Los Angeles, CA. November, 1987.
7. Compatibility testing - where have we been and where are we going? Dallas Area Antibody Club, Dallas, February, 1988.
8. Biochemistry of the red cell membrane. Joint Ohio/Indiana Association of Blood Banks Annual Meeting, Indianapolis, March, 1988.
9. Compatibility testing - where have we been and where are we going? New York Blood Center, April, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Smalley, S.L, Thompson, A.L., Spence, M.A., Judd, W.J.and Sparkes, R.S.: Genetic influences on spatial ability: transmission in a five-generation kindred. Behavior Genetics.
2. Judd, W.J., Steiner, E.A., O'Donnell, D.B. and Oberman, H.A.: ABO typing discrepancies due to prozone - how safe is the immediate-spin crossmatch? Transfusion.
3. Judd, W.J., Steiner, E.A., Oberman, H.A. and Giacherio, D.: False-positive results with chemically modified anti-D do not indicate a need to use a separate immunologically inert Rh control reagent. Transfusion.
4. Daniels, G.L., Reid, M.D., Anstee, D.J., Beattie, K.M. and Judd, W.J.: Transient reduction in erythrocyte membrane sialoglycoprotein B associated with the presence of elliptocytosis in a patient with severe anemia. Brit J Haematol.

BOOKS/CHAPTERS IN BOOKS:

1. Judd, W.J.: Methods in immunohematology. Montgomery Scientific Publications, 1988 (267 pages).
2. Judd, W.J.: Antibody elution from red cells. In: Greenwalt TJ, ed. Methods in Hematology - Blood Transfusion. Edinburgh: Churchill-Livingstone, 1988;17:78-105.
3. Oberman, H.A. and Judd, W.J.: Cost-containment in transfusion medicine. In: Cash, J.D., ed., Progress in Transfusion Medicine, Vol. III. Churchill-Livingstone, 1988;3:145-158.
4. Judd, W.J.: Lectins and Polyagglutination. In: Petz, L.D., Swisher, S.M. Clinical Practice of Blood Transfusion, ed 2. Churchill-Livingstone, 1988: In press.
5. Investigation and management of immune hemolysis - autoantibodies and drugs. Arlington: American Association of Blood Banks, 1988: In press.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATION IN NON-REFEREED JOURNALS:

1. Steiner, E.A., Judd, W.J. and Oberman, H.A.: Autologous donations from recently transfused patients. Transfusion 1987;27:291-292.

2. Anti-'N' nonsense. Immunohematol 1987;3:25.
3. Judd, W.J., Steiner, E.A. and Oberman, H.A.: Reverse typing errors due to prozone: how safe is the immediate-spin crossmatch. Transfusion 1987;27:527.
4. Butch, S.H., Oberman, H.A. and Judd, W.J.: Should hospital draw-donors - a cost appraisal. Transfusion 1987;27:553.

DAVID F. KEREN, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Head, Biochemistry Section.
B. Director, Clinical Immunopathology Laboratory.
C. Surgical Pathology, Consultant on Immunopathology and Gastrointestinal Pathology, on-call duties.
D. Autopsy Pathology, staff coverage and on-call duties.

II. TEACHING ACTIVITIES:

A. Medical Students and Graduate Students.
   1. Biology 414, Lecture on Mucosal Immunity.
   2. Pathology Course, Lectures on myeloma and autoimmunity.
   3. Pathology Course, Laboratory Director.
B. House Officers:
   1. Coordinator, Weekly Clinical Pathology Rounds.
   2. Participant, Clinical Pathology Grand Rounds.
   3. Clinical Immunopathology, Daily sign-out.
   4. Immunology Journal Club, Weekly.
   5. Graduate Student Conference, Monthly.
C. Medical Student Teaching Award.

III. RESEARCH ACTIVITIES:

A. Studies on kinetics of the mucosal immune response to bacterial antigens.
B. Creation of carcinogen-protein conjugates to study systemic and mucosal immune response to carcinogens.
C. Cell Differentiation within the liver.

SPONSORED SUPPORT:

A. United States Army Research and Development Command, "An Investigation of the Memory Response of the Local Immune System to Shigella Antigens", $367,694. April 6, 1987-July 3, 1990, Principal Investigator.
B. Smokeless Tobacco Research Council, Inc. "Significance of Immune Responses to Mucosal Carcinogens", $553,805. January 1, 1984-December 31, 1988, Principal Investigator.

STUDENT AND FELLOW RESEARCH PROJECTS:

A. Larry Silbart - "The detection of AAF adducts in rat hepatocytes by RIA".
B. Joseph Wassef - "Uptake of Shigella by M cells in the pathogenesis of dysentery".

C. Lori Armstrong - "The cellular basis for enhanced mucosal IgA memory responses."

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Clinical Pathology Committee.
B. Biochemistry Section Committee.
C. Resident Counselor.
D. Stobbe Fund Committee.
E. Department Executive Committee.
F. Graduate Program Committee.
G. Chairman's Advisory Council.

REGIONAL AND NATIONAL:

A. Immunopathology Council (ASCP), (Chairman, 1985-1987).
B. Editorial Board - Clinical Laboratory Update.
C. Council on Continuing Education, (ASCP).
D. Chairman, Immunopathology Rounds (ASCP).
E. NIH - Study Section - Enteric Diseases.
F. Resident Scientific Session ASCP, Judge.
G. Reviewer, Clinical Chemistry, The Journal of Nutrition, Gastroenterology, Infection and Immunity.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. "Diagnostic Use of Immunofluorescence", American Society of Clinical Pathologists, Immunohistology Workshop, Chicago, September 1987.
2. "High Resolution Electrophoresis and Immunofixation:, Course presented at ASCP, New Orleans, LO, October, 1987.
3. "Diagnosis of Monoclonal Proteins", Scientific Advisory Board. SmithKline Beckmen. Philadelphia, August, 1987.
4. "Immunodeficiency Diseases - Surface Marker Assays in Clinical Diagnosis", American Society of Clinical Pathologists, New Orleans, October, 1987.
5. "New Autoantibody Testing", American Society of Clinical Pathologists, New Orleans, October, 1987.
6. American Society of Clinical Pathologists Matrix Meetings, Chicago, November, 1987.
7. Mucosal Immunity Session Chairman, U.S. - Japan Joint Conference on Cholera, Williamsburg, November, 1987.
8. "Oligoclonal Banding in CSF-An Evaluation", SmithKline Beckman, Los Angeles, January, 1988.
9. "The Gastrointestinal Immune System", The Long Course, United States and Canadian Academy of Pathology, Washington, DC, March, 1988.
10. "Agarose gel Electrophoresis", Panagel Seminar, Newark, NJ, March, 1988.
11. "Electrophoresis and Immunofixation in Clinical Diagnosis", American Society of Clinical Pathologists, Kansas City, April, 1988.

12. "Low Molecular Weight IgM Monoclonal Gammopathy", American Society of Clinical Pathologists, Kansas City, April, 1988.
13. "The Enteric Immune Response to Shigella Antigens", International Conference on Secretory Immunity, Birmingham, AL, March, 1988.
14. "New Autoantibody Testing", Visiting Professor, Western Reserve Care System, Youngstown, Ohio, May, 1988.
15. "Strategies to diagnose Monoclonal Gammopathies", Visiting Professor, Western Reserve Care System, Youngstown, Ohio, May, 1988.
16. "The Use of High Resolution Electrophoresis to Detect Protein Abnormalities in Serum", Visiting Professor, The University of Colorado, Denver, June, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Kern, S.E., Keren, D.F. and Pierson, C.L.: Bacterial overgrowth and mucosal changes in isolated (Thiry-Vella) ileal loops in rabbits: effect of intraluminal antiobiotics. Lab. Invest. 1987;57:336-341.
2. Keren,D.F.: Models to follow secretory IgA response to mucosal infections. Pathol. Immunopathol. Res. 1987;6:128-136.
3. Keren, D.F. and McDonald, R.A.: Enhancement of the secretory IgA response to enteropathogens. Adv. Exper. Med. Biol. 1987;216:941-950.
4. Khan, P., Roth, M.S., Keren, D.F. and Foon, K.A.: Light chain disease associated with the hyperviscosity syndrome. Cancer 1987;60:2267-2268.
5. Carey, J. and Keren, D.F.: Correlation of the IgA response in intestinal secretions with cellular events in the development of mucosal immunity. Adv. Exper. Med. Biol. 1987;216:951-958.
6. Kern, S.E., Keren, D.F., Beals, T.F. and Varani, J.: A Model for Paneth cell study: tissue culture of the hyperplastic paneth cell population of rabbit Thiry-Vella ileal loops. Adv. Exper. Med. Biol. 1987;216:419-426.
7. Keren, D.F.: Intestinal immune defense mechanisms. Am. J. Surg. Pathol. 1988;12, Suppl.:100-105.
8. Silbart, L.K., Nordbloom, G., Keren, D.F., Wise, Jr., D.S., Lincoln, P.M. and Townsend, L.B.: A rapid and sensitive screening method for the detection of anti-2-acetylaminofluorene immunoglobulins. J. Immunol. Methods. 1988;109:103-112.
9. Keren, D.F.: Autoreactivity and altered immune responses in inflammatory bowel disease. Clin. Lab. Med. 1988;8:325-336.
10. Keren, D.F., McDonald, R.A. and Carey, J.L.: Combined parenteral and oral immunization results in an enhanced mucosal immunoglobulin A response to Shigella flexneri. Infect. Immun. 1988;56:910-915.
11. Keren, D.F.: Mucosal IgA elaboration. CRC Press, 1988 (In Press).
12. Keren, D.F., Kumar, N.B. and Appelman, H.D.: Quantification of IgG-containing plasma cells as an adjunct to histopathology in distinguishing acute self-limited colitis from active idiopathic inflammatory bowel disease. Pathol. Immunopathol. Res. 1988 (In Press).
13. Davenport, R.D. and Keren, D.F.: Oligoclonal bands in cerebrospinal fluid: significance of corresponding bands in serum for diagnosis of multiple sclerosis. Clin. Chem., 1988 (In Press).

14. Maganto, P., Traber, P.G., Wojcik, E., Rusnell, C., Keren, D., Gumucio, J.J.: Intrasplenically transplanted hepatocytes: an expression system for liver cytochrome P450b and P450e genes. Science (In Press).
15. Wassef, J.S. and Keren D.F.: Uptake of Shigella flexneri by follicle-associated epkthelium: role in immunogenic stimulation and pathogenicity. NIH Publications 1988 (In Press).
16. Wojcik, E., Dvorak, C., Chianale, J., Traber, P., Keren, D.F., Gumucio, J.J.: Demonstration by in situ hybridization of the zonal modulation of rat liver cytochrome P450b and P450e gene expression after phenobarbital. J. Clin. Invest. (In Press).
17. Keren, D.F., Warren, J.S. and Lowe, J.B.: Strategy to diagnose monoclonal gammopathies in serum: high resolution electrophoresis, immunofixation and K/L quantification. Clin. Chem., (In Press).

BOOKS AND CHAPTERS IN BOOKS:

1. Keren, D.F. (Editor): Flow cytometry, surface marker assays, and DNA studies in diagnostic pathology. ASCP Press (In Press).
2. Keren, D.F.: Chapter 1: Introduction - History and evolution of surface marker assays, in, Keren, D.F.(Editor) Flow Cytometry, Surface Marker Assays, and DNA Studies in Diagnostic Pathology, ASCP Press (In Press).
3. Keren, D.F.: Chapter 7: Surface marker assays in the evolution of immune deficiency diseases, in, Keren, D.F.(Editor) Flow Cytometry, Surface Marker Assays, and DNA Studies in Diagnostic Pathology, ASCP Press (In Press).
4. Keren, D.F.: Chapter V: Structure and function of the immunologic system of the gastrointestinal tract, in, Ming, S.(Editor) The Pathology of the Gastrointestinal Tract, W.B. Saunders, Co., New York, (In Press).
5. Keren, D.F.: Gastrointestinal Immune System and its Disorders in the Gastrointestinal Tract, Williams and Wilkins, (In Press).

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Keren, D.F.: Immunofluorescence techniques. Immunochemica (In Press).
2. Davenport, R.D. and Keren D.F.: Oligoclonal bands in cerebrospinal fluid: significance of corresponding bands in serum for diagnosis of multiple sclerosis. Am. J. Clin. Pathol. 1987;88:525.
3. Keren, D.F.: Protection against mucosal infections by secretory IgA. Clin. Immunol. News. 1987;8:1.
4. Wassef, J.S. and Keren D.F.: Uptake of Shigella flexneri by follicle-associated epithelium: role in immunogenic stimulation and pathogenicity. Twenty-third Joint Conference on Cholera. NIH Publications, 1988;114-115.
5. Keren, D.F., Brown, J.E. and McDonald, R.A.: Functional significance of secretory IgA against shiga toxin. 1988 ASM Abstracts, 112.
6. Armstrong, L.R. and Keren, D.F.: Cellular events surrounding oral stimulation of the mucosal immune response to Shigella flexneri. Fed. Proc.
7. Levinson, S.S., Keren, D.F. and Goldman, J.O.: Immunoglobulins from immunologically activated persons show greater tendency to aggretate than normal. Clin. Chem. (In Press).
8. Keren, D.F., Warren, J.S. and Lowe, J.B.: Combined use of high resolution electrophoresis, kappa/lambda quantification and immunofixations for efficient detection of monoclonal gammopathies. Am. J. Clin. Pathol. (In Press).

9. Bush, D. and Keren D.F.: Quantification of kappa and lambda containing immunoglobulins with the Beckman Array. Clin Chem. (In Press).

PAUL D. KILLEN, M.D., PH.D.
ASSISTANT PROFESSOR OF PATHOLOGY
ASSISTANT RESEARCH PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. **CLINICAL ACTIVITIES:** None

II. **TEACHING ACTIVITIES:**

A. Pathology 630.
B. Renal Pathology Conference.
C. Gross Pathology Conference.
D. Resident Teaching Conference-Anatomic Pathology.

III. **RESEARCH ACTIVITIES:**

SPONSORED SUPPORT:

A. NIH-P01-HL31963 "Inflammatory Cells and Lung Injury", Program Project, Section VI "Molecular Biology Alveolar Wall Injury, Principal Investigator (pending).

PROJECTS UNDER STUDY:

A. Basement membrane gene expression by alveolar wall cells.
B. Regulation of collagen IV gene expression during development.
C. Expression of mutant alpha 1(IV) genes by eukaryotic cells in vitro.
D. Regulation of basement membrane gene expression by glomerular cells in culture.

IV. **ADMINISTRATIVE ACTIVITIES:**

DEPARTMENTAL: None.

MEDICAL SCHOOL/HOSPITAL:

A. Interviewed candidates for faculty positions.
B. Interviewed candidates for research fellowships.

REGIONAL AND NATIONAL:

A. Ad hoc reviewer, Div. of Extramural Activities, NIDDK, NIH.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Xth International Congress of Nephrology, London, July 26-31, 1987.
2. American Society of Cell Biology, Laminin Workshop, St. Louis, MO, November 1987.
3. Molecular Biology and Medicine, Dept. of Internal Medicine, University of Michigan.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Fukatsu, A., Brentjens, J.R., Killen, P.D., Kleinman, H.K., Martin, G.R., and Andres, G.A.: Studies on the formation of glomerular immune deposits in Brown-Norway rats injected with mercuric chloride. J. Clin. Immunol. Immunopathol. 1987;45(1):35-47.
2. Killen, P.D., Francomano, C.A., Yamada, Y., Modi, W.S., and O'Brien, S.J.: Partial structure of the human 2(IV) collagen chain and chromosomal localization of the gene (COL4A2). Human Genetics, 1987;77(4):318-324.
3. Kukatsu, A., Matsuo, S., Killen, P.D., Martin, G.R., Andres, G.A., and Brentjens, J.R.: The glomerular distribution of type IV collagen and laminin in human membranous glomerulonephritis. Hum. Pathol., 1988;19:64-68.
4. Ebihara, I., Killen, P.D., Laurie, G.W., Huang, T., Yamada, Y., Martin, G.R., and Brown, K.S.: Altered mRNA expression of basement membrane components in a murine model of polycystic kidney disease. Lab. Invest., 1988;58(3):262-269.
5. Killen, P.D., Burbelo, P.D., Martin, G.R., Yamada, Y.: Structures of the amino-terminal portion of the murine 1(IV) collagen chain and the corresponding region of the gene. J. Biol. Chem., 1988, (In Press).
6. Killen, P.D., Burbelo, P.D., Martin, G.R., Yamada, Y.: Characterization of the promoter for the 1(IV) collagen gene: DNA sequences within the first intron enhance transcription. J. Biol. Chem., 1988, (In Press).

ARTICLES SUBMITTED FOR PUBLICATION:

1. Cutting, G.R., Killen, P.D., Francomano, C.A., Yamada, Y., Antonarakis, S.E. and Kazazian, H.H.: macrorestriction mapping of COL4A1 and COL4A2 collagen genes on chromosome 13q34, 1988, Genomics, submitted.
2. McGuire, P.G., Brocks, D., Killen, P.D., and Orkin, R.W.: Increased deposition of basement membrane macromolecules in specific vessels of the spontaneously hypertensive rat. 1988, Amer. J. Pathol., submitted.

3. Killen, P.D., Yamada, Y., and Francomano, C.A.: TaqI and BclI polymorphisms in the COL4A1 gene. Nucl. Acid Res., 1988, submitted.
4. Francomano, C.A., Yamada, Y. and Killen, P.D.: MspI and EcoRV polymorphisms in the COL4A2 gene. Nucl. Acid Res., 1988, submitted.
5. Killen, P.D., Yamada, Y. and Francomano, C.A.: High frequency HpaI polymorphism in the LAMB1 laminin gene. Nucl. Acid Res., 1988, submitted.
6. Francomano, C.A., Yamada, Y., and Killen, P.D.: MspI restriction fragment length polymorphism in the LAMB2 laminin gene. Nucl. Acid. Res., 1988, submitted.

BOOKS AND CHAPTERS IN BOOKS:

1. Killen, P.D., Ebihara, I., Laurie, G.W., Yamada, Y., Martin, G.R., Brown, K.S.: Abnormal expression of basement membrane genes in murine cogential polycystic kidney disease. in, Advances in Polycystic Kidney Disease Research, (In Press).
2. Burbelo, P., Killen, P.D., Ebihara, I., Sakurai, Y., Yamada, Y.: Structure and expression of collagen IV genes. In Collagen: Biochemistry Biotechnology and Molecular Biology, Vol. IV, eds. Nimni, M.E. and Olsen, B.R., CRC Press, Florida, 1987, in press.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Burbelo, P.D., Killen, P.D., Martin, G.R., and Yamada, Y.: Characterization of the promoter for the 1(IV) collagen gene. Amer. Soc. for Cell Biology, 1987 (abstract).
2. Laurie, G.W., Ebihara, I., Killen, P.D., Yamada, Y., and Martin, G.R.: Regional expression of mRNA for the basement membrane proteins type IV collagen (1 chain) and laminin (B1 chain) in developing mouse kidney. Amer. Soc. of Human Genetics, 1987 (abstract).
3. Cutting, G.R., Kazazian, H.H., Antonarakis, S.E., Killen, P.D., Yamada, Y. and Francomano, C.A.: Macrorestriction analysis maps COL4A1 and COL4A2 collagens genes within a 400 KB region on chromosome 13q34. Amer. Soc. of Human Genetics, 1987 (abstract).
4. Weiser, M.M., Ryzowicz, S., Soroka, C.J., Albini, B., and Killen, P.D.: In vitro synthesis of rat intestinal basement membrane components. (abstract).
5. Weiser, M.M., Killen, P.D.: Rat intestinal basement membrane synthesis: The relative contributions of villus vs. crypt epithelial cells and nonepithelial cells. Int. Conference on Gastroenteric Biology. (abstract).

STEVEN L. KUNKEL, PH.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES: None.

II. TEACHING ACTIVITIES:

A. Inflammation/Immunopathology Series ICS-600.
B. Pathology 630
C. Epidemiology 570.
D. Core Lectures in Immunopathology/Molecular Biology.
E. Teaching/Research Seminars in various departments.
F. Supervised the following and postdoctoral fellows and students: Dr. Robert Streiter, Dr. Robert Spengler, Dr. Wendy Scales, Mark Eskandari, and Michael Genord.
G. Doctoral Committee Member/Oral Presentation Committee for the following graduate students: Sandra Reynolds, Jan Leung, Nancy Long, Marjorie Minkoff, Jan Senyshyn and Tim Angelotti.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. NIH - Macrophage/Monocyte Signals in Lung Granuloma Formation; HL-R01-35276; Principal Investigator.
B. NIH - Macrophage Function in Pulmonary Inflammation; HL-R01-31237; Principal Investigator.
C. NIH - Inflammatory Cells and Lung Injury; Program Project HL-31963; Principal Investigator for Section II and Core II.
D. American Heart Association Established Investigator - Regulation of Pulmonary Granuloma Formation by Macrophages; Principal Investigator.
E. NIH - Crescentic Nephritis; Program Project P01-DK38149; Principal Investigator - Section II.
F. NIH - Modulation of Immune Complex Lung Injury by Prostaglandins; Co-investigator.
G. NIH - Fibroblast Heterogeneity in Pulmonary Fibrosis; HL-39925; Co-investigator.

PROJECTS UNDER STUDY:

A. Regulation of macrophage signals that dictate immune responsiveness.
   1. Tumor necrosis factor production.
   2. Interleukin-1 production.
   3. Synthesis of arachidonic acid metabolites.
   4. Ia antigen expression.

B. Role of macrophages - lymphocyte interactions in the initiation, maintenance, and resolution of chronic immune response.
C. Regulation of macrophage gene expression.
D. Techniques used to study the above projects:
    1. Northern blot analysis.
    2. *In situ* hybridization.
    3. Nuclear transcriptional analysis.
    4. High pressure liquid chromatography.
    5. Spectrophotometry.
    6. Immunofluorescence.
    7. Image analysis.
    8. Proliferation assays (IL-1 and IL-2 assays).
    9. Cytotoxicity assays.
E. Collaborative Research Outside of Pathology:
    1. Dr. Gene Higashi.
    2. Dr. Joseph Lynch.
    3. Dr. Roger Wiggins.
    4. Dr. Gary Nabel
    5. Dr. Craig Thompson
    6. Dr. Tullia Lindsten

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Space Utilization Committee (Chairman).
B. Search Committee for Academic Pathologist (Chairman).
C. Conduct Research Seminar Series.
D. Interview Candidates for Residency Program.

MEDICAL SCHOOL/HOSPITAL:

A. Medical School Financial Aid Committee.
B. Committee on Medical Student Research.
C. Committee on Use and Care of Animals.
D. Reviewer for Biomedical Research Council Grants.
E. Reviewer for Diabetes Research and Training Center Grants.
F. Member, Michigan Cancer Center.

REGIONAL AND NATIONAL:

A. Associate Editor, Journal of Immunology, 1987-1990.
B. Organizing Committee, Second International Workshop on Non-lymphocytic Cytokines.
C. Reviewer for the following journals: American Journal of Pathology, American Review of Respiratory Disease, Circulation, Clinical Immunology and Immunopathology, Infection and Immunity, Journal of Rheumatology, Laboratory Investigation, Science.
D. American Heart Association Undergraduate Research Committee.
E. Research Peer Review Committee of the American Heart Association (Michigan).

F. Consultant/Grant Reviewer for Veteran's Administration.
G. Consultant, NHLBI, Specialized Center for Research in ARDS
H. Study Section Participant, Review on Renal Program Project.
I. Grant Reviewer, United States Department of Agriculture.
J. Grant Reviewer, The Arthritis Society.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. Loyola University, Visiting Professor, Department of Physiology, 1988.
2. Ohio State University, Department of Internal Medicine, Pulmonary Division, 1988.
3. Pfizer Research Forum, Pfizer Pharmaceutical Co., Groton, CT, 1988.
4. Michigan State University, Visiting Professor, Department of Pathology, 1988.
5. Abbott Laboratories, Division of Diagnostics, Chicago, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Port, F.K., VanDeKerkhove, K.M., Kunkel, S.L., and Kluger, M.J.: The role of dialysate in the stimulation of interleukin-1 production during clinical hemodialysis. Am. J. Kid. Dis. 1987; 10:118-122.
2. Larrick, J.W., Wang, J., Findly, B.M., Chenoweth, D.F., and Kunkel, S.L. and Deinhart, T.: Murine monoclonal antibodies recognize neutralizing epitopes on human C5a. Infect. & Immun., 1987; 55:1867-1872.
3. Remick, D.G., Larrick, J.W., Nguyen, D.T., and Kunkel, S.L.: Stimulation of prostaglandin E_2 and thromboxane B_2 production by human monocytes in response to interleukin-2. Biochem. Biophys. Res. Commun. 1987; 147:86-93.
4. Warren, J.S., Kunkel, S.L., Johnson, K.J., and Ward, P.A.: *In vitro* activation of rat neutrophils and alveolar macrophages with IgA and IgG immune complexes: Implication for immune complex-induced lung injury. Am. J. Pathol. 1987; 129:578-588.
5. Kunkel, S.L.: The importance of arachidonate metabolism by immune and non-immune cells. Lab. Invest. 1988; 58:201-204.
6. Warren, J.S., Kunkel, S.L., Cunningham, T.W., Johnson, K.J., and Ward, P.A.: Macrophage-derived cytokines amplify complex-triggered O_2^- responses by rat alveolar macrophages. Am. J. Pathol. 1988; 130:489-495.
7. Remick, D.G., Kunkel, S.L., Higashi, G.I., and Hiserodt, J.C.: Suppression of natural killer cytolytic activity in mice undergoing pulmonary granulomatous inflammation. J. Immunol. 1988; 140:2225-2230.
8. Bagavandoss, P., Kunkel, S.L., Wiggins, R.C., and Keyes, P.L.: Tumor necrosis factor-alpha (TNF-alpha) production and localization of macrophages and T-lymphocytes in the rabbit corpus luteum. J. Endocrinol. 1988; 122:1185-1187.
9. Kunkel, S.L., Spengler, M., May, M.A., Spengler, R., Larrick, J., and Remick, D.G.: Prostaglandin E_2 regulates macrophage-derived tumor necrosis factor gene expression. J. Biol. Chem. 1988; 263:5380-5384.
10. Larrick, J. and Kunkel, S.L.: The role of IL-1 and TNF in the immuno-inflammatory response. Pharm. Res. 1988; 5:129-139.

11. Remick, D.G., Chensue, S.W., Hiserodt, J.C., Higashi, G.I., and Kunkel, S.L.: Flow cytometric evaluation of lymphocyte subpopulations in synchronously developing S. mansoni and Sephadex bead pulmonary granulomas. Am. J. Pathol. 1988; 131:298-307.
12. Phan, S.H., McGarry, B.M., Loeffler, K.M., and Kunkel, S.L.: Binding of LTC_4 to rat lung fibroblasts and stimulation of collagen synthesis *in vitro*. Biochem. 1988; 27:2846-2853.
13. Kunkel, S.L., Remick, D.G., Strieter, R.M., and Larrick, J.W.: mechanisms that regulate the production and effects of tumor necrosis factor-alpha. Free Radical Res. (in press).
14. Remick, D.G., Scales, W.E., May, M.A., Spengler, M., Nguyen, W. and Kunkel, S.L.: In situ hybridization analysis of macrophage-derived tumor necrosis factor and interleukin-1 mRNA. Lab. Invest., (In Press).

BOOKS AND CHAPTERS IN BOOKS:

1. Deinhart, T., Wang, J., Toy, K., Ishizaka, A., Stephens, K.E., Hall, E.R., Raffin, T.A., Chenoweth, D.E., Kunkel, S.L., and Larrick, J.W.: Murine monoclonal antibodies neutralizing the effects of porcine C5a. In, The Pharmacology and Toxicology of Proteins, Alan R. Liss, Inc., New York, New York, pp. 255-272, 1987.
2. Johnson, K.J., Chensue, S.W., Kunkel, S.L., and Ward, P.A.: Immunopathology, In, Rubin, E., and Farber J. (Eds) Textbook of Pathology, Lippincott, Inc., New York, New York, pp. 96-139, 1988.
3. Kunkel, S.L., Scales, W.E., Spengler, R., Spengler, M., and Larrick, J.: Dynamics and regulation of macrophage tumor necrosis factor, interleukin-1 alpha, interleukin-1 beta gene expression by arachidonate metabolites. In, Monokines and Other Non-Lymphocytic Cytokines, Powanda, M.C. (ed). Alan R. Liss, Inc., New York, New York, 1988.
4. Phan, S.H. and Kunkel, S.L.: Effects of muramyldipeptide and indomethacin of schistosome egg-induced granulomatous inflammation in the lung. In, Sarcoidosis and Other Granulomatous Disorders, Grassi, C., Rizallo, G., Pozzi, E. (eds), Elsevier, pp. 267-270, 1988.
5 Kunkel, S.L., Spengler, M., Kwon, G., May, M.A., and Remick, D.G.: Production and regulation of tumor necrosis factor alpha: A cellular and molecular analysis. In, Jasmin, G. (ed), Methods and Achievements in Experimental Pathology, Vol. XIV, Kinetics and Patterns of Necrosis, Karger, 1988.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Kunkel, S.L., Larrick, J.W., and Remick, D.G.: Prostaglandin E_2 (PGE_2) and prostacyclin (PGI_2) regulate tumor necrosis factor alpha (TNF) production at the cellular and molecular levels; An analysis of autocrine, paracrine, and endocrine effects. International Conference on Tumor Necrosis factor and Related Cytokines, Heidelberg, Germany, 1987.
2. Remick, D.G., Larrick, J.W., and Kunkel, S.L.: Acute *in vivo* effects of tumor necrosis factor alpha (TNF) and resistance to modulation of these effects by pharmacologic manipulations. International Conference on Tumor Necrosis Factor and Related Cytokines, Heidelberg, Germany, 1987.

3. Phan, S.H. and Kunkel, S.L.: Effects of muramyldipeptide and indomethacin on schistosome egg-induced granulomatous inflammation in the lung. International Sarcoidosis Meeting, Milan, Italy, 1987.
4. Kunkel, S.L. and Larrick, J: Dynamics and regulation of murine tumor necrosis factor and interleukin-1 gene expression by arachidonic metabolism. International Workshop on Monokines and Other Non-Lymphocytic Cytokines, Hilton Head, South Carolina, 1988.
5. Remick, D.G., May, M.A., Spengler, M., and Kunkel, S.: Analysis of tumor necrosis factor alpha (TNF) mRNA regulation by *in situ* hybridization. Lab. Invest. 1988.
6. Marks, R.M., Ward, P.A., Kunkel, S.L., and Dixit, V.M.: :Tumor necrosis factor induces mRNA for thrombospondin in human endothelial cells. FASEB, 1988.
7. Warren, J.S., Robert, M., Kunkel, S.L., Johnson, K.J., and Ward, P.A.: Modulation of interleukin 1 (IL-1) and tumor necrosis factor (TNF) production by monocytes and alveolar macrophages: Implications for immune complex-mediated lung injury. FASEB, 1988.
8. Chensue, S.W., Kunkel, S.L., Otterness, I., McClinchey, K., Spengler, M., and Weng, A.: Monokine production by schistosome egg and foreign body granuloma macrophages. FASEB, 1988.
9. Scales, W.E. and Kunkel, S.L.: Regulation of murine macrophage (M0) interleukin-1 (IL-1) production by prostaglandin E_2 (PGE_2). FASEB, 1988.
10. May, M.A., Nguyen, D., Kunkel, S.L., and Remick, D.G.: Analysis of monokine mRNA regulation by *in situ* hybridization (ISH). FASEB, 1988.
11. Nguyen, D., Kunkel, R.G., Kunkel, S.L., and Remick, D.G.: Dose dependent tissue damage induced by tumor necrosis factor (TNF). FASEB, 1988.
12. Strieter, R.M., Remick, D.G., Lynch, J.P., Nguyen, D., Eskandari, M., and Kunkel, S.L.: Dexamethasone suppresses *in vivo* tumor necrosis factor-alpha (TNF) gene expression and bioactivity. FASEB, 1988.
13. Remick, D.G., Nguyen, D., and Kunkel, S.L.: Interleukin 2 (IL-2) induction of tumor necrosis factor (TNF) and arachidonic acid (AA) metabolites. FASEB, 1988.
14. Spengler, R.N., Spengler, M.L., and Kunkel, S.L.: PGE_2-induced suppression of tumor necrosis factor production is desensitized by PGE_2 pretreatment. FASEB, 1988.
15. Kunkel, S.L., Spengler, R.N., Spengler, M.L., and Larrick, J.: Transcriptional and post-transcriptional regulation of macrophage-derived tumor necrosis factor (TNF) gene expression. FASEB, 1988.
16. Strieter, R.M., Remick, D.G., Lynch, J.P., and Kunkel, S.L.: The role of tumor necrosis factor-alpha (TNF) in multiple organ injury: A cellular and molecular analysis. Aspen Lung Conference, 1988.
17. Strieter, R.M., Remick, D.G., Lynch, J.P., and Kunkel, S.L.: Interleukin-2 induced tumor necrosis factor-alpha gene expression by human alveolar macrophages and blood monocytes. Am. Thoracic Society, Las Vegas, Nevada, 1988.
18. Strieter, R.M., Remick, D.G., Lynch, J.P., and Kunkel, S.L.: Differential regulation of tumor necrosis factor-alpha in human alveolar macrophages and peripheral blood monocytes. Am. College of Chest Physicians Annual Meeting, 1988.

RICARDO V. LLOYD, M.D., PH.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Surgical Pathology - 28 weeks.
B. Consultant for soft tissue lesions - 12 months.
C. Consultant for endocrine lesions - 12 months.
D. Consultant to Veterans Administration Medical Center, Ann Arbor, Michigan.

II. TEACHING ACTIVITIES:

A. Lectures to sophomore medical students - Pathology 600 Course.
B. Fourth Year medical student rotation in Pathology - 1 month.
C. Lectures to dental students - Pathology 630 course.
D. Lectures to pathology house officers.
E. Immunoperoxidase Rounds - twice monthly.
F. Supervised undergraduate in Student Medical Research Program.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Regulation of Rat Pituitary Hyperplasia and Neoplasia. NIH Grant 1R23 CA 37238, 3/84 - 2/87 and NIH CA 37238, 5/87 - 6/91, (PI - R. Lloyd).
B. Analysis of Rat Pituitary Neoplasms with Monoclonal Antibodies. CTR Grant 1850, 1/1/85 - 12/31/88, (PI - R. Lloyd).
C. Studies of Normal and Neoplastic Human Pituitary Tissues. NIH Grant CA 42951, 7/86 - 6/90 (PI - R. Lloyd).
D. Member of Immunochemistry Core in the Gastrointestinal Hormone Research Core Center Grant, NIH - NIADDKD, 10/84 - 9/89, (PI - T. Yamada).

PROJECTS UNDER STUDY:

A. Dopamine and estrogen receptor analyses in rat and human pituitary tissues.
B. In situ hybridization as a research and a diagnostic technique.
C. Development of monoclonal antibodies as diagnostic aids in surgical pathology.
D. Immunocytochemical techniques for light and electorn microscopy.
E. Development of a reverse hemolytic plaque assay to study hormone secretion.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Director of Immunoperoxidase Service.
B. Coordinator of Anatomic Pathology Journal Club.
C. Resident Selection Committee.
D. Stobbe Fund Committee.
E. Pathology Graduate Training Program Committee.

MEDICAL SCHOOL/HOSPITAL:

A. Thyroid Therapy Conference.
B. Pituitary Study Group.
C. Medical School Admissions Committee - August 1983 to May 1988.

REGIONAL AND NATIONAL:

A. Presentations at the International Academy of Pathology in Chicago, Illinois, March 1988
B. Presentation at the Endocrine Society 69th Annual Meeting, Indianapolis, IN, June 9-11, 1988.
C. Editorial Board - American Journal of Surgical Pathology.
D. Reviewer of articles for Laboratory Investigation, The American Journal of Pathology, Journal of the American Medical Association, Journal of Histochemistry, and Cytochemistry and the American Journal of Medical Sciences.
E. Review Committee for International Academy of Pathology Abstracts.
F. Pathology B Study Section, National Cancer Institute, Member, 1987.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. American Society of Clinical Pathology Course: Immunohistology Techniques and Interpretation for Immunoperoxidase and Immunofluroescence. September 20-22, 1987.
2. Pituitary Pathology Club Lectures, Hamburg, Germany, September 17-20, 1987.
3. New York Pathological Society - Slide Presentation and Lecture on In Situ Hybridization, November 19, 1987.
4. Michigan Society of Technologist Lecture on In Situ Hybridization, June 4, 1987.
5. Michigan Society of Pathology - Slide Presentation, May 21, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Lloyd, R.V., Mailloux, J.: Effects of diethylstilbestrol and propylthiouracil on the rat pituitary. An immunohistochemical and ultrastructural study. J. Natl. Cancer Inst. 1987;79:865-873.

2. Vinik, A.I., Strodel, W.E., Eckhauser, F.G., Moattani, R., Lloyd, R.V.: Somatostatinomas, Ppomas and neurotensinomas. Seminars in Oncol. 1987;14:263-281.
3. Lloyd, R.V.: Use of molecular probes in the study of endocrine disease. Human Pathology, 1987;18:1199-1211.
4. Lloyd, R.V., Anagnostou, D., Chandler, W.F.: Dopamine receptors in immunohistochemically characterized normal human pituitary and null cell adenomas. Modern Pathol., 1988;1:51-56.
5. Lloyd, R.V., Anagnostou, D., Cano, M., Barkan, A.L., Chandler, W.F.: Analysis of mammosomatrotropic cells in normal and neoplastic human pituitary tissue by the reverse hemolytic plaque assay and immunocytochemistry. J. Clin. Endocrine Method, 1988;66:1103-1110.
6. Johnson, T.L., Lloyd, R.V., Thompson, N.W., Beierwalters, W.H., Sisson, J.C.: Prognostic implications of the tall cell variant of papillary thyroid carcinoma. J. Surg. Pathol. Am. J. Surg. Pathol. 1988;12:22-27.
7. Pike, A.M., Lloyd, R.V., Appelman, H.D.: Cell markers in gastrointestinal stromal tumors. Human Pathology, (In Press).
8. Flint, A., Davenport, R.D., Lloyd, R.V., Beckwith, A.L., Thompson, N.W.: Cytophotometric measurements of Hurthle cell tumors of the thyroid gland. Correlation with pathologic features and clinical behavior. Cancer, 1988;61:103-110.
9. Lloyd, R.V., Cano, M., Rosa, P., Hille, A., Huttner, W.B.: Widespread distribution of chromogranin A and secretogranin I (Chromogranin B) in neuroendocrine cells and tumors. Am. J. Pathol. 1988;130:296-304.
10. Schteingart, D.E., Chandler, W.F., Lloyd, R.V., Ibarra-Perez, G.: Cushing's syndrome caused by an ectopic pituitary adenoma.
11. Lloyd, R.V.: Analysis of prolactin and growth hormone production in the MtT/F4 tansplantable pituitary tmor by the reverse hemolytic plaque assay. Am. J. Pathol. 1987;129:441-447.
12. Barkan, A.L., Lloyd, R.V., Chandler, W.F., Hatfield, M.K, Gebarski, S.S., Kelch, R.P., Beitins, I.: Effects of a long-acting somatostatin analog SMA 201-995 on radiologic and morphologic appearance of GH producing invasive macroadenomas. J. Clin. Endocrinol. Metab. (In Press).
13. Johnson, T.L., Zarbo, R.J., Lloyd, R.V., Crissma, J.D.: Paragangliomas of the head and neck: immunohistochemical neuroendocrine and intermediate filament typing. Modern Pathol. 1988;1:216-223.
14. Lloyd, R.V.: Analysis of mammosomatotropic cells in normal and neoplastic human pituitaries. Pathol. Res. and Prac. (In Press).
15. Lloyd, R.V.: Analysis of human pituitary tumors by in situ hybridization. Pathol. Res. and Prac. (In Press).
16. Wolber, R.A., Beals, T.F., Lloyd, R.V., Massab, H.F.: Ultrastructural localization of viral nuclei acid by in situ hybridization. Lab. Invest., (In Press).
17. Wolber, R.A., Lloyd. R.V.: Cytomegalovirus detection by in situ DNA hybridization and capsid antigen immunostaining using a 2-color technique. Human Pathol., (In Press).
18. Lloyd, R.V., Mailloux, J.: Analysis of S-100 protein positive folliculo-stellate cells in rat pituitary tissues. Am. J. Pathol., (In Press).
19. Eckhauser, F.G., Lloyd, R.V., Thompson, N.W., Roper, S.E., Vinik, A.I.: Antrectomy for multicentric argyrophil gastric carcinoids: A preliminary report. Surgery, (In Press).

20. Buchsbaum, D., Lloyd, R.V., Juni, J., Wollner, I., Brubaker, P., Hanna, D., Spicker, J., Burns, F., Steplewski, Z., Colcher, D., Scholm, J., Buchegger, F., Mach, J.P.: Localization and imaging of tumor bearing nude mice. Cancer Res. (In Press).

ARTICLES SUBMITTED FOR PUBLICATION:

1. Lloyd, R.V., Cano, M., Chandler, W.F., Barkan, A.L., Horvath, E., Kovacs, K.: Diagnosis of pituitary adenomas by in situ hybridization.
2. Song, J., Long, J., Lloyd, R.V.: Effects of estrogen oncultred normal and meoplastic (MtT/W15 and GH_3) rat pituitary cells. (In Preparation).
3. Kovacs, K., Lloyd, R.V., Horvath, E., Asa, S.L., Killinger, D.W., Smyth, H.S.: Expression of growth hormone mRNA in silent somatotropic adenomas of the human pituitary. A morphologic study of these cases including immunocytochemistry, electron microscopy in vitro examination and in situ hybridization.
4. McLeod, M.K., Thompson, N.W., Hudson, J.L., Gaglio, J.A., Lloyd, R.V., Harness, J.K., Nishiyama, R., Polley, C.Y.: Flow cytometric measurements of nuclear DNA and ploidy analysis in Hurthle cell neoplasms of the thyroid. Submitted to Ann. Surg.
5. Lloyd, R.V., Cano, M., Landefeld, T.D.: The effects of estrogens on tumor growth and on prolactin and growth hormone messenger RNA expression in rat pituitary tissues.
6. Lloyd, R.V., Long, J., Kovacs, K., Horvath, G.: Effects of propylthiouracil on growth hormone and prolactin messenger ribonucleic acid in the rat pituitary. An in situ hybridization histochemical analysis. (In Preparation).

BOOKS/CHAPTERS IN BOOKS:

1. Lloyd, R.V.: Immunohistochemical localization of chromogranin in normal and neoplastic endocrine tissues. Pathol. Ann., 1987, pp. 69-90.
2. Lloyd, R.V.: Immunohistochemical localization of catecholamine, catecholamine synthesizing enzymes and chromogranins in neuroendocrine cells and tumors in, R.A. DeLellis (ed.), Advances in Immunohistochemistry, Raven Press, New York, 1988.
3. Lloyd, R.V.: Immunohistochemical localization of chromogranin in polypeptide hormone producing cells and tumors in, J. Lechago and T. Kameya (eds.), Endocrine Pathology Update. Field and Wood Publishers, PA, 1988, (In Press).
4. Lloyd, R.V.: Tumors of the pituitary gland in V.S. Turusov (ed.). Pathology of Tumors in Laboratory Animals. International Agency for Research on Cancer. World Health Organization, 1989, (In Press).
5. Lloyd, R.V.: Tumors of the pituitary, in, Stinson, S.F., Schuller, H.M. and Reznik, G., (Eds), Atlas of Tumor Pathology of the Fischer Rat, CRC Press, Boca Raton, Florida, 1988, (In Press).
6. Lloyd, R.V.: Neuroendocrine and Paracrine Systems in, Sternberg, S., (Ed), Chapter 12, Diagnostic Surgical Pathology, Raven Press, New York, 1988, (In Press).
7. Lloyd, R.V.: Morphologic Methods, in, Kovacs, K. and Asa, S., (Eds), Functional Endocrine Pathology, Blackwell Scientific Publishers, Boston, MA, 1989, (In Press).

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Lloyd, R.V., Cano, M., Anagnastou, D., Nath, V., Chandler, W.F.: Analysis of mammosomatotropic cells in normal and meoplastic human pituitaries. Endocrine Society 69th Annual Meeting, Indianapolis, IN, June 10-12, 1987, (Abst. No. 401).
2. Lloyd, R.V., Sisson, J.C., Shapiro, B., McLeod, M.K.: Analysis of medullary thyroid carcinomas by in situ hybridization and immunochemistry. Lab. Invest. 58:57A (Abst. No. 336).
3. Lloyd, R.V., Iacangeol, A., Eiden, L.E., Grimes, M.: Analysis of chromogranin A messenger RNA and protein in human tissues by combined in situ hybridization and immunochemistry. Lab. Invest. 58:57A (Abst. No. 335).
4. Lloyd, R.V., Cano, M., Anagnostou, D., Tsay, C.: Messenger RNA stability and optimal conditions for in situ hybridization in the abalysis of pituitary gene product expression. Lab. Invest. 58:56A (Abst. No. 334).
5. Lloyd, R.V., Cano, M., Chandler, W.F., Landefeld, T., Kovacs, K.: Hybridization analyses of normal and adenomatous human pituitary tissues. Lab. Invest. 58:56A (Abst. No. 333).
6. Eckhauser, F.F., Lloyd, R.V., Vinik, A.I., Thompson, N.W.: Antrectomy for multicentric argyrophil gastric carcinoids. A preliminary report. Am. Ass. Endocrine Surgeons, Boston, MA, April, 1988.
7. Horvath, E., Lloyd, R.V., Kovacs, K.: Emergence of bihormonal cells producing growth hormone and thyrotropin in the pituitary of the hypothyroid rat. 8th International Congress of Endocrinology, Tokyo, Japan, July, 1988.
8. Johnson, T.L., Zarbo, R.J., Lloyd, R.V., Crissman, J.D.: Paraganglioma of the head and neck: Neuroendorcrine and intermediate filament typing. Lab. Invest. 58:43A (Abst. No. 256).
9. Flint, A., Davenport, R.D., Lloyd, R.V., Beckwith, A.L., Thompson, N.W.: Cytophotometric mearues of Hurthle cell tumors of the thyroid gland. Correlation with pathological features and clinical behavior. Lab. Invest. 58:31A, 1988 (Abst. No. 180).
10. Lloyd, R.V., Anagnostou, D., Cano, M., Matos, S.: Effects of estrogens on tumor growth and on PRL and GH gene expression in the MtT/W15 transplantable tumor. Endocrine Society 70th Annual Meeting, New Orleans, LA, June 9-11, 1988 (Abst. No. 634).
11. Song, J., Long, J., Lloyd, R.V.: Effects of estrogen on cultured normal and neoplastic (MtT/W15 and GH_3) pituitary cells. Endocrine Society 70th Annual Meeting, New Orleans, LA, June 9-11, 1988 (Abst. No. 921).

JOHN B. LOWE, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Clinical Immunology Diagnostic Service - sign out of serum and urine protein electrophoresis, immunofixation, and immunoelectrophoresis; terminal transferase immunofluorescence.

II. TEACHING ACTIVITIES:

A. Supervision of two postdoctoral fellows (Robert Larsen, Ph.D., and Jolanta Kukowska-Latallo, Ph.D.)

B. Lecturer- Graduate School - Pathology 630 (3 lectures: The Atherosclerotic Process I, II, and III).

C. Pathology Resident Lectures on Molecular Biology and Pathology - lecture coordinator, and introductory lecturer.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Principal Investigator, " The Molecular Biology of Intracellular Lipid Transport", NIH DK-38482 (50% effort), $63,547/year direct cost ($317,737/five years), 8/1/86-7/31/91.

B. Pending: Co-investigator, "Fatty acid binding proteins - ligand specificity", NIH (F. Schroeder, University of Cincinnati Medical Center, Principal Investigator).

PROJECTS UNDER STUDY:

A. Structure and regulation of mammalian glycosyltransferase genes. Efforts are focused on the isolation of the gene(s) for the human ABO blood group glycosyltransferases, using mammalian gene transfer techniques.

B. Structure and function of intracellular lipid transport proteins; liver and enterocyte fatty acid binding proteins. The major emphasis is on the analysis of the physiologic functions(s) of these polypeptides. This involves the establishment and characterization of a system in which fatty acid binding protein cDNAs are expressed in a controlled fashion in fibroblasts, using eukaryotic expression vectors.

ARTICLES SUBMITTED FOR PUBLICATION:

1. Lowe, J.B., O'Rourke, K. and Dixit, V.: Expression of the heparin binding domain of thrombospondin in E. coli (Submitted to J. Biol. Chem).
2. Keren, D.F., Warren, J.S. and Lowe, J.B.: Strategy to diagnose monoclonal gammopathies in serum; high resolution electrophoresis, immunofixation and K/L quantification (submitted to Clin. Chem.)

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Member, Committee to Draft a Proposal for Establishing a Ph.D. Graduate Program in Pathology at the University of Michigan.
B. Member, Committee to Establish Salary Guidelines for Post-doctoral Fellows in the Department of Pathology.

REGIONAL AND NATIONAL:

A. Member, American Board of Pathology Test Committee for Molecular Pathology.

V. OTHER RELEVANT ACTIVITIES:

A. Howard Hughes Medical Institute, Assistant Investigator.

INVITED LECTURES AND SEMINARS:

1. Expression of mammalian lipid transport proteins in E. coli. Warner-Lambert/Parke-Davis, Ann Arbor, MI, 1988
2. The structures and functions of two distinct mammalian fatty acid binding protein genes. College of Pharmacy, University of Cincinnati Medical Center, Cincinnati, Ohio, 1988.

VI. PUBLICATIONS:

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Lowe, J.B., Ernst, L.K., Rajan, V.P. and Larsen, R.: Blood Group H a-2-L-fucosyltransferase expressed in mouse cells after stable transfection with human DNA. FASEB J., 1988;2:A557.
2. Ajmera, S., Crissey, T. and Lowe, J.B.: Chemical Synthesis of a photoactivatable analogue of uridine diphosphate suitable for specific labelling of glycosyltransferase active sites. FASEB J,1988;2:A556.
3. Rajan, V.P. and Lowe, J.B.: Rapid methods for the specific and sensitive assay of mammalian a-2-L-fucosyltransferases. FASEB J, 1988;2:A557.

KENNETH D. MCCLATCHEY, M.D., D.D.S.
ASSOCIATE PROFESSOR AND ASSOCIATE CHAIRMAN
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Surgical Pathology, consultant on all head and neck pathology cases.
B. Autopsy:
   1. Consultant on forensic odontology cases.
   2. Assistant Medical Examiner, Washtenaw County.
C. Director of Clinical Laboratories.
D. Director of Clinical Microbiology Laboratory.
E. Medical Director of Medical Technology Program; Eastern Michigan University.
F. Ann Arbor Veterans Administration Medical Center - monthly consultant.
G. Director, M-Labs, Department of Pathology, The University of Michigan.
H. Consulting Staff, Central Michigan Community Hospital, Mt. Pleasant, Michigan.
I. Consulting Staff, Chelsea Community Hospital, Chelsea, Michigan.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

A. Pathology 630,631; Course Director.
   1. Six hours credit (M,W,F 1-4 pm).
   2. 155 Dental students, 20 medical technology and graduate students.
B. Oral Diagnosis 644; participant.
C. Pathology 600, Lecturer, Head and Neck Pathology.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Consultant, Principal Investigator, Richard L. Wahl, M.D., Department of Internal Medicine, The University of Michigan. Radioimmunodiagnosis of Squamous Cell Carcinoma, Department of Health and Human Services; $608,579, 7/1/85 - 6/30/88.
B. Consultant, Principal Investigator, Thomas E. Carey, Ph.D., Department of Otorhinolaryngology, The University of Michigan. Monoclonal Antibodies to Human Squamous Cancer Antigens, NCI Research Grant CA35929, $69,327/year, $221,537/project period, 1984-1987.

C. Consultant, Principal Investigator, Thomas E. Carey, Ph.D., Department of Otorhinolaryngology, The University of Michigan. Human Squamous Cell Carcinoma: Culture and Serology, NIH R0I-CA28564-06, $139,388/year, $815,326/project period, 1985-1990.

D. Consultant, Principal Investigator, Thomas E. Carey, Ph.D., Department of Otorhinolaryngology, The University of Michigan. Monoclonal Antibodies to Human Squamous Cell Carcinoma: Culture and Serology, NIH, $382,843, 1987-1988.

PROJECTS UNDER STUDY:

A. Veterans Administration Cooperative Studies Program, Executive Committee. G.T. Wolf, T.F. Beals, A.A. Forastiere, T.Carey, K.D. McClatchey, A. Flint, and J.L. Hudson: A new strategy to preserve the voice box in advanced laryngeal cancer. Protocol 582-C, Clinical Research Center, The University of Michigan, 1985-present.

B. See laboratories under my direction.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Medical Service Plan Executive Committee, Department of Pathology, 1979-present.

B. Director, Residency Program, Department of Pathology, 1982-present.

C. Chairman, Resident Selection Committee, Department of Pathology, 1982-present.

MEDICAL SCHOOL/HOSPITAL:

A. Ambulatory Care Committee, The University of Michigan Hospitals, 1980-present.

B. Multi-Organ Transplant Program: Planning Group, Alternate, The University of Michigan Hospitals, 1985-present.

C. Advisor, Medical and Biological Illustration Program, The University of Michigan Medical School, 1986-1989.

D. Infection Control Committee, The University of Michigan Hospitals, 1978-present.

E. Chairman, Laboratories Committee of the Medical Staff, University Hospitals.

REGIONAL AND NATIONAL:

A. College of American Pathologists, Fellow, 1975-.
   1. Board of Governors, 1986-.
   2. Budget Planning and Review Committee, 1986-.
   3. Credentials Committee, 1986-.
   4. Liaison, Standards Committee, 1986-.
   5. Liaison, Commission on Anatomic Pathology, 1986-.
   6. Micro-Fellowship Committee, 1987-.
   7. Building Committee, 1987-.
   8. Subcommittee on National Institute of Drug Abuse (NIDA), 1987-.

B. National Committee for Clinical Laboratory Standards - Corresponding Membership, 1987.
   1. Council of the National Reference System for the Clinical Laboratory, 1983, 1984-1985, 1986-1987.
   2. Subcommittee on Cost Accounting, 1986-.
   3. Chairman, Area Committee on General Laboratory Practice, 1986-1987.
      a. Subcommittee on Standardization of the PAP technique, 1988.
   4. Subcommittee on Cost-Effective Quality Control, 1986-.
   5. Flow Cytometry Committee, member, 1987-.
   6. International Relations Committee, member, 1988-89.

C. American Society of Clinical Pathologists, 1975.
   1. ASCP Advisory Council, 1984-.
   2. ASCP Advisory Council, State Councilor, 1987-.

D. Michigan Society of Pathologists, 1982-.
   1. President Elect, 1987-1988.
   2. President, 1988-.

E. Technical Advisory Committee, State of Michigan Department of Health, Bureau of Laboratory and Epidemiological Services, 1987-.

F. Transition Committee, The University of Michigan School of Dentistry, 1987-.
   1. Chairman, Operational Analysis Task Force.
   2. Chairman, Computer Committee.

G. American Society for Testing Materials (ASTM)
   1. Committee F31 on Health Care Services, member, 1988-.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Poster Presentation: "Use of Latex Agglutination for the Presumptive Identification of Positive Blood Cultures". C. Young and K.D. McClatchey. 27th ICAAC Meeting (ASM). New York, New York, 1987.
2. Co-Chaired Scientific Session, Histopathology and Tumor Markers, 2nd International Head and Neck Oncology Research Conference, Arlington, VA, September, 1987.
3. Histopathology of the Ear, Nose and Throat. Guest Speaker, University College and Middlesex School of Medicine, University of London, London, England, June 18, 1988.
4. Pathology of the Jaws. Guest Speaker, University of Turku, Finland, June, 1988.
5. Progress in Laboratory Proficiency Testing. Commission on World Standards, Budapest, Hungary, May, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Sullivan, M.J., Breslin, K., McClatchey, K.D., Ho, L., Farrior, E.H. and Krause, C.J.: Malignant parotid gland tumors: a retrospective study. J. Otolaryngol. Head and Neck Surg., 1987;97:529-533.
2. Niparko, J.K., Rubinstein, M.I. and McClatchey, K.D.: Invasive squamous cell carcinoma within verrucous carcinoma. J. Otolaryngol. 1988;17(1):38-40.

3. McClatchey, K.D., Stewart, J.C.B. and Patterson, B.D.: Dentinogenic ghost cell tumor presenting as a gingival mass. Article accepted for publication, Ann. Dent. 1988.
4. Hom, D.B., Baker, S.R., Graham, L.M. and McClatchey, K.D.: Utilizing angiogenic agents to enhance and expedite the neovascularization process in skin flaps. Laryngoscope, 1988;98(5):521-526.
5. Rubinstein, M.I., Drake, A.F. and McClatchey, K.D.: Alveolar soft part sarcoma of the nasal cavity: report of a case and a review of the literature. Accepted for Publication, Laryngoscope, June, 1988.

BOOKS AND CHAPTERS IN BOOKS:

1. McClatchey, K.D.: Diseases of the jaws, in, Diagnosis in Surgical Pathology, Drs. Sternberg, Antonioli, Carter, Eggleston, Oberman and Mills (eds), Raven Press, New York, New York, 1987 (In Press).
2. McClatchey, K.D. and McMahon, Jr., L.F.: Laboratory Medicine, in, Textbook of Internal Medicine, William N. Kelley, Editor, J.B. Lippincott, Philadelphia, Pennsylvania, 1988 (In Press).

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Young, C. and McClatchey, K.D.: Use of Latex Agglutination for the Presumptive Identification of Positive Blood Cultures (Abstract), submitted May, 1987 for the American Society for Microbiology, 27th ICAAC, New York, New York, October, 1987.
2. Wolf, G.T., Peterson, K.A., Hudson, J., McClatchey, K.D.: Interleukin-2 Receptor (IL2R) Expression in Patients with Head and Neck Squamous Carcinoma (HNSC): Effects of Thymosin a_1 In Vitro. (Abstract), submitted, Second International Conference on Head and Neck Cancer, Boston, Massachussetts, July, 1988.
3. Winter, P., Wolf, G.T., Carey, T.E., Peterson, K.A., Poore, J., Hudson, J., McClatchey, K.D.: Impaired Autologous LAK Cell Cytotoxicity with Recombinant Interleukin-2 (r-IL2) In Vitro Patients with Head and Neck Squamous Carcinoma (HNSC). (Abstract), submitted, Second International Conference on Head and Neck Cancer, Boston, Massachussetts, July, 1988.

PAUL E. MCKEEVER, M.D., PH.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Gross and microscopic examination of autopsy neuropathologic material with House Officers and Faculty. The cases shared with other faculty members were from University Hospital, University Associated Hospitals, and State Institutions. Medical Examiner Cases.
B. Daily supervision of House Officer or Staff participation in diagnostic neuropathology and electron microscopic neuropathology. Responsible for final report and diagnosis in each category.
C. Consultations on diagnostic neuropathology from other hospitals and medical centers.
D. Ceroid Service, buffy coat division.
E. Primary substitute for nerve and muscle biopsy diagnostician.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

A. Neural and Behavioral Sciences 600, Neuropathology for Second Year Medical Students. Lectures and laboratories. Twenty hours shared with other faculty.
B. Neuropathology 858. Intensive laboratory-lecture course for all beginning House Officers in Pathology, and in several clinical services concerned with the nervous system, Graduate Students and Faculty. Annual, 16 hours shared with other Faculty. One credit hour elective.
C. House Officers:
    1. Review of microscopic neuropathological postmortem material with Pathology House Officers, shared with other Faculty Members.
    2. Weekly brain cutting with Pathology House Officers.
    3. Review all neurosurgically removed material in this hospital in CME-approved biweekly conference for Pathology, Neurology and Neurosurgery House Officers and Staff.
    4. Shared consultations with Pathology House Officers.
    5. Invited presentations of neuropathologic observations at joint Pathology-Neurology-Neurosurgery and clinical conferences.
    6. Direct teaching of doctors who take elective in Neuropathology. One month or longer rotation with teaching shared with other Pathology Faculty and with Neurohistologists. Dr. Miguel Hernandez Marti, a Pathologist from Valencia, Spain, spent 5 months on elective.

7. Weekly adult Brain Tumor Board Review of Neurosurgery, Nuclear Medicine, Neuroradiology, and Neuropathology in clinical research setting of brain tumor cases by staff. Responsible for neuropathology segment of tumor review.

D. Teach laboratory techniques to our Laboratory Technologists.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. National Institutes of Health Grant NIH CA-33768, "Intra-arterial BUdR Radiosensitization of Malignant Gliomas", Co-investigator, 5/1/86 - 4/30/89.

B. National Institutes of Health Grant NIH CA-47558, "Antigenic Instabilities and Clonal Heterogeneity in Human Gliomas", Principal Investigator. Changes in malignancy and resistance to treatment of human gliomas, the most common and devastating group of brain tumors, are thought to be related in part to antigenic instabilities of these cells. Antigenic instabilities will be followed upor explantation of human glioma cells in vitro and correlated with studies designed to determine the mechanism of these instabilities. The extent of changes in antigens will be studied. Antigenic changes will be correlated with changes in cellular DNA over time intervals and correlated with changes in clones of cells from the gliomas of individual patients. 5/1/88 - 4/30/93.

C. National Institutes of health, "Brain Tumor Imaging with Benzodiazepine Analogs", Co-investigator. 1/1/87 - 1/1/90.

D. National Institutes of Health Program Project NIH CA-42761,"Antimetabolite Selectivity: Regional Treatment and Modulation", Principal Investigator of Pathology Core Grant. Action pending.

E. National Institute of Health Program Project NS-15655, "PET Study of Biochemistry and Metabolism of the CNS" (Program Title). "Glioma Imaging with Benzodiazepine Analogs" (Section Title), Co-investigator. 12/1/84-11/30/89.

F. National Institute of Health Program Project NS-15655, "PET Study of Biochemistry and Metabolism of the CNS" (Program Title). "PET Studies in Partial Epilepsy" (Section Title), Co-investigator. Action Pending.

II. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Growth, spread and antigenicity of ENU-induced gliomas in rats, with Constance D'Amato and Terry Hood. Submitted to Neurooncology.

B. Quantitative analysis of DNA in fresh and cultured cells of brain tumors, with Drs. Robertson Davenport, Curtis Hanson, William Chandler, James Varani, and John Feldenzer.

C. Production of monoclonal antibodies to human brain tumors for diagnosis and therapy, with Drs. James A. Taren, Julian T. Hoff, and Richard L. Wahl.

D. Extracellular matrix products of gliomas with Drs. James Varani and Suzanne Fligiel.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

A. Chief, Section of Neuropathology.

MEDICAL SCHOOL/HOSPITAL:

A. Organization and scheduling of Pathology, Neurology and Neurosurgery House Officer Neuropathology teaching conferences, individual instruction and consultation review.
B. Organization of call logistics of specimen handling, and schedules for coverage of diagnostic and postmortem neuropathology by staff.
C. Supervision of Neurohistologists and Neuropathology Laboratories, and quality control of histologic preparations.
D. Interaction with Chiefs and staff of other clinical services, particularly Neurosurgery, Neurology, Nuclear medicine and Neuroradiology.
E. Quality control of ultrastructural neuropathology.

REGIONAL AND NATIONAL:

A. Reviewer for Pathology, Neuropathology, Oncology and Neurooncology journals and texts.
B. M-Lab Neuropathology Services.
C. Reviewer of NCI Program Project Grant applications.

V. OTHER RELEVANT ACTIVITIES:

A. Faculty Advisory Committee for graduate student James Hopkins, Dr. Bernard Agranoff, Chairman.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Miyagami, M., Smith, B.H., McKeever, P.E., Chronwall, B.M., Greenwood, M.A. and Kornblith, P.L.: Immunocytochemical localization of factor VIII-related antigen in tumors of the human central nervous system. J. Neuro-Oncology 1987;4:269-285.
2. McKeever, P.E., Hood, T.W., Varani, J., Taren, J.A., Beierwaltes, W.H., Wahl, R., Liebert, M. and Nguyen, P.K.: Products of cells cultured from gliomas: VI. Cytology and morphometry of two cell types cultured from gliomas. J. Natl. Cancer Inst. 1987;78:75-84.
3. Chandler, W.F., Schteingart, D.E., Lloyd, R.V., McKeever, P.E. and Ibarra-Perez, G.: Surgical treatment of Cushing's disease. J. Neurosurg. 1987;66:204-212.
4. Davenport, R.D. and McKeever, P.E.: Ploidy of endothelium in high grade astrocytomas. Analyt. and Quant. Cytol. Histol. 1987;9:25-29.
5. Feldenzer, J.A. and McKeever, P.E.: Gamma-enolase in cerebellar hemangioblastomas. Acta. Neuropathol. (Berl). 1987;72:281-285.

6. Starosta-Rubinstein, S., Ciliax, B.J., Penny, J.B., McKeever, P. and Young, A.B.: Imaging of a glioma using peripheral benzodiaepine receptor ligands. Proc. Natl. Acad. Sci. 1987;84:891-895.
7. Levine, S.A., McKeever, P.E., and Greenberg, H.S.: Primary cerebellar glioblastoma multiforme. J. Neuro-Oncology 1987;5:231-236.
8. Feldenzer, J.A., McKeever, P.E., Schaberg, D.R., Campbell, J.A., and Hoff, J.T.: Experimental spinal epidural abcess: A pathophysiological model in the rabbit. Neurosurgery . 1987;20:859-867.
9. McKeever, P.E., Smith, B.H., Taren, J.A., Wahl, R.L., Kornblith, P.L. and Chronwall, B.M.: Products of cells cultured from gliomas: VI. Immunofluorescent, morphometric and ultrastructural characterization of two different cell types growing from explants of human gliomas. Am. J. Pathol. 1987;127:358-372.
10. Davenport, R.D., and McKeever, P.E.: DNA content and marker expression in human gliomas explants. Acta Neuropathol. (Berl.), 1987;74:362-365.
11. Mountz, J.M., Stafford-Schuck, K., McKeever, P.E., Taren, J.A. and Beierwaltes, W.H.: The tumor/cardiac ratio: A new method to estimate residual high grade astrocytoma using thallium-201 radionuclide imaging. J. Neurosurg. 1988;68:705-709.
12. Stafford-Schuck, K., Mountz, J.M., Mckeever, P.E., Taren, J.A. and Beierwaltes, W.H.: Thallium-201 imaging and estimation of residual high grade astrocytoma. J. Nuc. Med. Tech., 1987;15:109-114.
13. Varani, J., McKeever, P.E., Fligiel, E.G., Sitrin, R.G.: Plasminogen activator production by human tumor cells: Effect on tumor cell-extracellular matrix interactions. Int. J. Cancer: 1987;40:772-777.
14. McKeever, P.E., Letica, L.H., Shakui, P., Averill, D.R.: A multiple-well method for immunohistochemical testing of many reagents on a single microscopic slide. Lab. Invest. (in press).

BOOKS AND CHAPTERS IN BOOKS:

1. McKeever, P.E., and Spicer, S.S.: Pituitary histochemistry, in, Spicer, S.S., (editor), Histochemistry in Pathologic Diagnosis", Marcel-Dekker, New York, New York, 1987, pp. 603-645.
2. McKeever, P.E., and Balentine, J.D.: Histochemistry of the nervous system, in, Spicer, S.S., (editor), Histochemistry in Pathologic Diagnosis, Marcel-Dekker, New York, New York. 1987, pp. 871-957.
3. McKeever, P.E., Blaivas, M.: Surgical pathology of the brain, spinal cord and meninges. Eds. Sternberg, S., Antonioli, D., Kempson, D., Carter, D., Eggleston, J., Oberman, H.A.: Diagnostic Surgical Pathology, Raven, New York, New York. (Chapter in press).

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Mountz, J.M., Stafford-Schuck, K., McKeever, P.E., Liebert, M., Raymond, P., Taren, J.A., Beierwaltes, W.H.: The tumor/cardiac ratio: A new method to estimate residua high grade astrocytoma using Thallium-201. Society of Nuclear Medicine 34th Annual Meeting, Toronto, June, 1987.
2. Davenport, R., McKeever, P.: DNA content and marker expression in cultured gliom explants. Lab. Invest., 1987;56:17A.

3. Fligiel, S., Varani, J., and McKeever, P.: Human neoplasms and extra-cellular matrix components: Production and responsiveness. Lab. Invest. 1987;56:24A.
4. McKeever, P.E., Feldenzer, J.A., D'Amato, C.J., Castle, R.L., Chandler, W.F., Varani, J.: Flow cytometry and morphometry of glioblastoma multiforme nuclear DNA. J. Neuropathol. Exp. Neurol (in press).
5. D'Amato, C.J., Hood, T.W., McKeever, P.E.: Serial Transplantation of frozen ethylnitrosourea-induced glioma and neurinoma tissue in rats. J. Neuropathol. Exp. Neurol (in press).
6. McKeever, P.E., Shakui, P., Letica, L.H., Averill, D.R.: A multiple-well method for immunohistochemical testing of many reagents on a single microscopic slide. 8th Int. Congr. Histochem. and Cytochem. (in press).

A. REES MIDGLEY, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. **CLINICAL ACTIVITIES**: None.

II. **TEACHING ACTIVITIES:**

A. Taught major portion of Physiology 581, "Mammalian Reproductive Endocrinology", plus occasional other lectures.
B. Primary Supervision of 6 graduate students:
   1. Emilie Bell, CMB.
   2. Jane Wiesen, CMB.
   3. Hal Cantor, Bioengineering.
   4. Craig Halberstadt, Bioengineering.
   5. Rhonda Brand, Bioengineering.
   6. Mahmoud Ghazzi, Bioengineering.
C. Served on several other dissertation committees.
D. Partial supervision of one postdoctoral fellow, Eleanor Sims.

III. **RESEARCH ACTIVITIES:**

SPONSORED SUPPORT:

A. NIH-P30-HD 18258-01. "Center for the Study of Reproduction", $$301,565 TDC, year #4, 3/1/84-2/28/89, Principal Investigator, 10% effort.
B. NIH, T32 HD-07048, "Training Program in Reproductive Endocriology", $201,167 direct and stipends year #02, 7/1/85-6/30/90, Principal Investigator, 5% effort.
C. Mellon Foundation "Mellon Young Investigator Program in Reproductive Endocrinology", $300,000 total for three years, 7/1/85-6/30/88, 5% effort.
D. W.K. Kellogg Foundation, Presidential Initiatives Fund, "Cellular Bioengineering: Positioning The University of Michigan for the 1990s and Beyond", 7/1/87-6/30/90, $270,000 total for three years, $83,500 first year TDC, 8% effort, M. Savageau, Principal Investigator, Department of Microbiology.
E. NSF EET-871256, Cluster Research Proposal for Molecular Biosensing, "Efficient Monoclonal Antibody Production", 9/15/87-2/28/89, $518,772 total direct costs, $257,532 first year TDC, 10% effort, B. Palsson, Principal Investigator, Department of Chemical Engineering.
F. NSF-BNS-8608024. "Hormones and Psychosocial Development in Early Adolescence", a multideparmental, interdisciplinary project, 7/1/87-7/14/88, $146,949 (total), Jacquelyn Eccles, Principal Investigator, (Co-Investigator), 5% effort.

SUBMITTED:

A. NIH-R01 HD18018-04, "Gonadotropin-Control of the Ovary", 12/1/88-11/30/93, $754,135, Total Direct Costs.
B. Pfizer Corporation, "Development of an Artificial Bone Marrow", 4/1/88-3/31/93, Total Direct Costs, $1,109,556. Total costs, $1,730,769, S.G. Emerson, Principal Investigator, Department of Internal Medicine.
C. NIH, P30 HD18258, "Center for the Study of Reproduction", $3,523,045 TDC years #6-10. Principal Investigator, 10% effort and Director of one Core Facility, Standards and Reagents, 10% effort.

PROJECTS UNDER STUDY:

A. Development of a computer-controlled perifusion system for on-line analysis of cellular responses to pulsatile and other controlled signalling.
B. Analysis of dynamic control of ovarian function by gonadotropins: the role of intercellular signalling.
C. Localization and regulation of mRNAs in rat granulosa cells.
D. Application of principles of cellular bioengineering to the growth and function of mammalian cells.
E. Development of novel biosensors, especially immunosensors.

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

A. Director, Consortium for Research in Developmental and Reproductive Biology.
B. Director, Reproductive Endocrinology Program.

REGIONAL AND NATIONAL:

A. Member, NICHD Population Research Committee, 1986-.
B. Member, NIDDK Endocrinology Research Program Advisory Committee, 1986-.
C. NIDDK Hormone Distribution Program Subcommittee, 1986-.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. July 20-23, 1987, 20th Annual Meeting of the Society for the Study of Reproduction, University of Illinois, Urbana.
2. July 24, 1987, Reproductive Endocrinology Study Section, Telephone Conference Meeting.
3. August 30-31, 1987, Meeting of Directors of NICHD Program Projects and Centers, Woods Hole.
4. October 5-6, 1987, The University of Virginia, Charlottesville, "Intercellular communication: The dynamics of extracellular signals revealed with bioelectronics".
5. October 7-8, 1987, The University of Tennessee, Knoxville, "Ovarian Communication and Control".

6. October 13-15, 1987, Project Site visit, Baylor College of Medicine, Houston.
7. November 4-5, 1987, NICHD Population Research Committee Meeting, Bethesda, Maryland.
8. December 3-4, 1987, McGill University, Montreal, "Intercellular Communication".
9. January 14-15, 1988, Review of NKCHD RFP, Primate Testing, Bethesda, Maryland.
10. June 10-11, 1988, Meeting of NIDDK Endocrinology Research Program Advisory Committee and NIDDK Hormone Distribution Program Subcommittee, New Orleans, Louisiana.
11. June 15-17, 1988, Meeting of NICHD Population Research Committee, Bethesda, Maryland.
12. June 19-20, 1988, Meeting of Directors of NICHD Program Projects and Centers, New York City, New York.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Schramm, W., Yang, T. and Midgley, A.R., Jr.: Continuous monitoring with immunosensors. Proceedings of the Symposium on Sensor Science and Technology, 1987;87:218-231.
2. Schramm, W., Yang, T. and Midgley, A.R.Jr.: Surface modification with protein A for uniform binding of monoclonal antibodies. Clin. Chem. 1987;33:1331-1337.
3. Schramm, W., Yang, T. and Midgley, A.R.Jr.: Monoclonal antibodies in solid phase and liquid phase assays. Clin. Chem. 1987;33:1338-1342.
4. Bagavandoss, P. and Midgley, A.R., Jr.: Lack of difference between retinoic acid and retinol in stimulating progesterone production by luteinizing granulosa cells in vitro. Endocrinology, 1987;121:420-428.
5. Schramm, W., Yang, T. and Midgley, A.R. Jr.: The promise of immunosensors in diagnostic systems. Med. Dev. Diagnostics Industry, 1987;9:52-57.

ARTICLES SUBMITTED:

1. Bagavandoss, P. and Midgley, A.R., Jr.: Contrary to in vivo evidence retinoic acid can substitute for retinol in rat ovarian cells in vitro.
2. Miyauchi, F. and Midgley, A.R., Jr.: Morphologically and functionally distinct subpopulations of rat luteal cells on day 15 of pregnancy.
3. Ozturk, S.S., Palsson, B.O., Midgley, A.R., Halberstadt, C.R.: transtubular bioreactor A perfusion device for mammalian cell cultivation.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Miyauchi, F., Ueda, K., Tamura, H., Inoguchi, H., Takasaki, A., Kato, H., Torigoe, T. and Midgley, A.R., Jr: Effect of placental luteotropin on the growth of 3 BETA-HSD positive luteal cells in pregnant rats. 8th International Congress of Endocrinology, 1988.
2. Brand, R.M., Cantor, H.C., Ghazzi, M.N., Rolfes-Curl, A. and Midgley, A.R., Jr.: continuous monitoring of acid production by ovarian tissue during perifusion, 21st Annual Meeting, Society for the Study of Reproduction.

3. Eccles, J.S., Miller, C., Tucker, M.L., Becker, J., Schramm, W., Midgley, A.R., Jr., Holmes, W., Pasch, L., Miller, M.: Hormones and affect at early adolescence. L. Steinberg, Chair, Hormonal Contributions to Adolescent Behavior, Society for Research on Adolescence, Alexandria, VA, 1988.
4. Cantor, H.C. and Midgley, A.R., Jr.: Dynamics of ovarian intercellular communication characterized by a novel electrochemical detection system, 21st Annual Meeting, Society for the Study of Reproduction, 1988.

BERNARD NAYLOR, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Cytopathology - 26 weeks.
B. Director, Cytopathology Laboratory - full time.
C. Consultation Service, Department of Pathology: Cytopathology, pulmonary pathology and gynecologic pathology - 12 months.
D. Necropsy service - on call coverage.
E. Consultant, Breast Care Center - 12 months.

II. TEACHING ACTIVITIES:

A. Pathology 600 - Sophomore Medical Students, class lectures - 3 contact hours.
B. Pathology residents - supervision and teaching during cytopathology rotations and when covering necropsies.
C. Pathology residents - biweekly cytopathology conferences.
D. Gynecology - Pathology - Radiation Oncology Conference-backup coverage.

III. RESEARCH ACTIVITIES:

A. Cytopathology, with particular reference to serous fluids, cytologic technique, and aspiration cytology.

PROJECTS UNDER STUDY:

A. Cross contamination in the cytologic staining circuit.
B. Curschmann's spirals in serous fluids.
C. Cytologic manifestation of rheumatoid disease in serous fluids.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Director, Cytopathology Laboratory.
B. Department of Pathology Medical Service Plan Executive Committee.
C. Chairman's Advisory Committee.
D. Member, Advisory Committee on Appointments and Promotions.

REGIONAL AND NATIONAL:

A. Secretary-Treasurer, American Society of Cytology.
B. Editorial Advisory Board and American Review Board, Acta Cytologica.

C. Editorial Board, The Cytotechnologist's Bulletin.
D. Chairman, Editorial and Publications Committee, International Academy of Cytology.
E. Membership Committee, International Academy of Cytology.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. Teleconference, Non-neoplastic entities seen in non-gynecologic cytology specimens: a selection. American Society of Clinical Pathologists, Chicago, Illinois, September, 1987.
2. On-site cytopathology for percutaneous chest aspirations. Lecture, Current Frontiers in Chest Radiology, Department of Radiology, The University of Michigan, Ann Arbor, Michigan, October, 1987.
3. Non-neoplastic entities in routine cytologic specimens. Lecture, American Osteopathic College of Physicians, Dearborn, Michigan, March, 1988.
4. Non-neoplastic entities seen in routine cytologic specimens. Workshop, Montreal Society of Cytology, Montreal, Quebec, April, 1988.
5. Breast aspiration biopsy: Influence of sample size on sensitivity. Paper, American Roentgen Ray Society, San Francisco, California, May, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Naylor, B.: In Memorian. Warren R. Lang, M.D., F.I.A.C., 1918-1987. Acta Cytol. 1987;31:639.
2. Flint, A., Kumar, N.B. and Naylor, B.: Pulmonary Hodgkin's Disease: Diagnosis by fine needle aspiration. Acta Cytol. 1988;32:221-225.
3. Naylor, B.: Fine needle aspiration cytology of the breast: An Overview. Am. J. Surg. Pathol. 1988;12(Suppl):54-61.

BOOKS AND CHAPTERS IN BOOKS:

1. Naylor, B.: " Fine Needle Aspiration: The New Diagnostic Technique?", in, Breast Cancer: Collaborative Management, J.K. Harness, et al (eds), Chelsea, Lewis Publishers, 1988, pp. 99-108.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Monroe, G., Naylor, B. and SanFacon, G.: Asbestos. A University of Michigan Housing Division Guide, (Pamphelet), 1987.

HONORS

1. Award in recognition of excellence in teaching, University of Michigan Medical School Class of 1989, April, 1988.

BRIAN J. NICKOLOFF, M.D., PH.D.
ASSISTANT PROFESSOR OF PATHOLOGY AND DERMATOLOGY
DEPARTMENT OF PATHOLOGY
DEPARTMENT OF DERMATOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Dermatopathology, University of Michigan Hospitals.
B. Dermatopathology, M-Labs.
C. Dermatopathology, Private Consultations.
D. Dermatology, Melanoma Clinic.

II. TEACHING ACTIVITIES:

A. Pathology and Dermatology House Officers Lecture Series.
B. Clinical Pathology Orientation Lecture and Laboratory.
C. 5 Week Medical Student (Year 2) Research Elective.
D. Year 1 Medical Student Dermatopathology Lecture Series.
E. Dermatology Grand Rounds - Dermatopathology Presentations.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. NIH First Award (60% effort: $90,000 Direct Costs; Aug 1987 - Aug 1989): Interaction of Gamma Interferon with Keratinocytes.
B. Consultant - NIH Mycosis Fungoides Epidemiology Study - Stanford University.
C. Co-Principle Investigator - Retinoids and Skin Biology - Ortho Pharmaceutical Corp. (10% Effort : July 1988 - 1990).

PROJECTS UNDER STUDY:

A. Role of Gamma Interferon in Modulating Adherence Reactions Between Resting and Activated Mononuclear Leukocytes and Keratinocytes.
B. Characterization of Gamma Interferon Receptor on Normal and Psoriatic Keratinocytes.
C. Gamma Interferon Activation of Protein Kinase C in benign and malignant keratinocytes.
D. Binding of lymphocytes to epidermis and vessels of frozen sections of psoriatic skin and other dermatoses.
E. Characterization of type of Beta Interferon produced by virally infected keratinocytes.
F. Interrelationship between gamma interferon, and Tumor necrosis factor and PGE_2 and IL-1 production by keratinocytes and monocytes.

G. Characterization and biological significance of Thrombospondin production by keratinocytes and melanocytes.
H. Role of Extracellular matrix in adherence reactions involving resting and activated mononuclear leukocytes.
I. Characterization of Epidermal Growth Factor Receptor on Normal and Psoriatic Keratinocytes.
J. Influence of retinoids on keratinocyte, melanocyte, and fibroblast function in-vitro and in-vivo.
K. Characterization of effect of Cyclosporin A on Phorbol ester induced cutaneous inflammation and hyperplasia.
L. Immunophenotypic analysis of response of psoriasis and 22 other dermatological conditions to Cyclosporin A.

IV. ADMINISTRATIVE ACTIVITIES:

REGIONAL AND NATIONAL:

A. Editorial Board - American Journal of Dermatopathology.
B. Reviewer of articles for: Journal of Investigative Dermatology, Journal of Cutaneous Pathology, Journal of Cutaneous Pathology, American Journal of Dermatopathology, Archives of Dermatology, Journal of American Academy of Dermatology, American Journal of Plastic Surgery, Journal of Cellular Physiology.
C. Ad-hoc Review Committee - NIH Study Section - Skin Disease Research Center Grant Applications.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Recent Advances in the Use of Interferons in Dermatology: Basic Science and Clinical Aspects. Focus Session. Summer Session Meeting-American Academy of Dermatology, 16 July 1987, Anaheim, California.
2. Role of Gamma Interferon in Promoting Adherence Between Resting and Activated Lymphocytes To Cultured Human Keratinocytes. Dept. of Membrane Immunocytochemistry, Dana Farber Cancer Institute-Dr. T. Springer-Host, 6 Aug 1987, Boston, Massachussetts.
3. Visiting Professor, Department of Dermatology, Dr. L. Goldsmith-Chairman, University of Rochester, 28-30 October 1987, Rochester, New York.
4. Direct Antiproliferative Effects of Cyclosporine A and H on Rapidly Proliferating Cultured Keratinocytes Grown in Low Calcium, Serum Free Media - Symposium on autoimmune Disease: Experimental Dermatology, The Second International Congress on Cyclosporine, 7 November 1987, Washington, D.C.
5. Additive Antiproliferative Effect of Cyclosporine A and Gamma Interferon on cultured Keratinocytes. First Place Award. Annual Meeting American Society of Dermatopathology, 3 Dec. 1987, San Antonio, Texas.
6. Activation of Resting T Lymphocytes by Phorbol Esters Enhances Binding to Autologous Gamma Interferon Treated Cultured Keratinocytes. American Society of Dermatopathology, 4 Dec. 1987, San Antonio, Texas.
7. Adnexal Tumors - Self Assessment Workshop in Dermatopathology-Faculty Participant. American Academy of Dermatology, 5 Dec 1987, San Antonio, Texas.

8. Common Pre-Malignant and Malignant Skin Diseases. Basic Dermatopathology Course 202-Faculty Participant, American Academy of Dermatology, 5 Dec 1987, San Antonio, Texas.
9. Interferon: Fundamentals of Allergy and Immunologic Course 203-Faculty Participant American Academy of Dermatology, 5 Dec 1987, San Antonio, Texas.
10. Mycosis Fungoides Faculty Participant. American Academy of Dermatology, 7 Dec 1987, San Antonio, Texas.
11. Keratinocytes Produce a Lymphocyte Inhibitory Factory and Beta Interferon. Invited Presenter and Session Co-Chairman. Endocrine, Metabolic and Immunologic Functions of Keratinocytes. New York Academy of Sciences. 19 Feb. 1988, New York, New York.
12. Lymphocyte-Keratinocyte Adherence Reactions - Michigan Dermatological Society, March 2, 1988, Ann Arbor, Michigan.
13. The Role of Extracellular Matrix Molecules Thrombospondin, Fibronectin and Laminin in the Regulation of Keratinocyte Attachment, Spreading, Proliferation and Motility. Invited Speaker. Emerging Role of Retinoids in the Treatment of Aging and Skin Cancer. Ortho Pharmaceutical Company. March 12, 1988, Miami, Florida.
14. Transforming Growth Factor- b is a Keratinocyte Derived Lymphocyte Inhibitory Factor. Society of Investigative Dermatology National Meeting, 28 April, 1988, Washington, D.C.
15. Altered Responsiveness of Psoriatic Keratinocytes to Gamma Interferon, Society of Investigative Dermatology 29 April 1988, Washington, D.C.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Morhenn, V.B., Nickoloff, B.J.: Interleukin-2 stimulates resting T lymphocytic response to allogeneic gamma interferon treated keratinocytes. J Invest Dermatol 1987;89:464-468.
2. Nickoloff, B.J.: Binding of ^{125}I-Gamma Interferon to cultured human keratinocytes. J Invest Dermatol 1987;89:513-516.
3. Nickoloff, B.J., Lewinsohn, D., Butcher, E.C.: Allogeneic peripheral blood mononuclear leukocytes prominently adhere to gamma interferon treated cultured keratinocytes. Am J Dermatopath. 1987;9:413-418.
4. Morhenn, V.B., Pregerson-Rodan, K., Mullen, R.H., Wood, G.S., Nickoloff, B.J., Farber, E.M.: The effectiveness of recombinant gamma interferon administered intramuscularly for the treatment of Psoriasis. Arch Dermatol. 1987;123:1633-1637.
5. Lindae, M.L., Nickoloff, B.J., Greene, I.: Merkel cell carcinoma of the thigh. J Dermatol Surg Oncol 1988;14:413-417.
6. Nickoloff, B.J., Lewinsohn, D., Butcher, E., Krensky, A.M., Clayberger, C.: Recombinant gamma interferon increases binding of peripheral blood mononuclear leukocytes and a Leu 3 + lymphocyte cell clone to cultured keratinocytes and a malignant cutaneous squamous cell line which is blocked by antibody against the LFA-1 molecule. J. Invest Dermatol. 1988;90:17-22.
7. Nickoloff, B.J., Misra, P., Morhenn, V.B., Hintz, R., Rosenfeld, R.: Further Characterization of the Keratinocyte Somatomedin-c/Insulin-like Growth Factor I (SMC/IGF-I) Receptor and the Biological Responsiveness of cultured keratinocytes to SMC/IGF-I. Dermatologica (In Press 1987).

8. O'Connell, B.M., Nickoloff, B.J., Jacobs, A.H.: Axillary Pigmented papular variant of urticaria pigmentosa in a 3 month old boy. Arch Dermatol (In Press, 1987).
10. Luy, J.T., Jacobs, A.H., Nickoloff, B,J.: A Child with erythematous and hyperkeratotic patches, Erythrokeratoderma variabilis. Arch Dermatol (In Press).
11. Varani, J., Nickoloff, B.J, Riser, B., Mitra, R.S., Dixit, V.M.: Thrombospondin induced adhesion of Human Keratinocytes. J. Clin Invest (In Press, 1987).
12. Nickoloff, B.J., Reusch, M.K., Bensch, K., Karasek, M.A.: Preferential binding by monocytes and Leu 2 + T lymphocytes to interferon-gamma treated cultured skin endothelial cells and keratinocytes. Arch Dermatol Res. (In Press, 1988).
13. Wastek, G.J., Reusch, M.K., Karasek, M.A., Nickoloff, B.J.: Characterization of ^{3}H-Substance P Binding to a mouse monoclonal mast cell line (MC/9). J Invest Dermatol (In Press, 1987).
14. Nickoloff, B.J., Mitra, R.S.: Phorbol treatment enhances inding of mononuclear leukocytes to autologous and allogeneic gamma interferon treated keratinocytes which is blocked by anti-LFA-1 monoclonal antibody. J. Invest Dermatol. 1988;90:684-689.
15. Lewinsohn D.M., Nickoloff, B.J., Butcher, E.C.: A fluorometric approach to the quantitation of cell number with application to a cell adhesion assay. J Immunol Meth. (In Press, 1987).
16. Nickoloff, B.J., Fisher, G.S., Mitra, R.S., Voorhees, J.J.: Additive and synergistic antiproliferative effects of cyclosporine A and gamma interferon on cultured human keratinocytes. Am J Pathol 1988;131:12-18.
17. Nickoloff, B.J., Riser, B.L., Mitra, R.S., Dixit, V.M., Varani, J.: Inhibitory effect of gamma interferon on cultured keratinocyte thrombopondin production, distribution and biological activity. J. Invest Dermatol. (In Press, 1987).
18. Fisher, G.J., Duell, E.A., Nickoloff, B.J., Annesley, T.M., Kowalke, J.K., Voorhees, J.J.: Levels of Cyclosporine in epidermis of treated psoriasis patients inhibit gorwth of keratinocytes cultured in serum-free but not serum containing media. J Invest Dermatol (In Press, 1988).
19. Gupta, A.K., Fisher, G.J., Elder, J.T., Nickoloff, B.J., Voorhees, J.J.: Sphingosine inhibits phorbol ester induced inflammation ornithine decarboxylase activity, activation of protein kinase C in mouse skin. J Invest Dermatol (In Press, 1988).
20. Shiohara, T., Nickoloff, B.J., Moriye, N., Gotoh, C., Nagashima, M.: In-vivo effects of interferon-g and interferon-g antibody on the experimentally induced lichenoid tissue reaction. Br J Dermatol. (In Pres, 1987).
21. Nickoloff, B.J., Fisher, G.J., Mitra, R.S., Voorhees, J.J.: Direct cytopathic effects of cyclosporine A on rapidly proliferating cultured keratinocytes and dermal fibroblasts. Transp Proc (In Press, 1987).
22. Nickoloff, B.J., Mitra, R.S., Riser, B.L, Varani, J.: Modulation of keratinocyte motility: Correlation with production of ECM molecules by growth promoting and antiproliferative factors. Am J Path (In Press).
23. Nickoloff, B.J.: Keratinocytes produce a lymphocyte inhibitory factor which is partially reversible by an antibody to transforming growth factor-beta. Ann. N.Y. Acad Sci (In Press).
24. Reusch, M.K., Mansbridge, J.N., Nickoloff, B.J.: Immunophenotyping of skin during healing of suction blister injury. Arch Dermatol Res. (In Press).
25. Reusch, M.K., Fullerton, S.H., Nickoloff, B.J., Glinski, W., Karasek, M.A.: Leukotriene B4 enhances adherence of human polymorphonuclear leukocytes to dermal microvascular endothelial cells in-vitro. Arch Dermatol Res. (In Press).
26. Nickoloff, B.J.: The light microscopic assessment of 100 patients with patch/plaque stage mycosis fungoides. Am J Dermatopath. (In Press, 1988).

27. Reusch, M.K., Karasek, M.A., Nickoloff, B.J.: The effect of neuropeptides present in skin on the proliferation of human peripheral blood mononuclear cells (PBML) and T cells. Cell Immunol (In Press).
28. Nickoloff, B.J.: The role of gamma interferon in epidermal trafficking of lymphocytes with emphasis on molecular and cellular adhesion events. Arch Dermatol. (In Press).

BOOKS/CHAPTERS IN BOOKS:

1. Weiss, L.M., Wood, G.S., Nickoloff, B.J, Sklar, J.: Gene rearrangement studies in lymphoproliferative disorders of the skin. In: Advances in Dermatology. Vol 3, Year Book Medical Publishers, Inc, Chicago, Illinois; 1987;141-160.
2. Kaplan, E., Nickoloff, B.J.: The Clinical and Pathological Features of Nevi with Emphasis on Treatment Approaches. In: Clinics in Plastic Surgery, W.B. Saunders Co., Philadelphia, Pennsylvania 1987;14:2;277-300, and In: Dermatologic clinics-January, 1988.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, ARTICLES PUBLISHED IN UNREFEREED JOURNALS:

1. Nickoloff, B.J., Mitra, R.S.: Activation of resting T lymphocytes by phorbol esters enhances binding to autologous gamma interferon treated cultured keratinocytes. J. Cut Path 1987;14:363.
2. Nickoloff, B.J., Fisher, G.J., Mitra, R.S., Voorhees, J.J.: Additive antiproliferative effecto of cyclosporine A and gamma interferon on cultured keratinocytes. J Cut Path 1987;14:363.
3. Riser, B., Varani, J., Nickoloff, B.J., Dixit, V.: Gamma interferon and tumor necorsis factor modulate thrombospondin production by human blood monocytes. J Cell Biochem, Supp 1988;12A:208.
4. Nickoloff B.J., Fisher, G.J., Mitra, R.S., Voorhees, J.J.: Direct antiproliferative effects of cyclosporines A and H on rapidly proliferating keratinocytes gorwn in low calcium, serum-free media. Transp Proceed (In Press, 1987).
5. Varani, J., Riser, B., Nickoloff, B.J.: Effect of g-interferon on keratinocyte biosynthesis and expression of thrombospondin. J Cell Biochem Supp. 1988;12A:218.
6. Fisher, G.J., Gupta, A.K., Elder, J.T., Talwar, H., Nickoloff, B.J., Voorhees, J.J.: Sphingosine inhibits phorbol ester-induced inflammation, ornithine decarboxylase activity and activation of protein kinase C in mouse skin. J Invest Dermatol. 1988;90:559.
7. Nickoloff, B.J., Griffiths, C: Gamma interferon induces different keratinocyte expression of HLA-DR DQ and Intercellular Adhesion Molecule-1 antigens. J Invest Dermatol. 1988;90:559.
8. Nickoloff, B.J., Mitra, R.S., Fisher, G.S., Voorhees, J.J.: Altered responsiveness of psoriatic keratinocytes to gamma interferon. J Invest Dermatol 1988;90:592.
9. Nickoloff, B.J., Mitra, R.S.: Transforming growth factor-beta is a keratinocyte-derived lymphocyte inhibitory factor. J Invest Dermatol. 1988;90:592.
10. Varani, J., Mitra, R.S., Riser, B., Dixit, V., Nickoloff, B.J.: Modulation of keratinocyte behavior and extracellular matrix production by gorwth regulating factors. J Invest Dermatol. 1988;90:615.
11. Taieb, A., Cooper, K.D., Nickoloff, B.J., Marcelo, C.L.: Langerhans cells can bind to keratinocytes and modulate their growth in-vitro. J Invest Dermatol 1988;90:611.

12. Sauder, D.N., Wong, D., McKenzie, R., Stetsk, D., Tron, V., Nickoloff, B.J., Arsenault, T., Harley, C.B.: The pluripotent keratinocyte: Molecular characterization of epidermal cytokines. J Invest Dermatol, 1988;90:605.
13. Varani, J., Nickoloff, B.J., Riser, B., Mitra, R.S., Dixit, V.: Regulation of keratinocyte motility and proliferation by extracellular matrix components and cytokines. FASEB J. 1988;2(6):A1821.

HAROLD A. OBERMAN, M.D.
PROFESSOR OF PATHOLOGY
CO-DIRECTOR OF CLINICAL PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Co-Director, Section of Clinical Pathology, University Hospitals.
B. Director, Blood Bank, University Hospitals.
C. Diagnosis of surgical specimens from University Hospital patients.
D. Diagnosis of surgical specimens from M-Labs.
E. Diagnosis of consultation cases on surgical pathology of breast.
F. Medical coverage of Transfusion Service.
G. Medical coverage of Necropsy Service.
H. Member, University of Michigan Breast Care Center.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

A. Lectures on breast pathology (two) and transfusion medicine (four) to sophomore class.
B. Instruction of sophomore (M-2) pathology laboratory, Pathology 600.
C. Postgraduate course, "Current Topics in Blood Banking", Planning Committee.
D. Course on Transfusion Medicine presented to Pathology and Hematology/Oncology House Officers.
E. Seminars and lectures on Pathology of Breast to Pathology House Officers.
F. Section of Clinical Pathology Grand Rounds, Transfusion-transmitted Diseases.
G. Lecture on Post-transfusion AIDS to Department of Internal Medicine.
H. Lecture to Section of Neurosurgery, "Autologous Donation". November 4, 1987.
I. Lecture to Section of Pediatric Surgery, "Directed Donation and Posttransfusion Diseases". November 5, 1987.
J. Lecture to Department of Anesthesiology, "Autologous and Directed Donation". November 18, 1987.
K. Lecture to Section of Cardiology, Department of Internal Medicine, "Autologous Donation of Blood and Blood Components". November 25, 1987.
L. Lecture to sophomore dental class, University of Michigan, on Diseases of Breast, November, 1987.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Treatment of thrombotic thrombocytopenic purpura with therapeutic plasma exchange (with Dr. P. Mazzara).
B. Use of autologous blood donation in obstetrical patients (with Drs. A. McQuillan and N. Bowdler).
C. The pathology of mammary hamartomas.
D. Transfusional requirements in extracorporeal membrane oxygenator treatment.
E. Correlation of blood utilization with DRG status (with S. Butch).
F. Significance of intraductal carcinoma presenting in adenofibromas.
G. Myoepithelial and related tumors of breast.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Co-Director, Division of Clinical Pathology.
B. Laboratory Communication Committee.
C. M-Labs Operation Committee.
D. Chairman's Advisory Committee.

MEDICAL SCHOOL/HOSPITAL:

A. Faculty Committee on Search for President of University of Michigan.
B. Medical Center Clinical Priorities Committee.
C. Laboratories Committee, Chairman.
D. Transfusion Committee, Chairman.
E. Breast Care Center.
F. Liver Homotransplantation Task Force.
G. Bone Marrow Transplantation Task Force.
H. AIDS Task Force.

REGIONAL AND NATIONAL:

A. American Association of Blood Banks:
    1. Transfusion-Transmitted Diseases (AIDS) Committee, Vice Chairman.
    2. Liaison Committee on Circular of Information for Use with Human Blood and Components.
    3. Awards Committee, Chairman.
    4. Publications Committee.
B. American National Red Cross:
    1. National Blood Operations Committee.
C. American Society of Clinical Pathologists:
    1. Council on Anatomical Pathology.
    2. Chairman, Check Sample Program, Anatomical Pathology.
    3. Prelector, 1987 Annual Slide Seminar.

D. Michigan Society of Pathologists:
   1. Medical Care Insurance Committee.
   2. Medical Legislation Committee.
   3. Forensic Committee.
E. American Medical Association:
   1. Advisory Panel on AIDS.
F. Detroit Red Cross:
   1. Medical Advisory Committee.
   2. Blood Operations Committee.
G. Consultant, Veterans Administration Hospital, Ann Arbor.
H. Test Committee on Blood Banking, American Board of Pathology.
I. Breast Cancer Task Force, Michigan Department of Public Health.

V. OTHER RELEVANT ACTIVITIES:

EDITORIAL BOARDS:

A. Associate Editor, Transfusion.
B. Editorial Board, American Journal of Surgical Pathology.
C. Editorial Board, American Journal of Clinical Pathology.
D. Editorial Board, Archives of Pathology and Laboratory Medicine.
E. Associate Editor, Critical Reviews in Clinical Laboratory Sciences.
F. Editor, Arthur Purdy Stout Society of Surgical Pathologists Annual Symposium
G. Editor, Anatomical Pathology Check Sample Program, American Society of Clinical Pathologists.
H. Reviewer, Cancer.
I. Reviewer, Journal of the American Medical Association.

INVITED LECTURES/SEMINARS:

1. Planning Workshop on National Education Program on Blood Resources. NHLBI, Bethesda, MD, July, 1987.
2. Lecture, "Benign Lesions of Breast Which Clinically and Pathologically Simulate Carcinoma". Symposium on Breast Diseases. Traverse City, MI, August, 1987.
3. Lecture, "Current Problems in Diagnosis of Breast Cancer". Symposium on Breast Diseases, Traverse City, MI, August, 1987.
4. Presentation of Annual Anatomical Pathology Seminar, American Society of Clinical Pathologists, New Orleans, LA, October 29-30, 1987.
5. Lecture, "Considerations in the Transfusion of Plasma, Plasma Components and Plasma Derivatives". Annual Meeting, American Association of Blood Banks, Orlando, FL, November 11, 1987.
6. Poster presentation, "Reverse ABO Typing Errors Due to Prozone" (with Judd, WJ and Steiner, EA). Annual Meeting, American Association of Blood Banks, Orlando, FL, November, 1987.
7. Poster presentation, "Should Hospitals Draw Donors?-A Cost Appraisal (with SH Butch and WJ Judd). Annual Meeting, American Association of Blood Banks, Orlando, FL, November, 1987.
8. Course (three days), "Problems in the Diagnosis and Management of Breast Cancer". American Society of Clinical Pathologists, Palm Beach, FL, December 7-9, 1987.
9. Lecture, "Diagnostic Problems in Breast Pathology". Seminar on Surgical Pathology. American Society of Clinical Pathologists, Charleston, S C, February, 1988.

10. Presentation, "DNA Analysis of Metaplastic Carcinoma of the Breast: Correlation with Pathologic Features and Clinical Behavior". (with A. Flint and R. Davenport). Annual Meeting, International Academy of Pathology, Washington, D C, March, 1988.
11. Invited lecture, "The Pathology and Natural History of In Situ Lobular and Intraductal Breast Cancer". Department of Internal Medicine, Wayne State University School of Medicine, Detroit, MI, April, 1988.
12. Lecture, "History of Blood Transfusion". Postgraduate course. University of Michigan Medical School, April 29, 1988.
13. Lecture, "Legal Issues Related to Safety in the Blood Bank". Annual Course, "Current Topics in Blood Banking", Department of Postgraduate Medicine, University of Michigan, June 2, 1988.
14. Prelector, Annual Seminar, American Society of Clinical Pathologists.
15. Invited Guest and Speaker, 900th Anniversary, University of Bologna, Italy, July, 1988.

HONORS AND AWARDS:

1. Teaching Excellence Award, Sophomore Medical Class.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Oberman, H.A.: Metaplastic carcinoma of the breast. Am. J. Surg. Path. 1987;11:918-929.
2. Oberman, H.A.: Invasive carcinoma of the breast with granulomatous response. Am. J. Clin. Path. 1987;88:718-721.
3. Helvie, M.A., Rebner, M., Adler, D.A., Oberman, H.A.: Calcifications in metastatic breast carcinoma in axillary lymph nodes. Am. J. Roent. (In Press).
4. Oberman, H.A.: Introduction to symposium on immunohistochemical techniques and fine-needle aspiration cytopathologic diagnosis. Am. J. Surg. Path. 1988; Suppl. 1:3.
5. Judd, W.J., Steiner, E.A., O'Donnell, D.B., Oberman, H.A.: ABO typing discrepancies due to prozone. Transfusion (In Press).
6. Judd, W.J., Steiner, E.A., Oberman, H.A., Giacherio, D.: False-positive results with chemically modified anti-D do not indicate a need to use a separate immunologically inert Rh control reagent. Transfusion (In Press).
7. Flint, A.F., Oberman, H.A., Davenport, R.D.: Cytophotometric measurements of metaplastic carcinoma of the breast. Modern Path. (In Press).

BOOKS/CHAPTERS IN BOOKS:

1. Oberman, H.A. and Judd, W.J.: Cost containment in blood banking. In, Cash, J. (ed), Progress in Transfusion Medicine, Churchill-Livingstone, Edinburgh, Scotland, 1988.
2. Oberman, H.A.: The changing role of the pathologist in the diagnosis of breast cancer. In, Harness, J.K., Oberman, H.A., Lichter, A.S., Adler, D.D., Cody, R.L., (eds), Breast Cancer: Collaborative Management. Lewis Publishing, 1988.
3. Harness, J.K., Oberman, H.A., Lichter, A.S., Adler, D.D., Cody, R.L., (eds), Breast Cancer: Collaborative Management. Lewis Publishing, 1988.

4. Oberman, H.A. and Rosen, P.P.: Tumors of the breast. American Society of Clinical Pathologists, Chicago, IL, 1988.
5. Oberman, H.A.: Complications of blood transfusion. In, Greenfield, L. (ed), Complications in Surgery and Trauma. J. B. Lippincott, Philadelphia, PA, (In press).
6. Oberman, H.A.: (co-editor), Diagnosis in Surgical Pathology. Raven Press, New York, N Y (in preparation).
7. Oberman, H.A.: (ed), Annual Symposium of Arthur Purdy Stout Society of Surgical Pathologists. Am. J. Surg. Path. Suppl. 1, 1988.
8. Oberman, H.A.: Considerations in the transfusion of plasma, plasma components and plasma derivatives. In, Kolins, J. (ed), Current Transfusion Practice. American Association of Blood Banks, Arlington, VA, 1987.
9. Oberman, H.A.: Pathology of breast cancer detected by imaging techniques. In, Patterson, A.H.G. and Lees, A.W. (eds), Fundamental Problems in Breast Cancer. Martinus Nijhoff, Boston, 1987, pp. 3-10.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Book review: Pathology in Surgical Practice (Hadfield, Hobsley, Morson), Arch. Pathol. Lab. Med. 1988;112:218.
2. Oberman, H.A.: Appropriateness of Autologous Blood Transfusion. J.A.M.A., 1988;259:1384-5.

SEM H. PHAN, PH.D., M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Serum Angiotensin Converting Enzyme Assay.

II. TEACHING ACTIVITIES:

A. Pathology 600 Laboratory Section.
B. Jean Ying - Undergraduate Honor Student.
C. Elizabeth Denholm, Ph.D. - Postdoctoral Fellow.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Mechanisms and Genetic Regulation of Pulmonary Fibrosis, R01-HL28737-04. Principal Investigator, S.H. Phan, Ph.D., M.D. 20% effort, $97,785.
B. Macrophage Function in Lung Injury and Fibrosis. P01-HL31963, Section IV. Principal Investigator, S.H. Phan, Ph.D., M.D., 35% effort, $70,817 current annual direct cost (NIH).
C. Fibroblast Regulatory Factors in Pulmonary Fibrosis 84-136. Established Investigator Award (American Heart Association), $32,000 current annual direct cost.
D. Fibroblast Heterogeneity in Pulmonary Fibrosis, R01-HL39925. Principal Investigator, S.H. Phan, Ph.D., M.D., 20% effort, $84,346 current annual direct cost.
E. Crescentic Nephritis. P01DK38149, Section IV, P.I. S.H. Phan, Ph.D., M.D. 20% effort, $64,890 current annual direct costs.

PROJECTS UNDER STUDY:

A. Lung macrophage/monocyte, recruitment and activation during lung injury and fibrosis.
B. Fibroblast function - in terms of chemotaxis, collagen metabolism and proliferation during lung injury, and their regulation by inflammatory and immune cell-derived mediators.
C. The state of macrophage activation and its relationship to production of arachidonate metabolites active in fibroblast activation and regulation of mediator secretion.
D. Fibroblast arachidonate metabolism in reponse to macrophage-derived mediators and their effects on fibroblast collagen synthesis and proliferation..
E. Regulation of macrophage and T-cell fibroblast growth factor production by arachidonate metabolites in normal and diseased states.

F. Analysis of bleomycin receptors on alveolar macrophages and fibroblasts.
G. Production of monocyte chemotactic factors by alveolar macrophages and its regulation by bleomycin and cytokines.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Member, Departmental Research and Space Advisory Committee.
B. Chair, Committee to Consider Graduate (Ph.D.) Program Reactivation

MEDICAL SCHOOL/HOSPITAL:

A. Member, Ann Arbor VA Hospital Research Development Committee

REGIONAL AND NATIONAL:

A. Reviewer for the following journals: Journal of Immunology, Laboratory Investigation, Journal of Clinical Investigation, American Review of Respiratory Diseases, Experimental Lung Research, Infection and Immunity, American Journal of Pathology, Chest.
B. Member, Scientific Advisory Committee for Program Project: Pulmonary Effects of Environmental Oxidants. University of California at Davis.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. American Thoracic Society, Symposium on "The Lung Matrix and Inflammation", Las Vegas, Nevada, May 10, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Phan, S.H., McGarry, B.M., Loeffler, K.M., and Kunkel, S.L.: Regulation of macrophage-derived fibroblast growth factor release by arachidonate metabolites. J. Leuk. Biol. 42:106-113, 1987.
2. Gannon, D.E., Varani, J., Phan, S.H., Ward, J.H., Kaplan, J., Till, G.O., Simon, R.H., Ryan, U.S., and Ward, P.A.: Source of iron in neutrophil-mediated killing of endothelial cells. Lab. Invest., 57:37-41, 1987.
3. Ward, P.A., Cunningham, T.W., McCulloch, K.K., Phan, S.H., Powell, J., and Johnson, K.J.: Platlet enhancement of 0_2 responses in stimulated human neutrophils: Identification of platelet factor as adenine nucleotide. Lab. Invest. 58:37-47, 1988.
4. Phan, S.H., McGarry, B., Loeffler, K.M. and Kunkel, S.L.: Binding of leukotriene C_4 to rat lung fibroblasts and stimulation of collagen synthesis in vitro. Biochemistry, 27:2846-2853, 1988.
5. Fantone, J.C. and Phan, S.H.: Oxygen metabolite detoxifying enzyme levels in bleomycin-induced fibrotic lungs. J. Free Radical Biol. and Med., 1988; in press.

6. Robinson, J.P., Bruner, L.H., Bassoe, C.F., Hudson, J.L., Ward, P.A., and Phan, S.H.: Measurement of intracellular fluorescence of human monocytes relative to oxidative metabolism. J. Leuko. Biol., 1988; in press.
7. Downer, G., Phan, S.H., and Wiggins, R.: Analysis of renal fibrosis in a rabbit model crescentic nephritis. J. Clin. Invest. 1988; in press.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Tamura Y., Driscoll, E.M., Senyshyn, J.C., Phan, S.H., and Lucchesi, B.R.: Effects of polyethylene glycol-superoxide dismutase on myocardial infarct size and scar formation in the canine heart. 60th Scientific Session of the American Heart Association, 1987.
2. Cohen, B.J., Krause, M.M., and Phan, S.H.: Wound repair in non-obese diabetic (NOD) mice. IX ICLAS International Symposium on Laboratory Animal Science, 1987.
3. Phan, S.H., Downer, G. and Wiggins, R.: Induction of renal fibrous by nephrotoxic nephritis. 20th Annual Meeting of the American Society of Nephrology, December 13-16, 1987, Washington, D.C.
4. Phan S.H., and Kunkel, S.L.: Effects of muramyldipeptide and indomethacin on schistosome egg-induced granulomatous inflammation in the lung. in, Sarcoidosis and Other Granulomatous Disorders, C. Grassi, G. Rizzato, and E. Pozzi (eds), Exerpta Medica, Amsterdam, 1988; pp 267-270.
5. Brieland, J., Vissers, M., Phan, S.H., Fantone, J.: Human platelets mediate iron release from transferrin by ademine nucleotide independent mechanisms. FASEB, 2: A1164, 1988.
6. Gannon, D.E., Phan, S.H., Varani, J., Ryan, U.S., Ward, Pa.A.: Alternations of xanthine oxidase activity in endothelial cells undergoing neutrophil-mediated injury. Am. Rev. Resp. Dis. 137 (pt2):82, 1988.
7. Denholm, E.M., Phan, S.H.: Effects of bleomycin on alveolar macrophages in vitro. Am. Rev. Resp. Dis. 137(pt2): 86,1988.

CARL L. PIERSON, PH.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Associate Director, Clinical Microbiology Laboratory.
B. Coordinator, Infectious Disease Laboratory Rounds.

II. TEACHING ACTIVITIES:

A. Microbiology 505, Clinical Microbiology for Graduate Students.
B. Coordinator, Pathology House Officer Microbiology Laboratory rotation.
C. Lecturer, Clinical Pathology Grand Rounds.
D. Lecturer, Clinical Pathology Core Lecture Series.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. "A National Survey of the In Vitro Susceptibility of Aerobic and Anaerobic Pathogenetic Bacteria to Piperacillin", American Cyanamid Company; $16,089/four months.
B. "Survey of the Prevalence and Extent of Aminoglycoside Resistance", Schering Corporation; $1500/three months.
C. "Evaluation of the Allelex Group A Beta Streptococcus Detection Device:, Allelix, Incorporated; $4500/four months.

PROJECTS UNDER STUDY:

A. Alternatives for direct specimen Chlamydia testing and culture confirmation.
B. Evaluation of DNA probes for direct specimen testing and culture confirmation.
C. Frequency and sequelae of contaminated vascular procedures - with Surgery (Drs. Wakefield and Stanley).
D. Application of gas-liquid chromatography for bacterial identification.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

A. Clinical Pathology Laboratory Director's Committee.
B. M-Labs Technical Advisory Committee.
C. Quality Assurance Subcommittee on Universal Precautions.
D. Coordinator, Clinical Microbiology Senior Staff Meeting.
E. Coordinator, Clinical Microbiology Inservice Education Program.

MEDICAL SCHOOL/HOSPITAL:

A. Alternate, Hospital Infection Control Committee.
B. Ad hoc Committee for Body Substance Precautions.
C. Alternate, Task Force on AIDS

REGIONAL/NATIONAL:

A. Co-chair, TriCounty Clinical Microbiology Association.
B. Alternate, Technical Advisory Committee, Bureau of Laboratory and Epidemiological Services, Michigan Department of Public Health.

V. OTHER RELEVANT ACTIVITIES:

A. Reviewer, Journal of Clinical Microbiology (3rd year).
B. Editorial Consultant, Bozell, Jacobs, Kenyon and Eckhardt Healthcare, Inc., New York, New York.
C. Reviewed research proposals for the President's Initiative Fund Committee (U of M).
D. Participated in a Roche Laboratory pharmacy student training film.

INVITED LECTURES/SEMINARS:

1. Participant in Department of Ophthalmology seminar on Acanthamoeba ophthalmic infections.
2. TriCounty Clinical Microbiology Association meeting: "Use of a DNA probe for detection of AFB".

IV. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Zervos, M.J., Patterson, J.E., Edberg, S., Pierson, C.L., Kauffman, C.A., Mikesell, T.S. and Schaberg, D.R.: Single-concentration broth microdilution test for detection of high-level aminoglycoside resistance in Enterococci. J. of Clin. Microbiol. 1987;25:2443-2444.
2. Cuchural, G.J., Tally, F.P., Jacobus, N.V., Aldridge, K., Cleary, T., Finegold, S.M., Hill, G., Iannini, P., O'Keefe, J.P., Pierson, C.L., Crook, D., Russo, T. and Hecht, D.: "Susceptibility of the Bacteroides fragilis group in the United States: analysis by site of isolation. Antimicrobial Agents Chemother. 1988;32:717-722.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Lockwood, W., Friedman, C., Bus, N., Pierson, C.L. and Gaynes, R.: An outbreak of Mycobacterium terrae in clinical specimens associated with potable water. Abstracts, Interscience Conference on Antimicrobial Agents and Chemotherapy, 1987;1286:321.

2. Denys, G., Pierson, C.L., Berry, D. and Robinson, B.: Comparison of commercial and reference broth microdilution, disk diffusion and disk elution susceptibility test methods for Mycobacterium chelonae and Mycobacterium fortuitum. Abstracts, Interscience Conference on Antimicrobial Agents and Chemotherapy, 1987;1361:333.
3. McNeeley, B., Pierson, C.L., Weir, S. and Hoeft-Loyer, C.: The susceptibility of anaerobic pathogens to ampicillin plus sulbactam versus cefoxitin. Abstracts, American Society for Microbiology, 1988;A130:22.

JOSEPH A. REGEZI, D.D.S.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Oral Pathology biopsy service: four months/year (5,000 biopsies /year.).
B. Patient consultations: Oral Pathology/Dermatology Referral Service--Friday mornings.

II. TEACHING ACTIVITIES:

A. Course Director and Lecturer in Senior Oral Pathology 816 and 818.
B. Revision of Clinical Oral Pathology : Clinical Microscopic Correlations.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Immunohistochemical study of granular cell lesions.
B. Histologic and immunohistochemical study of mucoepidermoid carcinomas.
C. Immunoelectron microscopy of antigenic markers in Langerhans cells and epithelial differentiation antigens.
D. Immunocytochemistry: Application of immunohistochemical principles to oral cytologic preparations.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Thesis Committee Chairman for Dr. D.E. Turunen, Department of Periodontics.

DENTAL SCHOOL:

A. Member of Transition Committee, 1987-1989.
B. Chairman, Dental School Financial Task Force.

REGIONAL AND NATIONAL:

A Member of Editorial Board for Oral Surgery, Oral Medicine and Oral Pathology, C.V. Mosby, publisher.

V. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATIONS IN REFEREED JOURNALS:

1. Regezi, J., Zarbo, R. and Lloyd, R.V.: Muramidase, a-1 antitrypsin, a-1 antichymotrypsin, and S-100 Immunoreactivity in Giant Cell Lesions. Cancer 1987;59:64-68.
2. Bye, F., Krause, M., Regezi, J.A. and Caffessee, R.: Histologic Evaluation of Periodontal Implants in a Biological "Closed" Model. J. Perio. 1987;58:110-114.
3. Contos, J., Corcoran, J., Laturno, S., Chiego, D. and Regezi, J.A.: Langerhans Cells in Apical Periodontal Cysts: An Immunohistochemical Study. J. Endo., 1987;13:52-55.
4. Zarbo, R., Regezi, J., Batsakis, J. and Lloyd, R.: HLA-DR Immunoreactivity in Salivary Gland Lesions. Oral Surg., Oral Med., Oral Pathol., 1987;64:577-584.
5. Regezi, J., Zarbo, R., Tomich, C., Lloyd, R., Courtney, R. and Crissman, J.: Immunoprofile of Benign and Malignant Fibrohistiocytic Tumors. J. O. Pathol., 1987;16:260-265.
6. Regezi, J., Zarbo, R., McClatchey, K.D., Courtney, R.M. and Crissman, J.D.: Osteosarcomas and Chondrosarcomas of the Jaws: Immunohistochemical Correlations. Oral Surg., Oral Med., Oral Pathol., 1987;64:302-307.
7. Regezi, J. and Ellis, C.N.: Oral Lichen Planus Therapy (Question/Answer Section) JAMA 1987;258:1661-1662.
8. Zarbo, R., Regezi, J., Hatfield, J., Maisel, H., Trojanowski, J., Batsakis, J. and Crissman, J.: Immunoreactive Glial Fibrillary Acidic Protein in Normal and Neoplastic Salivary Gland: A combined Immunohistochemical and Immunoblot Study. Surg. Pathol., 1988;1:55-63.

DANIEL G. REMICK, M.D.
INSTRUCTOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Autopsy Service.
B. Pediatric Pathology

II. TEACHING ACTIVITIES:

A. Monthly Urology Conference.
B. Course Director - Pathology 361.
C. Supervisor - Fourth Year Medical Student Clerkship.
D. Supervisor - Mark Eskandari; Student Research Fellowship.
E. Coordinator - Pathology Gross Conference.
F. Lectures to Pathology House Officers.

III. RESEARCH ACTIVITIES:

A. Regulation of Soluble Mediators of Inflammation.
B. Toxic Effects of Immunomodulators.

SPONSORED SUPPORT:

Current:

A. Biomedical Research Council - Modulation of IL-2 Production - Principal Investigator
B. Phoenix Project - Granulomatous Inflammation and IL-2 - Principal Investigator
C. Rackham School of Graduate Studies - Granulomatous Inflammation and IL-2 - Principal Investigator
D. National Institutes of Health - Small Equipment Support - Sterilizer - Principal Investigator
E. The University of Michigan Cancer Research Institute - Tumor Necrosis Factor and Pulmonary Malignancies - Principal Investigator
F. National Institutes of Health - Granulomatous Inflammation and IL-2 - Principal Investigator - 5 years; $350,000

Pending:

A. National Institutes of Health - Mechanisms of Tissue Injury in Burn and Trauma Project 4, Regulation of the Production and Effects of Tumor Necrosis Factor - Principal Investigator, Priority Score: 138

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Director - Autopsy Service.
B. Member - Post-Sophomore Pathology Fellowship Committee.
C. Member - Quality Assurance Committee
D. Member - Microcomputer Advisory Committee

REGIONAL AND NATIONAL:

A. Reviewer, American Review of Respiratory Diseases.
B. Reviewer, Laboratory Investigation.
C. Reviewer, Journal of Immunology.
D. Reviewer, American Journal of Applied Physiology.
E. Reviewer, Journal Immunopharmacology
F. Reviewer, Journal Leukocyte Biology

INVITED LECTURES/SEMINARS:

1. Invited Seminar, Tumor Necrosis Factor - Mediator of Septic Shock, Department of Pathology, U. of Minnesota, Duluth, Minnesota, 1988
2. Invited Seminar, Tumor Necrosis Factor - Proximal Mediator of Septic Shock, Department of Surgery, Hershey Medical Center, Hershey, Pennsylvania, 1988

V. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Remick, D.G., Larrick, J., and Kunkel, S.L.: *In vivo* effects of recombinant tumor necrosis factor. Lab. Invest. 1987; 56:583-590.
2. Remick, D.G., Larrick, J.W., Nguyen, D.T. and Kunkel, S.L.: Stimulation of prostaglandin E_2 and thromboxane E_2 production by human monocytes in response to interleukin-2. Biochem. Biophys. Res. Commun. 1987; 147:86-93.
3. Remick D.G., Chensue, S.W., Hiserodt, J.C., Higashi, G.I., and Kunkel, S.L.: Flow cytometric evaluation of lymphocyte subpopulations in synchronously developing Schistosoma mansoni egg and Sephadex bead pulmonary granulomas. Am. J. Pathol. 1988; 131:298-307.
4. Remick, D.G., Kunkel S.L., Higashi, G.I. and Hiserodt, J.C.: Specific suppression of natural killer cell cytolytic activity in mice undergoing pulmonary granulomatous inflammation. J. Immunol., 1988; 140:2225-2230.
5. Kunkel, S.L., Spengler, M., May, M., Spengler, R.S., Larrick, J.W., and Remick, D.G.: Prostaglandin E regulates macrophage-derived tumor necrosis factor gene expression. J. Biol. Chem., 1988; 263:5380-5384.
6. Ward, P.A., Warren, J.S., Remick, D.G., Varani, J., Gannon, D., and Johnson, K.J.: Cytokines and oxygen radical-mediated tissue injury. Critical Care Medicine, (In Press).

BOOKS/CHAPTERS IN BOOKS:

1. Ward, P.A., and Remick, D.G.: The role of immune mechanisms in lung injury. In, A.P. Fishman, (editor). Pulmonary Disease and Disorders, McGraw-Hill Publisher, New York, New York (In Press).
2. Kunkel, S.L., Remick, D.G., Spengler, M., and Chensue, S.W.: Modulation of macrophage-derived interleukin-1 and tumor necrosis factor by prostaglandin E_2. In, B. Samuelsson, R. Paoletti, and P.W. Ramwell, (editors). Advances in Prostaglandin, Thromboxane and Leukotriene Research, Raven Press, New York, New York, 1987.
3. Kunkel, S.L., Spengler, M., Kwon, G., May, M.A., and Remick, D.G.: Production and regulation of tumor necrosis factor alpha: A cellular and molecular analysis. In, Jasmin,G., (editor). Methods and Achievements in Experimental Pathology, Vol. XIV Kinetics and Patterns of Necrosis, Karger, 1988.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Remick, D.G., Annesley, T., Chensue, S.W., Higashi, G.I. and Kunkel, S.L.: Cyclosporine modulation granulomatous inflammation. Seventh International Congress of Immunology, Toronto, Canada, 1987.
2. Remick, D.G., Kunkel, R.G., Larrick, J.W., Kunkel, S.L.: Acute *in vivo* effects of human recombinant tumor necrosis factor alpha. 1987; Fed. Proc. 46:1199.
3. Kunkel, S.L., Spengler, M., Kwon, G., May, M. and Remick, D.G.: Regulation of macrophage-derived tumor necrosis factor (TNF) gene expression by prostaglandin E (PGE). Fed. Proc., 1987;46:737.
4. Remick, D.G., Larrick, J.W., and Kunkel, S.L.: Acute *in vivo* effects of tumor necrosis factor alpha and resistance to modulation of these effects by pharmacologic manipulation. International Conference on Tumor Necrosis Factor and Related Cytokines. Heidelberg, Federal Republic of Germany, 1987.
5. Kunkel, S.L., Larrick, J.W., and Remick, D.G.: Prostaglandin E_2 (PGE_2) and prostacyclin (PGI_2) regulate tumor necrosis factor alpha (TNF) production at the cellular and molecular levels: An analysis of autocrine, paracrine, and endocrine effects. International Conference on Tumor Necrosis Factor and Related Cytokines, Heidelberg, Federal Republic of Germany, 1987.
6. Remick, D., May, M., Spengler, M., and Kunkel, S.L.: Analysis of tumor necrosis factor alpha (TNF) mRNA regulation by *in situ* hybridization. International Academy of Pathology, 1988.
7. Nguyen, D., Kunkel, R.G., Kunkel, S.L., and Remick, D.G.: Dose dependent tissue damage induced by tumor necrosis factor (TNF). FASEB, 1988.
8. Remick, D.G., Nguyen, D., and Kunkel, S.L.: Interleukin 2 (IL-2) induction of tumor necrosis factor (TNF) and arachidonic acid (AA) metabolites. FASEB, 1988.
9. Strieter, R.M., Remick, D.G., Lynch, J.P., Nguyen, D., Eskandari, M., and Kunkel, S.L.: Dexamethasone suppresses *in vivo* tumor necrosis factor-alpha (TNF) gene expression and bioactivity. FASEB, 1988.
10. May, M., Nguyen, D., Kunkel, S.L., and Remick, D.G.: Analysis of monokine mRNA regulation by *in situ* hybridization (ISH). FASEB, 1988.
11. Strieter, R.M., Remick, D.G., Lynch, J.P., and Kunkel, S.L.: Interleukin-2 induced tumor necrosis factor-alpha gene expression by human alveolar macrophages and blood monocytes. Am. Thoracic Society, Las Vegas, Nevada, 1988.

12. Strieter, R.M., Remick, D., Lynch, J., and Kunkel, S.: The role of tumor necrosis factor-alpha in multiple organ injury: A cellular and molecular analysis. Aspen Lung Conference, Aspen, Colorado, 1988.
13. Strieter, R.M., Remick, D.G., Lynch, J.P., and Kunkel, S.L.: Differential regulation of tumor necrosis factor-alpha in human alveolar macrophages and peripheral blood monocytes. Selected as a finalist for the Cecile Lehman Mayer Research Award, Am. College of Chest Physicians Annual Meeting.

J. PAUL ROBINSON, PH.D.
RESEARCH INVESTIGATOR
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Consultant to Clinical Flow Cytometry Laboratory.

II. TEACHING ACTIVITIES: None.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

A. Leukocyte Defects Associated with thermal injury.
B. Inflammatory responses in Periodontal Disease.
C. Core Flow Cytometry Facility "Lung Inflammation & Injury" project.

IV. ADMINISTRATIVE ACTIVITIES: None.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. "Function assessement of leukocyte function", Cambridge University, Cambridge, England, August 8, 1987
2. "Flow cytometric evaluation of cell function using small animals", Department of Pathology, University of Bergen, Bergen, Norway, August 16, 1987.
3. "The Applications of Flow cytometry" Commonwealth Serum Laboratories, Melbourne Australia, December 2, 1987.
4. "Recent research in Neutrophil Function", Repatriation General Hospital, Concord, NSW Australia, December 3, 1987.
5. "Chronic periodontitis - modern methods of research using flow cytometry", Royal North Shore Hospital, Department of Rheumatology, December 4, 1987.
6. "Cell membrane fluidity as a means of assessing activation states", Kolling Institute for Medical Research, Sydney Australia, December 9, 1987.
7. "Flow cytometry as a means of measuring cell membrane fluidity", St Vincents Hospital, Centre for Immunology,Sydney, Australia, December 11, 1987.
8. "Flow cytometric evaluation of gingival crevicular neutrophils: A unique application of flow cytometry", Australian Society for Medical research 26th Annual Meeting, Threadbo, NSW,Australia, December 13-17, 1987.
9. "Flow cytometry and its role in immunophenotyping and function", Royal Prince Alfred Hospital,Sydney, Australia December 18, 1987.
10. "Differences in neutrophil and monocyte oxidative burst: Two mechanisms of H_2O_2 production", University of NSW, Department of Pathology, Sydney, December 21-22, 1987.

11. "Neutrophil and Platelet antibody measurement by flow cytometry", The Prince Henry Hospital, La Perouse, NSW, December 23-24, 1987.
12. "Paediatric applications of flow cytometry", The Royal Alexandra Hospital for Children, Department of Immunology, Sydney, Australia, January 21, 1988.
13. "Flow cytometry and clinical immunology", Princess Margaret Hospital, Christchurch, New Zealand, January 22, 1988.
14. "Oxidative burst measurements on single cells using flow cytometry", Purdue University, February 1988.
15. "Integrated Data Analysis" International course in Flow Cytometry, Villejuif, Paris, France June 6-11, 1988.
16. "User initiated Upgrades & Enhancements in Cytometry" Cytometry Users Meeting, Omni Park Central, New York, NY, June 13-16, 1988.
17. "Distributed processing in Flow Cytometry",Cytometry Users Meeting, Omni Park Central, New York, NY, June 13-16, 1988.

SPECIAL COURSES:

1. Advanced Flow Cytometry Course, Haverford, PA, May 22-27, 1988.
2. Faculty: International Course in Flow Cytometry, Villehuif, France June 4-11, 1988.

VI. PUBLICATIONS

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Robinson, J.P., Duque, R.E., Boxer, L., Ward, P.A. and Hudson, J.L.: Measurement of anti-neutrophil antibody by flow cytometry: Simultaneous measurement of antibodies against mononcytes and lymphocytes. Diag. Clin. Immunol., 1987;5:163-170.
2. Loesche,W.J., Robinson, J.P., Flynn, M., Hudson, J.L. and Duque, R.E.: Reduced Oxidative function in gingival crevicular neutrophils in periodontal disease. Infect. Immun., 1988;56:156-160.
3. Robinson, J.P., Bruner, L.H., Bassoe, C-F, Hudson, J.L., Ward, P.A. and Phan, S.H.: Measurement of intracellular fluorescence of human monocytes indicative of oxidative metabolism. J. Leuk. Biol., 1988;43:304-310.
4. Stelzer, G.T. and Robinson, J.P.: Flow Cytometric evaluation of leukocyte function. Diag. Clin. Immunol., 1988;5:223-231.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. L.H. Bruner, Robinson, J.P., Hudson, J.L. and Ward, P.A.: Characterization of H_2O_2 production from rat blood neutrophils using DCFH-DA oxidation. Society for Analytical Cytology, Cambridge, England, August 7-11, 1987.
2. Robinson, J.P., Comment, C., Bruner, L., Hudson, J.L., Ward, P.A. and Phan, Sem H.: Neutrophil membrane fluidity changes can be correlated with oxidant production: Simultaneous flow cytometric determinations. Society for Analytical Cytology, Cambridge, England, August 7-11, 1987.
3. Hudson, J.L., Armstrong, L.A., Greenwood, J.H., Brede, D., Kleedtke, G., Gaglio, J., Bruner, L.H., Robinson, J.P., Kelley, S. and Ward, P.A.: Flow cytometric

immunochemical and functional immune cell assays. Assoc. Official Anal. Chem, Fargo, ND, June 15-17, 1987.

4. Robinson, J.P., Loesche, W.J. and Hudson, J.L.: Flow cytometric evaluation of gingival crevicular neutrophils: A unique application for flow cytometry. Annual Meeting Australian Society for Medical Research, Threadbo, NSW, Australia, December 12-16, 1987.
5. Cytometric Immune status profile studies of cardiomyopathy, Renal transplant and surgical intensive care patients; Brede, D.E., Gaglio, J.A., Kleedke, G.E., Armstrong, L.P., Kelley, S.M., Greenwood, J.A., Bruner, L.H., Robinson J.P., Hudson, J.L., 2nd Annual Meeting Clinical Applications of Cytometry, Sept. 30-Oct. 3, Omni Hotel, Charleston, SC, USA, 1987.
6. Development and application of flow cytometric measurement of membrane fluidity. Comment, C.C., Kelley, S.M., Hudson, J.L., Phan, S.H., Robinson, J.P., 2nd Annual Meeting Clinical Applications of Cytometry, Sept. 30-Oct. 3, Omni Hotel, Charleston, SC, USA, 1987.
7. H_2O_2 production from rat blood neutrophils after thermal injury, Bruner, L.H., Robinson, J.P., Till, G.O., Ward, P.A., Hudson, J.L. 2nd Annual Meeting Clinical Applications of Cytometry, Sept. 30-Oct. 3, Omni Hotel, Charleston, SC, USA, 1987.
8. CR3, A functional surface marker for the rat neutrophil: Correlation with H_2O_2 production using DCF, Society for Analytical Cytology, Annual Meeting, Breckenridge, Colorado, Sept 4-9, 1988.
9. Isolation and Characterization of Neutrophils collected from gingival crevicular spaces: Application of Flow cytometry in periodontal disease, Society for Analytical Cytology, Annual Meeting, Breckenridge, Colorado, Sept 4-9, 1988.

NATHANIEL H. ROWE, D.D.S., M.S.D.
PROFESSOR OF PATHOLOGY, DENTISTRY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Responsible for biopsy service four months/year.
B. Responsible for clinical patient diagnostic problems, both in house and state-wide referral, and management thereof on an as needed basis eleven months per year.
C. Responsible for staffing the Oral Diagnosis Clinic in the mornings four months/year (starting June, 1988).

II. TEACHING ACTIVITIES:

A. Oral Pathology to Freshman Dental Students, Course 516 (course director).
B. Oral Pathology to Sophomore Dental Students, Course 624 and 625.
C. Oral Pathology Seminar to Graduate Students in Periodontics, Course 781 (course director).
D. Dental Hygiene, Sophomore Students, Course 220.
E. Dental Hygiene, Course 313, Senior Seminar.
F. Oral Pathology Elective, Senior Dental Students Course 818.
G. Graduate Oral Pathology, Course 694.

III. RESEARCH ACTIVITIES:

SPONSORED RESEARCH:

A. Tolerance and efficacy study comparing 15% 5-IODO-2'-deoxyuridine (IDU) in 80% dimethyl sulfoxide (DMSO) and 5% H_20 to control groups of 80% DMSO and 2% DMSO for the treatment of herpes simplex labialis. Principal Investigator. Sponsor: Research Medical, Inc.
B. Efficacy and safety of topical acyclovir cream versus placebo cream for the prevention of herpes simplex labialis experimentally induced with ultraviolet light. Principal Investigator. Sponsor: Burroughs Wellcome Co.

IV. ADMINISTRATIVE ACTIVITIES:

A. Director of Diagnostic Laboratory and Consultative Services, Department of Oral Medicine, Pathology, Surgery. Activities include:
   1. Plan and supervise all activities of the various laboratories and consultative services. These include the research services, C.T. Hanks, Director, Patient Consultative Services, J.A. Regezi, Director, Anatomic Pathology Services, R.M. Courtney, Director, and Clinical Pathology Services, N.H. Rowe and J.C.B. Stewart, Co-Directors.

B. Co-Director: Clinical Pathology Services, Department of Oral Medicine, Pathology, Surgery. Activities include:
   1. Provide Clinical Laboratory tests requisite to the needs of the intramural diagnostic program.
   2. Provide infection control monitoring services for health care practitioners inside as well as outside of the dental school environs.

C. Associate Director of the Dental Research Institute. Activities include:
   1. Chairman, Symposium on Insights into Dentofacial Pain: Overview, Diagnosis and Treatment, March 25, 1987. Edit and publish proceedings.
   2. Participant in deliberation of various other committees such as the Scientific Advisory Committee and the Policy committee of the Institute.

REGIONAL AND NATIONAL:

A. Medical Director, National Board of Directors, American Cancer Society.
B. Member, Executive Committee, Michigan Division, American Cancer Society.
C. Member-at-Large, Board of Directors, Michigan Division, American Cancer Society.
D. Member, National Public Issues Committee, American Cancer Society.
E. Area Delegate Director, American Cancer Society, Michigan Division.
F. Chairman, Public Issues Committee, American Cancer Society, Michigan Division.
G. Member, Professional Education Committee, American Cancer Society, Michigan Division.
H. Consultant, Committee on Cancer Control, Hospital and Institutional Dental Service, Michigan Dental Association.
I. Member, Science Information Committee, American Association for Dental Research.
J. Member, Board of Appeals, Commission on Accreditation, Graduate Specialty Education Programs, American Dental Association.
K. Consultant, Committee on Hospital and Institutional Dentistry, American Dental Association.
L. Consultant, Council on Dental Therapeutics, American Dental Association.
M. Civilian Professional Consultant, Office of the Surgeon General, United States Army.
N. Consultant in Oral Pathology, United States Veterans Administration Hospitals, Ann Arbor.
O. Consultant, Ellis Fischel State Cancer Hospital, Columbia, Missouri.
P. Consultant, Research Screening Committee, Delta Dental Fund.
Q. Manuscript Consultant and Reviewer:
   1. BARRIER, Infection Control in Dental Practice (Consulting Editor).
   2. Journal of the American Medical Association.
   3. Journal of Oral Pathology.
   4. Journal of the American Dental Association.
   5. Cancer.
   6. Journal of the Academy of General Dentistry.

V. OTHER RELEVANT ACTIVITIES:

A. Vice President and Program Chairman, The Science Research Club of The University of Michigan.

INVITED LECTURES AND SEMINARS:

1. Testimony, Smokeless Tobacco Hearings in Lansing.
2. Trident Seminar, Ixtapa, Mexico.
3. Department of Corrections Dental Training Conference, Lansing.
4. Infectious Diseases in the Dental Operatory and Their Impact on Dental Personnel Conference, Wayne State University, Detroit.
5. Impact of AIDS Seminar, Lansing.
6. Michigan Dental Association, AIDS/Infection Control Seminars, Lansing.
7. Symposium on Oral Herpes, University of Pennsylvania.
8. Public Advocacy Conference on Tobacco or Health, Michigan State Unviersity, speaker and moderator.
9. Future Directions in Dentistry Symposium, Warner-Lambert Company New Jersey.
10. Burroughs Wellcome Co., International Conference, Calgary, Canada.
11. Oral Cancer Continuing Education Seminar, Lansing Community College.
12. American Lung Association Press Conference, Michigan Senate, Lansing.
13. Great Lakes Nursing Conference, Lansing.
14. Oakwood Hospital Nurse Anesthestists.
15. V.A. Hospital, Ann Arbor.
16. Infection Control in the Dental School training seminars.
17. Miscellaneous component dental and hygiene societies (in and out of state), civic and study clubs, and university seminars.

B. President, The Science Research Club of The University of Michigan.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Rowe, N.H. and Stewart, J.C.B.: Herpes Simplex Viral Diseases: Implications for Dental Personnel. Barrier, 1987;2(1):1-7.
2. Rowe, N.H.: Preventing Infection of the Fingers and Hands. Barrier, 1988;2(3):7.

BOOKS AND CHAPTERS IN BOOKS:

1. Rowe, N.H.: Dental Caries, Chapter 17, in, Regezi, J.A. and Sciubba, J.J.: Oral Pathology, 1st Edition, W.B., Saunders Company, (In Press).
2. Rowe, N.H. (editor): Proceedings of Symposium: Insights Into Dentofacial Pain: Overview, Diagnosis and Treatment. The University of Michigan Press, Ann Arbor, Michigan, 1987.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Spruance, S.L., Freeman, D., Stewart, J.C.B., McKeough, M., Wenerstrom, G. and Rowe, N.H.: Prophylactic Therapy with Acyclovir (ACV) Cream for Experimental Ultraviolet (UV) Light-Induced Herpes Labialis. Abstracts ofthe 28th ICAAC Meeting, Spring, 1988.

ROBERT W. SCHMIDT, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Find needle aspiration of superficial tumors, bedside or in clinic, full time (26 weeks) and backup (22 weeks).
B. Gynecologic pathology - consultation service, 12 months.
C. Surgical Pathology - backup coverage. Most outside (transfer) gynecologic pathology cases.
D. Cytopathology, full time (26 weeks) and backup coverage (22 weeks).

II. TEACHING ACTIVITIES:

A. Gynecologic tumor conference, twice weekly.
B. Sophomore pathology lectures (four): Diseases of: Cervix, Vagina, and Vulva; Uterus and Endometrium; Ovaries; Placenta and Trophoblastic Disease.
C. Pathology Residents - Supervision and teaching during cytopathology rotation, for gynecologic surgical pathology cases, and when covering necropsies.
D. Pathology Residents - Gynecologic pathology (4) and parasitology lectures (2).

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Radioimmunodiagnosis and Radiotherapy of Ovarian Carcinoma, Richard L. Wahl, M.D., Principal Investigator. NIH-sponsored.

PROJECTS UNDER STUDY:

A. Adenocarcinoma and adenosquamous carcinomas of the uterine cervix.
B. Coexistent endocervical adenocarcinoma and mucinous adenocarcinoma of the ovary: A clinicopathologic study of two cases.
C. Endometrial adenocarcinoma and endometrioid adenocarcinoma of ovaries in a 27-year-old.
D. Glassy cell carcinoma of the cervix.
E. Gland cell carcinoma (Adenocarcinoma) of the Cervix - University of Michigan, 1970-1985, Submitted for publication.
F. The Prognosis and Treatment of Stage I Adenocarcinoma of the Cervix, Submitted for publication.
G. Primary Melanoma of the Vagina - Submitted for publication.
H. The Role of Pelvic Exenteration for Gynecologic Sarcomas, Submitted for publication.

IV. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Johnson, T.L., Terada, K. and Schmidt, R.W.: Clinicopathologic features of ovarian mixed mesodermal tumors and carcinosarcomas, Accepted for presentation at ASCP Meeting, October, 1987, (In Press).
2. Hopkins, M., Roberts, J. and Schmidt, R.W.: Cervical adenocarcinoma in situ (study based on 18 cases). Presented at Western Association of Gynecologists Meeting - 1986. Obstetrics and Gynecology, Accepted for publication.
3. Terada, K. and Schmidt, R.W.: Malignant nerve sheath tumor of the vulva, (In Press).

BERTRAM SCHNITZER, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Director, Clinical Hematology Laboratory.
B. Director, University of Michigan Health Services Laboratories.
C. Diagnostic Surgical Pathology, Hematopathology.
D. Diagnostic Hematopathology Consultant, Veterans Administration Hospital.
E. Diagnostic Hematopathology of M-Lab clients.
F. Consultant for External and Transfer Hematopathlogy cases.
G. Review of Southwest Oncology Group (SWOG) cases (circa 200/year).
H. Diagnostic electron microscopy of lymphoreticular and hematopathology cases.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

A. Daily sign-out of bone marrow biopsies and aspirates.
B. Daily review of blood smears and body fluids in Hematology Laboratory.
C. Daily review of in-house and consultation hematopathology cases and correlation with flow cytometry data and immunoperoxidase studies.
D. House Officer Conferences in Hematopathology. (Clinical Pathology Grand Rounds).

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Southwest Oncology Group (SWOG). Combination chemotherapy of unfavorable histology non-Hodgkin's lymphomas with CHOPP and CBV, with Dr. L. Dabich.
B. Southwest Oncology Group (SWOG). Combination chemotherapy of unfavorable histology non-Hodgkin's lymphomas with alternating regimens of CHOPP and CVB, with Dr. L. Dabich.
C. Pathology Coordinator, SWOG study 8515 and 8516.

SERVICE ACTIVITIES:

DEPARTMENTAL:

A. Diagnostic Surgical Pathology, Hematopathology.
B. Diagnostic Clinical Pathology, Hematology.

MEDICAL SCHOOL/HOSPITALS:

A. Hematology Laboratory.
   1. During the past fiscal year, the total number of billable tests in Hematology Laboratory has increased by 12 per cent over last year. The increase in labor-intensive laboratory tests is as follows:
   2. 17 per cent increase in the total number of differential white blood cell counts which is an increase of 26 percent of differential counts requiring pathologist's review.
   3. 9 per cent increase in the total number of body fluid counts and differential white cell counts and a 14 per cent increase of these differentials requiring review.
   4. A formal bone marrow sign-out has been successfully implemented.
   5. A formal sign-out of abnormal blood smears from Falzone Laboratories (circa 40/month) has been added to the daily review of abnormal in-house blood smears, body fluids and joint fluids.
   6. Acquisition of Coulter S-Plus Stacker Instruments.

B. Andrew D. Leavitt, M.D., one of the Chief Residents in Internal Medicine spent one month on the Hematopathology Service prior to starting a Fellowship in Hematology/Oncology in San Francisco.

C. University of Michigan Health Service Laboratories.

REGIONAL AND NATIONAL:

A. President Elect, Society for Hematopathology.
B. Society for Hematopathology, Executive Committee.
C. Southwest Oncology Group:
   1. Lymphoma Subcommittee.
   2. Leukemia Subcommittee.
D. Regional Center Review Pathologist, Southwest Oncology Group.
E. Member, Executive Committee, National Panel for Lymphoma Clinical Studies.
F. Children's Cancer Study Group: Review Pathologist of lymphoma cases.

V. OTHER RELEVANT ACTIVITIES:

EDITORIAL BOARD:

A. American Journal of Clinical Pathology.
B. Diagnostic Immunology. Designated reviewer.
C. Hematologic Pathology. Designated reviewer.

INVITED LECTURES/SEMINARS:

1. "A Practical Approach to Diagnostic Hematological Problems", ASCP Educational Course, Toronto, Canada, November, 1987. Lectures I gave included: a) Non-Hodgkin's Lymphomas; b) Hodgkin's Disease; c) A Practical Approach to the Diagnosis and Classification of Lymphomas and Leukemias by Flow Cytometry, and Electron Microscopy; d) Extranodal lymphomas; e) Immunologic Classification of Acute Lymphoblastic Leukemias.
2. ASCP Workshop. October, 1987. Acute Lymphoproliferative Disorders. New Orleans, Louisiana.
3. International Academy of Pathology. March 1988. Specialty Conference. Hematopathology. Disorders of the Spleen. Washington, D.C.
4. ASCP Workshop. April, 1988. Acute Lymphoproliferative Disorders, Kansas City, Missouri.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Headington, J.T., Roth, M.S. and Schnitzer, B.: Regressing atypical histiocytosis. A review and critical appraisal. Semin. Diag. Pathol. 1987;4:28-37.
2. Headington, J.T., Roth, M.S., Ginsburg, D., Lichter, A.S., Hyder, D., Schnitzer, B.: T-cell receptor gene rearrangement in regressing atypical histiocytes. Arch. Dermatol. 1987;123:1183-1187.
3. Schnitzer, B.: Splenic function, malaria, and history. N. Engl. J. Med. 1988;318:858.
4. Schnitzer, B., Roth, M.D., Hyder, D.M., and Ginsburg, D: Ki-1 lymphomas in children. Cancer 1988;61:1213-1221.
5. Roth, M.S., Schnitzer, B., Bingham, E. L., Harnden, C.E., Hyder, D.M., and Ginsburg, D.: Rearrangement of immunoglobulin and T-cell receptor genes in Hodgkin's disease. Am. J. Pathol. 1988;131:331-338.

BOOKS AND CHAPTERS IN BOOKS:

1. McClatchey, K.D., and Schnitzer, B.: Lymphoreticular disorders of the head and neck: In: Comprehensive management of head and neck tumors, S.H. Thawley, and W.R. Panje, (Ed), W.B. Saunders, 1987.
2. Hyder, D.M., and Schnitzer, B.: Analysis of Hematopoietic Malignancies. In: Use of Surface Markers and DNA Studies in Diagnostic Pathology. D. Keren, (Ed), ASCP Press. 1988.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFERREED JOURNALS:

1. Hanson, C.A., and Schnitzer: Flow cytometric analysis of cytologic specimens in hematologic disease. Lab Invest. 58:37A, 1988 and Modern Pathol. 1988;1:37A.

EUGENE M. SILVERMAN, M.D.
CLINICAL ASSOCIATE PROFESSOR
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Surgical Pathology Coverage of M-Labs cases including all cases from:
   1. Albion Community Hospital, Albion, Michigan.
   2. Newman Laboratories, Dearborn, Michigan.
   3. University of Michigan Health Service, Ann Arbor, Michigan.
   4. Falzone Laboratories.
   5. Garden City Osteopathic Hospital.
   6. Other various institutions.

B. Autopsy Coverage for Albion Community Hospital, Albion, Michigan.

C. Clinical consultations and Hematology review at Chelsea Community Hospital, Chelsea, Michigan and Metric Medical Laboratories, Ann Arbor.

D. Rotation with other staff pathologists.
   1. Five weeks coverage at the University Hospital of evening frozen sections.
   2. Weekend autopsy call.

II. TEACHING ACTIVITIES:

A. Supervise residents in gross cutting of M-Labs cases and review microscopic material with residents in all interesting cases.

B. Read out all M-Labs autopsies with residents.

III. RESEARCH ACTIVITIES:

A. Investigation of hepatic fatty change in exogenous obesity and following gastric exclusion surgery.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Associate Director, M-Labs.
   1. Participate in planning, marketing, and implementation of M-Labs programs.

B. Director, Laboratory at Albion Community Hospital, Albion, Michigan.

C. Chairman, Tissue/Transfusion Committee, Albion Community Hospital, Albion, Michigan.

D. Chairman, Infection Control Committee, Albion Community Hospital, Albion, Michigan.

E. Director of Laboratories, Chelsea Hospital, Chelsea, Michigan.

F. Tissue Committee, Chelsea Hospital, Chelsea, Michigan.

G. Laboratory Committee, Chelsea Hospital, Chelsea, Michigan.

V. OTHER RELEVANT ACTIVITIES: None.

VI. PUBLICATIONS: None.

JAMES E. SMOLEN, PH.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENTS OF PEDIATRICS AND PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. **CLINICAL ACTIVITIES**: None.

II. **TEACHING ACTIVITIES**:

A. Supervised two postdoctoral fellows in the Department of Pediatrics.

III. **RESEARCH ACTIVITIES**: None.

IV. **ADMINISTRATIVE ACTIVITIES:**

DEPARTMENTAL:

A. Department of Pediatrics Internal Review Committee.

REGIONAL AND NATIONAL:

A. Reviewer of Articles for: Journal of Biological Chemistry, Journal of Clinical Investigation, Journal of Leukocyte Biology, Journal of Immunology, American Journal of Pathology, European Journal of Hematology, Cancer Research, Molecular Pharmacology, Jouranl of Cellular Biochemistry, Biochimica et Biophysica Acta, Blood, Biochemical Pharmacology.

V. **PUBLICATIONS**:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Smolen, J.E., Stoehr, S.J., Trayner, A.E., Sklar, L.A.: The Kinetics of Secretion from Permeabilized Human Neutrophils: Release of Elastase and Correlations with Other Granule Constituents and Right Angle Light Scatter. J. Leuk. Biol. 1987;41:8-13.
2. Sklar, L.A., Bokoch, G.M., Button, D. and Smolen, J.E.: Regulation of Ligand-Receptor Dynamics by Guanine Nucleotides: Real-Time Analysis of Interconverting States for the Neutrophil Formyl Peptide Receptor. J. Biol. Chem. 1987;262:135-139.
3. Sklar, L.A., Bokoch, G.M., Swann, W.N., Comstock, C. and Smolen, J.E.: Ligand-Receptor Dynamics and Signal Amplification in the Neutrophil. Int. J. Tissue React., 1987;9:277-284.
4. Bokoch, G.M., Sklar, L.A. and Smolen, J.E.: Guanine Nucleotide Regulatory Proteins as Transducers of Receptor-Stimulated Neutrophil Activation. Int. J. Tissue React., 1987;9:285-293.
5. Stoehr, S.J. and Smolen, J.E.: Osmotic Forces are Not Critical for Ca^{2+} - Induced Secretion from Permeabilized Human Neutrophils. J. Cell Physiol., 1988, (In Press).

BOOKS AND CHAPTERS IN BOOKS:

1. Smolen, J.E.: Secretion from Neutrophils: A Critique of Modern In Vitro Techniques, in, The Secretory Process, Volume 3, In Vitro Methods for Studying Secretion, A.M. Poisner and J.M. Trifaro, (eds), Elsevier, Amsterdam, 1987, pp. 29-43.
2. Smolen, J.E.: Molecular Mechanisms of Leukocyte Stimulation: Contributions of Permeabilized Cell Systems, in, Leukocyte Emigration and Its Sequelae, H.Z. Movat, (ed), Karger AG, 1987, pp. 140-149.
3. Smolen, J.E.: Characteristics and Nechanisms of Secretion by Neutrophils, in, The Cellular Biochemistry and Physiology of the Neutrophil, M.B. Hallet, (ed), CRC Press, Inc., 1988, (In Press).
4. Sklar, L.A., Bokoch, G.M., Swann, W.N., Comstock, C. and Smolen, J.E.: Ligand-Receptor Dynamics and Signal Amplification in the Neutrophil, in, Conference Proceedings of 2nd World Conference on Inflammation, Bioscience Ediprint, (In Press).
5. Bokoch, G.M., Sklar, L.A. and Smolen, J.E.: Guanine Nucleotide Regulatory Proteins as Transducers of Receptor-Stimulated Neutrophil Activation, in, Conference Proceedings of 2nd World Conference on Inflammation, Bioscience Ediprint, (In Press).
6. Boxer, L.A. and Smolen, J.E.: Neutrophil Granule Constituents and Their Release in Health and Disease, in, Hematology/Oncology Clinics. Phagocytic Defects I, J.T. Curnutte, III, (ed), W.B. Saunders C., 1988, pp. 101-134.
7. Sandborg, R.R. and Smolen, J.E.: Early Events in Leukocyte Activation, in, Lab. Invest., (In Press).

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, ARTICLES PUBLISHED IN UNREFEREED JOURNALS :

1. Stoehr, S.J., Balazovich, K.J. and Smolen, J.E.: Protein Kinase C of Human Neutrophils Utilizes GTP as an Alternate Phosphate Donor, Clin. Res., 1988;36:420A.
2. Sandborg, R. and Smolen, J.E.: Heavy Metals Induce Granule Secretion from Permeabilized Neutrophils, FASEB J., 1988;2:1584A.

LLOYD M. STOOLMAN, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Flow Cytometry Diagnostic Service - interpretation of cell surface marker studies and cellular DNA analyses in the evaluation of hematologic disorders, primary and secondary immune deficiencies and autoimmune processes.
B. Hematopathology Diagnostic Service - interpretation of peripheral smears, body fluid cytologies, bone marrow aspirates and biopsies, cytochemical stains.

II. TEACHING ACTIVITIES:

A. Research supervisor, Undergraduate Honors Program in Cell Biology.
B. Daily sign-out of cases in flow cytometry and hematopathology with pathology residents and medical students.
C. Monthly seminars on the clinical applications of flow cytometry for the residents, fellows and medical students.
D. Lecturer, Hematopathology, Medical School.
E. Lecturer, Clinical Applications of Flow Cytometry, Pathology Residents Core Lecture Series.
F. Pediatric/Adult Leukemia Conferences.
G. Adult Lymphoma Conferences.
H. Speaker, Rheumatology, Hematology/Oncology and Cancer Center Research Seminars.

III. RESEARCH ACTIVITIES:

SPONSORED RESEARCH:

A. NIH, NCI Physician Investigator Award, competitive renewal ($136,000; 2 years; 1 April 1988 through 31 May 1990): Lymphocyte migration and the metastatic process.
B. NIH, Multipurpose Arthritis Center, Development and Feasability Grant ($143,469; 3 years; 1 February 1988 through 31 January 1991): The role of lymphocyte migration in chronic inflammatory arthritis.
C. ACS - Research Award ($109,000; 4 years; 1 July 1984 through 30 June 1988): Lymphocyte migration and the metastatic process.

PENDING:

A. NIH, R01 ($625,026; 5 years; 1 January 1989 through 31 December 1994): Endothelial Binding Lectins of Lymphoid Malignancies.

PROJECTS UNDER STUDY:

A. Regulation of endothelial adhesion structures during lymphocytic differentiation, migration and activation.
B. The role of the basement membrane and extracellular matrix in the modulation of lymphoid cell migration into tissues.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Member, Quality Assurance Committee.
B. Member, Equipment and Space Allocation Committee.

MEDICAL SCHOOL HOSPITAL:

A. Coordinator, Pathology Services (clinical) in UM Cancer Center.
B. Member, UM Cancer Center Clinical and Basic Research Implementation Committees.
C. Primary Reviewer, UM Cancer Center Grant Program.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. Federation of American Societies for Experimental Biology, May 1988, minisymposium speaker.
2. Second Annual Meeting Clinical Applications of Cytometry, October 1987, symposium speaker and minisymposium moderator.

MANUSCRIPT/GRANT REVIEWS:

1. National Science Foundation.
2. Journal of Clinical Investigation.
3. Journal of Laboratory Investigation.
4. American Journal of Pathology.
5. Journal of Cell Biology.
6. Journal of Biological Chemistry.
7. Journal of Leukocyte Biology.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Stoolman, L.M., Yednock, T.A., and Rosen, S.D.: Homing Receptors on human and rodent lymphocytes: Evidence for a conserved carbohydrate-binding specificity. Blood, Dec. 1987, 70(6): 1842.

2. Hanash, S.M., Kuick, R., Nichols, D., and Stoolman, L.M.: Quantitative analysis of a new marker for common acute lymphoblastic leukemia detected by two-dimensional electrophoresis. Diagnostic Markers, 1988. (In Press).
3. Hanson, C.A., Bolling, S.F., Stoolman, L.M., Schlegelmilch,J., Abrams, G.D., Miska, P.T., Deeb, G.M.: Cytoimmunologic Monitoring and Cardiac Transplantation. 1988, Heart Transplantation. (In Press).

ARTICLES SUBMITTED FOR PUBLICATION:

1. Stoolman, L.M. 1988. Expression of an endothelial binding lectin is linked to developmental stage in human T-lymphoblastic cell lines.
2. Stoolman, L.M. and J. Varani. 1988. Phorbol-ester induced binding to fibronectin and laminin is linked to developmental stage in human T-lymphoblastic cell lines.
3. Hanash, S.M., Kuick, R., Strahler, J., Richardson, B., Reaman, G., Stoolman, L.M., Hanson, C., Nichols, D. and Tuesche, J. 1988. Identification of a cellular polypeptide that distinguishes between acute lymphoblastic leukemia in infants and in older children.

BOOKS AND CHAPTERS IN BOOKS:

1. Stoolman, L.M.: The monitoring of lymphocyte subsets in the mangement of organ-transplant recipients. In, Use of Surface Markers and DNA Studies in Diagnostic Pathology, D. Keren, (ed). (In Press).

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Schlegelmilch, J., Abrams, G.D., Deeb, G.M., Stoolman, L.M. and Hanson, C.A.: Cytoimmunologic Monitoring (CIM) and Flow Cytometric Analysis in Cardiac Transplantation. October 1987. Clincal Applications of Flow Cytometry Annual Meeting, Carleston, South Carolina.
2. Bolling, S.F., Hanson, C.A., Stoolman, L.M., Abrams, G.D. and Deeb, G.M.: Cytoimmunologic Monitoring (CIM) in Cardiac Transplantation. 1988. J. Heart Transplantation. (In Press).
3. Stoolman, L.M., Ebling, H. and Kleedke, G.: Phorbol-ester induced expression of endothelial-binding lectin on human T lymphoblastic cell line Jurkat. FASEB, 1988;2(4): A667.

GERD O. TILL, M.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Clinical Immunopathology Laboratory: Neutrophil Function Studies.

II. TEACHING ACTIVITIES:

A. Resident training in immunology and immunopathology.
B. Training postdoctoral fellows.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Thermal Injury, ATP Depletion and Oxygen Radicals (GM-39397). Principal Investigator.
B. Thermal Injury, Complement and Leukocyte Dysfunction (GM-28499). Co-investigator with Dr. Peter A. Ward.
C. Lung Injury Produced by Oxygen Metabolites (GM-29507). Co-investigator with Dr. Peter A. Ward.
D. Immune Responses to Burns. Co-investigator with Dr. F. Whitehouse.
E. Effect of Diclofenac Sodium on Complement, Neutrophil Functions, and Oxygen-Radical-Mediated Experimental Lung Injury and Lipid Peroxidation. Ciba-Geigy Pharmaceuticals.

PROJECTS UNDER STUDY:

A. Experimental thermal injury, complement and leukocyte dysfunctions.
B. Pathomechanisms of acute tissue injury following activation of complement and neutrophils in vivo.
C. Protection from oxygen radical-induced tissue damage.
D. Pathomechanism of thermal skin burns.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Interview candidates for faculty positions.
B. Participate in undergraduate research program.

MEDICAL SCHOOL/HOSPITAL:

A. Interviewed candidates for faculty positions.
B. Consultant, clinical research program.

REGIONAL AND NATIONAL:

A. Reviewer for the following journals: American Journal of Pathology, American Journal of Physiology, Cancer Research, Clinical Immunology and Immunopathology, Infection and Immunity, Journal of Applied Physiology, Journal of Clinical Investigation, Laboratory Investigation.

V. OTHER RELEVANT ACTIVITIES:

A. Member, Editorial Advisory Board, Immunobiology.
B. Co-Editor, The Complement System, Springer Verlag, Berlin, 1988.
C. Visiting Professor, University of Heidelberg, West Germany, Institute of Immunology, July 13-17, 1987.

INVITED LECTURES/SEMINARS:

1. Department of Pathology, University of Hong Kong, April 8, 1988.
2. Spring Conference on "The Cellular Basis for Medical Treatment: Latest Advances in Atherosclerosis", American College of Advancement in Medicine, New Orleans, May 12-15, 1988.
3. "Clinical Ischemia Conference", Ann Arbor, May 19-20, 1988.
4. Conference on "Structural Consequences of Biochemical and Cellular Changes in the Lungs Caused by Injury", Reisensburg Castle, Guenzburg, West Germany, May 24-27, 1988.
5. Institute of Immunology, University of Heidelberg, West Germany, May 31, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Till, G.O., Johnson, K.J., Ward, P.A.: Inflammation and oxygen radicals: Role of complement and neutrophils. Prog. Appl. Microcir. 1987;12:132-142.
2. Till, G.O., Lutz, M.J., Ward, P.A.: Hydroxyl radicals as autotoxin in chemotactically activated neutrophils. Biomed. Pharmacother. 1987;41:349-354.
3. Till, G.O., Morganroth, M.L., Kunkel, R., Ward, P.A.: Activation of C5 by cobra venom factor is required in neutrophil-mediated lung injury in the rat. Am. J. Pathol. 1987;129:44-53.
4. Till, G.O., Ward, P.A.: Oxygen radicals and lipid peroxidation in experimental shock. Prog. Clin. Biol. Res. 1987;236:235-243.
5. Fudman, E.J., Till, G.O., Fox, I.H.: Deferoxamine induced decreases of lipid peroxides in rheumatoid arthritis. J. Rheumatol. 1987;14:686-691.
6. Gannon, D.E., Varani, J., Phan, S.H., Ward, J.H., Kaplan, J., Till, G.O., Simon, R.H., Ryan, U.S., Ward, P.A.: Source of iron in neutrophil-mediated killing of endothelial cells. Lab. Invest. 1987;57:37-44.

7. Oldham, K.T., Guice, K.S., Till, G.O., Ward, P.A.: Evidence for xanthine oxidase-and H_2O_2-dependent generation of serum C5a in thermally injured rats. Surg. Forum 1987;38:104-106.
8. Bruner, L.H., Johnson, K.J., Till, G.O., Roth, R.A.: complement is not involved in monocrotaline pyrrole-induced pulmonary injury. Am. J. Physiol. 1988;254:H258-64.
9. Morganroth, M.L., Till, G.O., Schoeneich, S., Ward, P.A.: Eicosanoids are involved in the permeability changes but not the pulmonary hypertension after systemic activation of complement. Lab. Invest. 1988;58:316-323.
10. Tsai, E., Till, G.O., Marak, G.E.: Effects of mydriatic agents on neutrophil migration. Ophthalmic Res. 1988;20:14-19.
11. Ward, P.A., Johnson, K.J., and Till, G.O.: Mechanisms of lung injury. Prax. Klin. Pneumonol. 40:209-210, 1988.
12. Wolter, J.R., Till, G.O.: Leukocyte accumulation and deposition of protein on intraocular lens implants following exposure to whole blood in vitro. Implants Ophthalmol., (In Press).
13. Marak, G.E., Jr., de Kozak, Y., Faure, J.P., Rao, N.A., Romero, J.L., Ward, P.A., Till, G.O.: Pharmacologic modulation of acute ocular inflammation. 1. Adenosine. Ophthalmic Res. 1988, (In Press).
14. Oldham, K.T., Guice, K.S., Till, G.O., Ward, P.A.: Evidence of local complement activation in cutaneous thermal injury in rats. Adv. Shock Res., (In Press).
15. Wakefield, T.W., Till, G.O., Lindblad, B., Saenz, N. and Stanley, J.C.: Failure of complement depletion to attenuate hemodynamic and hematologic responses induced by heparin-protamine reactions. Surgery (In Press).
16. Brothers, T.E., Graham, L.M., and Till, G.O.: Systemic effects of prosthetic vascular graft implantation. Surgery (In Press).
17. Teng, C.L.C., Kim, J.S., Port, F.K., Wakefield, T.W., Till, G.O., Yang, V.C.: A protamine filter for extracorporeal blood heparin removal. ASAIO Trans. (In Press).
18. Oldham, K.T., Guice, K.S., Till, G.O., Ward, P.A.: Activation of complement by hydroxyl radical in thermal injury. Surgery (In Press).

ARTICLES SUBMITTED FOR PUBLICATION:

1. Morganroth, M.L., Schoeneich, S.O., Till, G.O., Pickett, W. and Ward, P.A.: Complement and neutrophil-mediated lung injury is attenuated in rats raised on an essential fatty acid deficient diet. Am. J. Physiol. (submitted).
2. Wakefield, T.W., Kinsah, M.M., Till, G.O., Brothers, T.E., Hanther, C.B., Stanley, J.C.: Absence of complement-mediated effects in cardiopulmonary bypass patients with protamine reversal of heparin autocoagulation. Surgery (submitted).
3. Sullivan, J.L., Till, G.O., Ward, P.A., Newton, R.B.: Nutritional iron restriction diminishes acute complement-dependent lung injury. Am. J. Pathol. (submitted).
4. Ward, P.A., macconi, D., Sulavik, M.C., Till, G.O., Warren, J.S., Johnson, K.J., Powell, J., Kunkel, R.G.: In vitro and in vivo evidence for neutrophil-platelet interactions in oxygen radical-mediated lung injury. Lab. Invest. (submitted).
5. Rao, N.S., Calandra, A.J., Sevanian, A., Till, G.O., Ward, P.A., Marak, G.E.: antiphlogistic effect of dimethylthiourea in experimental lens-induced uveitis. (submitted).
6. Rao, N.A., Calandra, A.J., Sevanian, A., Till, G.O., Ward, P.A., Marak, G.E.: The antiphlogistic effect of glutathione peroxidase in experimental lens-induced uveitis. (submitted).
7. Winn, W.C., David, G.S., Durda, J.P. and Till, G.O.: The effect of neutropenia on experimental legionella pneumonia. Infect. Immun. (submitted).

8. Till, G.O., Morganroth, M.L., Phan, S.H., Shuger, L.A., Grum, C.M., Varani, J., Ryan, U.S., Ward, P.A.: Neutrophil-mediated injury of endothelial cells and lung: evidence for dual source of oxygen radicals. (submitted).

BOOKS AND CHAPTERS IN BOOKS:

1. Ward, P.A., Johnson, K.J., Till, G.O.: Oxygen radicals, neutrophils, and acute tissue injury. In: Taylor AE, Matalon S, Ward PA, eds. Physiology of Oxygen Radicals. Bethesda: American Physiological Society, 1986:145-150.
2. Rother, K., Till, G.O.: Phases of complement research and nomenclature. In: Rother K, Till, G.O., eds. The Complement system. Heidelberg: Springer-Verlag, 1988:1-4.
3. Till, G.O.: Chemotactic factors. In: Rother K, Till GO, eds. The Complement System. Heidelberg: Springer-Verlag, 1988:354-367.
4. Till, G.O., Warren, J.S., Gannon, D.E., Chensue, S.W., Kunkel, S.L., Varani, J., Johnson, K.J., Ward, P.A.: Effects of pentoxifylline on phagocyte responses in vitro and acute and chronic inflammatory reactions in vivo, in Novick, W.J. (ed.) Pentoxifylline and Leukocyte Function symposium, Hoechst-Roussel, Somerville, NJ, (in press).
5. Ward, P.A., Till, G.O., Gannon, D.E., Varani, J., Johnson, K.J.: The role of iron in injury of endothelial cells in vitro and in vivo. In: M.G. Simic, eds. Oxygen Radicals in Biology and Medicine. Plenum Press, New York (in press).
6. Till, G.O., Ward, P.A.: Mechanisms of phagocytic cell-mediated injury and its relationship to ischemic injury. In: G.B. Selenok, L.G. D'Alecy, M. Shlafer, J.C. Stanley, eds., Clinical Ischemic Syndromes: Mechanisms and Consequences of Tissue Injury. Eds. ; Mosby Company, St. Louis (in press).
7. Marak, G.E., Tao, N.A., Gannon, D.E., Varani, J., Ward, P.A., Till, G.O.: Antiphlogistic mechanisms of benzoic derivatives in experimental uveitis. In Proceedings Intl. Ophthalmology Meeting, Padua, Italy, May, 1986 (in press).
8. Warren, J.S., Johnson, K.J., Till, G.O., Ward, P.A.: Mechanisms of oxygen radical-mediated acute tissue injury: in vivo studies. Proceedings of Enzon Meeting, July 1986 (in press).
9. Ward, P.A., Johnson, K.J. and Till, G.O.: Leukocyte oxygen radicals and acute lung injury. In: Kazemi, H., Hyman, A.L., Kadowitz, P.J. (eds.), Acute Lung Injury: Pathogensis of Adult Respiratory Distress syndrome, PSG Publishing Co., Littleton, Massachusetts, pp. 107-114, 1986.
10. Ward, P.A., Johnson, K.J., Till, G.O., Warren, J.S.: Activated phagocytes, oxygen radicals, and tissue injury. CRC (in press).
11. Ward, P.A., Warren, J.S., Till, G.O., Varani, J., Johnson, K.J.: Modification of disease by preventing free radical formation: A new concept in pharmacologic intervention, in Hershko, C. (ed), Bailliere's Clinical Hematology: International Practice and Research, W.B. Saunders, London, UK (in press).
12. Ward, P.A., Macconi, D., Sulavik, M.C., Till, G.O., Warren, J.S., Johnson, K.J., Powell, J.: Rat neutrophil-platelet interactions in oxygen radical-mediated lung injury. UCLA Symposium on Molecular and Cellular Biology (in press).
13. Ward, P.A., Johnson, K.J., Till, G.O.: Tissue injury as a consequence of oxygen radicals produced by phagocytic cells. In: Proceedings of Symposium by Comparative Respiratory Society, Anaheim, California (in press.

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Till, G.O., Fox, I.H., Ward, P.A.: Role of xanthine oxidase in thermal injury of skin. Proc. Am. Burn Assoc. 20:174, 1988.
2. Till, G.O., Oldham, K.T., Guilds, L.S., Guice, K.S., Ward, P.A.: Role of xanthine oxidase-derived radicals in experimental thermal injury. Proc. Soc. Free Radic. Res. 4:129, 1988.
3. Oldham, K.T., Guice, K.S., Till, G.O., Ward, P.A.: Blood flow alterations and oxidant injury in thermal burns. FASEB J. 2:A821, 1988.
4. Guilds, L.S., Till, G.O., Ward, P.A.: Effect of topical lodoxamide and ibuprofen on edema formation in burned skin. FASEB J. 2:A837, 1988.
5. Till, G.O., Morganroth, M.L., Grum, C.M., Fox, I.H., Ward, P.A.: Dual source of oxygen radicals in complement-mediated acute microvascular lung injury. FASEB J. 2:A1185, 1988.
6. Morganroth, M.L., Glovsky, M., Schoeneich, S.O., Till, G.O., Ward, P.A.: Complement fragment C3a causes thromboxane-dependent neutrophil-independent pulmonary vascular constriction and acute lung injury. Clin. Res. 36:509A, 1988.
7. Morganroth, M.L., Schoeneich, S.O., Till, G.O., Ward, P.A.: Lungs exposed to activated complement fragments are more susceptible to injury caused by PMA-activated neutrophils. Clin. Res. 36:529A, 1988.
8. Wakefield, T.W., Kirsch, M.M., Till, G.O., Brothers, T.E., Hantler, C.B., Stanley, J.C.: Protamine pretreatment attenuation of myocaridal depression and the absence of complement-mediated effects in coronary artery bypass patients. Centr. Surg. Assoc. (in press).
9. Yang, V.C., Teng, C.L., Gumbaugh, L.M., Port, F.K., Wakefield, T.W., Till, G.O.: A protamine filter for extracorporeal blood heparin removal. ASAIO (in press).
10. Till, G.O.: Oxygen radicals and lipid peroxidation in inflammatory tissue injury. In: The Cellular Basis for Medical Treatment: Latest Advances in Atherosclerosis, ACAM Proc. p. 5, 1988.

JAMES VARANI, PH.D.
ASSOCIATE PROFESSOR OF MICROBIOLOGY AND IMMUNOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

II. TEACHING ACTIVITIES:

A. Three postdoctoral fellows, two visiting scientists, one graduate student and several undergraduate students worked in my laboratory.
B. Participated in the graduate student/dental student pathology course.
C. Participated in the Tissue Culture Methods Course offered by the Department of Epidemiology; School of Public Health.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Inhibition of Tumor Cell Chemotactic Responses by Prostaglandins. BC-512, Principal Investigator, 25% effort, $55,512 current annual direct cost, American Cancer Society.
B. Laminin/Laminin Receptors in NK/NC Cell Function. IM-432. Principal Investigator, 25% effort, $72,000 current direct cost, American Cancer Society.
C. Thrombospondin and Squamous Carcinoma Cell Behavior. PDT-324, Co-Principal Investigator, 25% effort, $70,000 current annual direct costs, American Cancer Society.
D. Biochemical Control of Microcarrier Culture. CA3352. Principal investigator on subcontract, 10% effort, $22,200. Current annual direct costs. National Institutes of Health.
E. Mechanisms of neutrophil-mediated and monocyte-mediated killing of endothelial cells.

PROJECTS UNDER STUDY:

A. Regulation of chemotactic responses in tumor cells by prostaglandins produced by the tumor cells and by other cells.
B. The development of substrates for optimum growth of cells in large-scale culture.
C. The role of laminin and laminin receptors in mediating NK/NC-tumor cell interactions.
D. The role of thrombospondin in the biology of human squamous carcinoma cells.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

A. Member, Departmental Advisory Committee on Appointments, Promotion and Tenure.
B. Member, Departmental Review Committee.
C. Member, Departmental Advisory Committee on Space Allocation.

MEDICAL SCHOOL/HOSPITAL:

A. Director, Cancer Center Program on Tumor Cell Metastasis and the Extracellular Matrix.
B. Member, Kellogg Research Internship Program.

REGIONAL AND NATIONAL:

A. Editorial Board of Invasion and Metastasis.
B. Manuscript reviewer for: Cancer Research, Journal of the National Cancer Institute, International Journal of Cancer, American Journal of Pathology, Laboratory Investigation, Experimental Cell Research, Clinical and Experimental Metastasis, Invasion and Metastasis, Science, Proceedings of the National Academy of Sciences.
C. Grant reviewer for the Medical Research Council of Canada and for the Veterans Administration.
D. Chairman of NIH special study section 006.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Invited Speaker, FASEB Conference on "Biology of Tumor Metastasis", Saxon River, VT, July 26-31, 1987.
2. Invited Speaker, Second International Conference on Squamous Carcinoma, Alexandria, VA, September 9-13, 1987.
3. Session Moderator, Second International Conference on Squamous Carcinoma, Alexandria, VA, September 9-13, 1987.
4. Invited Speaker, Pathology Seminar Series VAMC-Wayne State University, Allen Park, MI, May 9, 1987.
5. Invited Participant, Second Annual Recent Advances in Biotechnology Symposium, Lansing, MI, June 17-18, 1987.
6. Invited Speaker, Pathology Seminar Series VAMC-Wayne State University, Allen Park, MI, May 9, 1987.
7. Invited Speaker, Department of Pharmacology, Baylor College of Medicine, Houston, TX, November 20, 1987.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Varani, J., McKeever, P.E., Fligiel, S.E.G., Sitrin, R.G.: Plasminogen activator production by human tumor cells: Effect on tumor cell - extracellular matrix interactions. Int.J. Cancer, 40:772-777, 1987.
2. Riser, B.L., Varani, J., O'Rourke, K., Dixit, V.M.: Thrombospondin binding by human squamous carcinoma and melanoma cells. Exp. Cell Res., 74:319-329, 1988.
3. Gannon, D.E., Varani, J., Phan, S.H., Ward, J.H., Kaplan, J., Till, G.O., Simon, R.G., Ryan, U.S., Ward, P.A.: Source of iron in neutrophil-mediated killing of endothelial cells. Lab. Invest., 57:37-44, 1987.
4. Chakrabarty, S., Brattain, M.G., Ochs, R.L., Varani, J.: Modulation of fibronectin, laminin and cell adhesion in the transformation and differentialtion of murine AKR fibroblasts. J. Cell Physiol., 133:415-425, 1987.
5. McKeever, P.E., Hood, T.W., Varani, J., Taren, J.A., Beierwaltes, W.H., Wahl, R., Liebert, M. and Nguyen, P.K.: Products of cells cultured from gliomas: IV. Cytology and morphometry of two cell types cultured from gliomas, J. Nat. Cancer Inst., 78:75-84, 1987.
6. Varani, J., Bendelow, M.J., Sealey, D., Gannon, D., Ryan, U., Kunkel, S.L., Ward, P.A.: TNF-induced susceptibility of endothelial cells to neutrophil-mediated killing. Lab. Invest. (in press).
7. Ginsburg, I., Fligiel, S.E.G., Kunkel, R., Varani, J.,: Phagocytosis of Candida Albicans enhances malignant behavior of murine tumor cells. Science, 238:1573-1575, 1988.
8. Varani, J., Nickoloff, B., Mitra, R.S., Riser, B., O'Rourke, K., Dixit, V.M.: Thrombospondin induced adhesion of human keratinocytes. J. Clin. Invest. 88:1537-1544, 1988.
9. Ginsburg, I., Ward, P.A., Varani, J.: Lysophosphatides enhance superoxide responses of stimulated human neutrophils. Inflammation (in press).
10. Ginsburg, I., Fligiel, S.E.G., Ward, P.A., Varani, J.: Lipoteichoic acid-anti-lipoteichoic acid complexes induce superoxide generation by human neutrophils. Inflammation (in press).
11. Chakrabarty, S., Tobon, A., Varani, J., Brattain, M.G.: Transforming growth factor-beta induces carcinoembryonic antigen secretion, modulates protein secretion/expression and fibronectin/laminin expression in human colon carcinoma cells. Cancer Res. (in press).
12. Frenette, G.P., Carey, T.E., Varani, J., Schwartz, D.R., Fligiel, S.E.G., Ruddon, R.W., Peters, B.P.: Biosynthesis and secretion of laminin and laminin-associated glycoproteins by nonmalignant and malignant human keratinocytes: A comparison of cell lines from primary and secondary tumors in the same patient. Cancer Res. (in press).
13. Grimstad, I.A., Thorsrud, A.K., Varani, J., Ward, P.A., Jellum, E.: Marker polypeptide differences between spontaneously strongly and weakly metastatic cancer cells identified by 2-dimensional gel electrophoresis. Int. J. Cancer 41:567-572, 1988.
14. Varani, J., Fligiel, S.E.G., Inman, D.R., Helmreich, D.L., Bendelow, M.J., Hillegas, W.J.: Substrate-dependent differences in production of extracellular matrix molecules by squamous carcinoma cells and diploid fibroblasts. Biotech. Bioengineer. (in press).
15. Varani, J., Bendelow, M.J., Hillegas, W.J.: Effect of substrate on production of infectious virus by cells in culture. J. Biol. Stand. (in press).

16. Riser, B.L., Laybourn, K.A., Varani, J.: Treatment of mice with anti-asialor-GM_1 antibody or poly I:C.: Effects on metastasis dissociable from modulation of macrophage anti-tumor activity. Nat. Immun. Cell Growth Regul. (in press).
17. Varani, J., Riser, B.L., Hughes, L.A., Carey, T.E., Fligiel, S.E.G., Dixit, V.M.: Characterization of thrombospondin synthesis, secretion and cell surface expression by human tumor cells. Clin. Exp. Metastasis (in press).
18. Nickoloff, B.J., Riser, B.L., Mitra, R.S., Dixit, V.M., Varani, J.: Inhibitory effect of gamma interferon on cultured human keratinocyte thrombospondin production, distribution and biological activities. J. Invest. Dermatol. (in press).
19. Nickoloff, B.J., Mitra, R.S., Riser, B.L., Dixit, V.M., Varani, J.: Modulation of keratinocyte motility; correlation with production of extracellular matrix molecules in response to growth promoting and anti-proliferative factors. Am. J. Path. (in press).

BOOKS AND CHAPTERS IN BOOKS:

1. Varani, J., McCoy, J.P., Ward, P.A.: Attraction of wandering metastatic tumor cells. In: Progressive Stages of Malignant Neoplastic Growth, Volume II. Clinical Aspects of Neoplastic Progression: Host-tumor interactions and Its Modification by Therapy. H.E. Kaiser, (ed.), Martinus Nijhoff, Publishers, Norwell, MA, 1988 (in press).
2. Varani, J.: Interaction of Tumor Cells with the Extracellular Matrix. Revisions Sobre Biologia Celular. E. Barbera-Guillem (ed.) Leioa-Viscaya, Spain. 12:1-122, 1987.
3. Varani, J.: Arachidonic acid metabolism in malignant tumor cells: Relationship to adhesion, motility and invasion. In: Carcinogenesis and Dietary Fat. S. Abraham (ed.). Martinus Nijhoff Publishing; Boston, MA, 1988 (in press).
4. Varani, J., Riser, B.L.: Squamous carcinoma cells synthesize thrombospondin and use it as an adhesion factor. In: Proceed. International Head and Neck Oncology Research Conference. G.T. Wolf (ed.)., Martinus Nijhoff Publishing; Boston, MA, 1988 (in press).
5. Gannon, D.E., Varani, J., Ward, P.A.: Endothelial cell injury by neutrophils, In Endothelial Cells, Volume II. Ryan US, (ed.) CRC Press, Inc., 1988.
6. Ward, P.A., Till, G.O., Gannon, D.E., Varani, J., Johnson, K.J.: The role of iron in injury of endothelial cells in vitro and in vivo. In Oxygen Radicals in Biology and Medicine. Simic, M.G., Ward, J.F., Taylor, K.A., (ed.) Plenum Publishing Co., (in press).
7. Till, G.O., Warren, J.S., Gannon, D.E., Chensue, S.W., Kunkel, S.L., Varani, J., Johnson, K.J., Ward. P.A.: Effects of pentoxiphylline on phagocyte responses in vitro and acute and chronic inflammatory reactions in vivo, In Symposium on Pentoxiphylline and Leukocyte Function. Mandell, G. and Novick, W., (ed.) Haber, Flora, Inc., (in press).

ABSTRACTS, BOOK REVIEWS, LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Gannon, D.E., Phan, S.H., Varani, J., Ryan, U.S., Ward, P.A.: Alterations of xanthine oxidase activity in endothelial cells undergoing neutrophil-mediated injury. Am. Rev. Respir. Dis. 1988;137(4):82.
2. Wencel, M.L., Morganroth, M.L., Gannon, D.E., Todd, R.F. III, Varani, J., Boxer, L.A.: Plasma and LPS preincubation of intact neutrophils deficient in Mol expression increase injury to endothelial cell monolayers and isolated lungs. Am. Rev. Respir. Dis. 1988;137(4):363.

3. Schuger, L., Varani, J., Ward, P.A., Gannon, D.E., Ryan, U.S.: Neutrophil-mediated killing of endothelial cells; comparison of rat pulmonary artery and microvascular cells. FASEB J. 2 1988;(5):A1169.
4. Ward, P.A., Warren, J.E., Gannon, D.E., Johnson, K.J., Phan, S.H., Varani, J.: Cytokine and oxygen radical-mediated injury. J. Cell. Biochem. Suppl. 1988;12A:41.
5. Riser, B.L., Varani, J., Nickoloff, B.J., Dixit, V.M.: Gamma-interferon and tumor necrosis factor modulate thrombospondin production by human blood monocytes. J. Cell Biochem. Suppl. 1988;12A:208.
6. Varani, J., Riser, B.L., Nickoloff, B.J.: Effect of gamma-interferon on keratinocyte biosynthesis and expression of thrombospondin. J. Cell Biochem. Suppl. 1988;12A:218.
7. Varani, J., Nickoloff, B.J., Riser, B.L., Mitra, R.S., Dixit, V.M.: Regulation of keratinocyte motility by extracellular matrix components and cytokines. FASEB J. 1988;2:A1821.
8. Riser, B.L., Varani, J., Nickoloff, B.J., Mitra, R.S., Dixit, V.M.: Receptor-mediated binding of thrombospondin (TSP) to human keratinocytes; Effect of gamma-interferon and relationship to biological activity. FASEB J. 1988;2:A1608.
9. Ginsburg, I., Fligiel, S.E.G., Ward, P.A., Varani, J.: Lipoteichoic acid-anti-lipoteichoic acid complexes trigger superoxide generation by human neutrophils. FASEB J. 1988;2:A825.
10. Chakrabarty, S., Daniels, Y.J., Levine, A., McClenic, B., Varani, J.: Differences in aberrant growth control mechanisms in HA-RAS oncogene-transformed and epidermal growth factor (EGF) - transformed. FR3T3 cells. FASEB J. 1988;2:A806.
11. Fligiel, S.E.G., Varani, J.: The effect of EGF on the production of matrix components by human neoplastic cells. FASEB J. 1988;2:A401.
12. Varani, J., Mitra, R.S., Riser, R.L., Dixit, V.M., Nickoloff, B.J.: Modulation of keratinocyte behavior and extracellular matrix production by growth regulating factors. J. Invest. Dermatol. (in press).

PETER A WARD, M.D.
PROFESSOR AND CHAIRMAN
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. These have been chiefly related to administrative responsibility for all clinical service functions of the Department.

II. TEACHING ACTIVITIES:

A. Medical Students:
   1. Clinical Immunology - Two one hour sessions directed to medical students, house staff, and clinical faculty interested in Clinical Immunology.
   2. ICS 600 - One one hour session to Sophomore Medical Students.
   3. Lecture in the Sophomore Pathology Course.
   4. Lecture annually to medical students at the Medical College of Pennsylvania and Hospital (two four hour sessions).

B. Graduate students:
   1. Indirect supervision of six postdoctoral students.
   2. Indirect supervision of four Research Scientists.
   3. Lecture to faculty and students at the Hospital of the University of Pennsylvania.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Principal Investigator, "Thermal Injury, Complement, and Leukocyte Dysfunction", NIH GM-28499 (10%), $106,970/year ($577,063/five years), 1/1/86-12/31/90.

B. Principal Investigator, "Lung Immunopathology", NHLBI HL-07517 (5%), $257,122/year ($1,291,531/five years), 7/1/86-6/30/91.

C. Principal Investigator, "Leukocyte Chemotaxis", NIH HL-28442 (10%), $93,512/year ($505,936/five years), 7/1/86-6/30/91.

D. Principal Investigator, "Lung Injury Produced by Oxygen Metabolites", NIH GM-29507 (20%), $111,222/year ($507,078/five years), 7/1/82-6/30/87

E. Principal Investigator, "Inflammatory Cells and Lung Injury", NHLBI HL-31963 (35%), $565,886/year ($2,149,597/five years), 3/1/84-2/28/89.

F. Co-Investigator, "Mechanisms of Glomerular and Tubular Injury", NIH-DK39255 (5%), $44,378 (Project V only), 9/1/87-8/31/92.

PENDING:

A. Program Director, "Inflammatory Cells and Lung Injury", 2-PO1-HL31963-06, (35%), $780,548/year, 3/1/89-2/28/90.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Appointment as the first Godfrey-Stobbe Professor of Pathology, September, 1987.
B. Chief, Section of General Pathology.
C. MSP Executive Committee.
D. Pathology Associates.

MEDICAL SCHOOL/HOSPITAL:

A. Dean's Council of Clinical Chairmen, 1985--.
B. Director, Feasibility Study for Multifloor Medical Research Facility Attached to Medical Science II Committee.
C. Chairman, Medical Sciences Research Building (MSRB) Task Force.
D. Michigan Eye Bank Research Review Committee, 1980--.
E. Michigan Diabetes Research and Training Center Policy Committee, 1981--.
F. Main Hospitals Operations Committee, 1985--.
G. National Task Force on Organ Transplantation, 1985--.
H. Professional Fee Policy Committee, 1984--.
I. Interdepartmental Coordinating Committee, 1984--.
J. Search Committee for the Chairmanship in Environmental and Industrial Health, April, 1985--.
K. Department of Surgery Review and Search Committee, The University of Michigan Medical School, 1985-1987.
L. Dean's Advisory Council, 1985--.
M. Dean's Advisory Committee on Clinical Affairs, May, 1985--.
N. Advisory Committee for the Howard Hughes Medical Institute, 1984--.
O. Pulmonary and Critical Medicine Division Chief Search, 1984--.
P. Nuclear Medicine Division Chief Search, 1985--.
Q. Internal Advisory Board Committee of the Michigan Gastrointestinal Peptide Research Center, 1985--.
R. Council of Operations and Quality Assurance, 1986--.
S. Board of Directors, M-Care, 1986--.
T. Member, Neuromuscular Program Policy Committee, The University of Michigan Medical School, 1987--.
U. Member, Center Advisory Committee for The University of Michigan Multipurpose Arthritis Center, 1987--.
V. Member, Medical Service Plan Executive Committee, 1987--.
W. Member, Gilford Upjohn Endowed Chair in Internal Medicine and Oncology, Department of Internal Medicine, Hematology and Oncology Unit, The University of Michigan, February, 1987--.
X. Member, Presidential Initiatives Fund, The University of Michigan, March, 1987--.
Y. Member, Hospitals Executive Team, 1987--.

Z. Member, Graduate Medical Education Work Group, The University of Michigan Hospitals, 1987--
AA. Member, Southeastern Michigan American Red Cross Scientific Council Meeting, 1987--

REGIONAL AND NATIONAL:

A. American Society for Clinical Investigation.
B. American Association of Pathologists.
   1. Member, Nominating Committee, 1985-present.
   2. Executive Committee, Intersociety Pathology Council and Universities Associated for Research and Education in Pathology, Inc.
   3. Representative to the Universities Associated for Research and Education in Pathology, 1988-89.
C. Trustee, American Board of Pathology, effective January 1, 1988.
D. Member, Advisory Committee, Health Policy Agenda for the American People.
E. Member, American Association for Advancement of Science.
F. Member, American Association of Immunologists.
G. Member, American Pathology Foundation.
H. Member, Association of Pathology Chairmen.
I. Charter Member, A. James French Society of Pathologists, 1988--.
J. Member, Michigan Society of Pathologists.
K. Member, Center for Alternatives to Animal Testing, Johns Hopkins University.
L. Member, International Academy of Pathology.
   1. Council Member, April 1, 1986-1989.
   2. Member, Finance Committee, April 1, 1986-1990.
M. Member, The New York Academy of Sciences.
N. Member, Society of Medical Consultants to the Armed Forces.
O. Member, Michigan Thoracic Society, 1988--.
Q. Ann Arbor Veterans Administration Medical Center, Consultant, 1980--.
R. Board of Directors, Universities Associated for Research and Education in Pathology, Inc.
S. Cytogen, 1983--.
T. Mallinckrodt, Inc., Advisory Board, 1984--.

V. OTHER RELEVANT ACTIVITIES:

EDITORIAL BOARDS:

A. American Journal of Pathology, Editorial Board, 1982--.
B. American Review of Respiratory Diseases, Consulting Editor, 1977--.
C. Archives of Pathology and Laboratory Medicine, Reviewer, 1973--.
D. Arthritis and Rheumatism, Consulting Editor, 1975--.
E. Cancer Research, Associate Editor, 1987--.
F. Clinical Immunology and Immunopathology, Consulting Editor, 1977--.
G. CRC Critical Reviews in Free Radical Research, Advisory Board, 1986--.
H. CRC Critical Reviews in Toxicology, Advisory Board, 1986--.
I. Experimental Cell Research, Consulting Editor, 1980--.
J. Experimental Lung Research, Consulting Editor, 1980--.
K. Human Pathology, Consulting Editor, 1980--.
L. Infection and Immunity, Editorial Board, 1978--.

M. Journal of Clinical Investigation, 1982--.
N. Journal of Experimental Cell Research, Consulting Editor.
O. Journal of Experimental Lung Research, Consulting Editor.
P. Journal of Experimental Pathology, 1986--.
Q. Journal of the Reticuloendothelial Society, Consulting Editor.
R. Journal of Clinical Investigation, Consulting Editor.
S. Laboratory Investigation, Editorial Board, 1981--.
T. Nature, Consulting Editor, 1980--.
U. New England Journal of Medicine, Consulting Editor, 1980--.
V. Journal of Critical Care, Editorial Board.
W. Review Committee for new Editor-in-Chief, Human Pathology, April 1987--.
X. Toxicologic Pathology, Editorial Board, 1988--.

INVITED LECTURES/SEMINARS:

1. Invited Speaker, 4-ICOR Meeting at the University of California, San Diego, Muir College, July 1-2, 1987.
2. Participant, CETUS discussion on Tumor Necrosis Factor: Mechanism of Action and Clinical Potential, emeryville, California, July 6-8, 1987.
3. Invited Speaker, 1987 Aspen Conference, "Mechanisms of Carcinogenesis and Emerging Concepts in Technology, sponsored by the Carcinogenesis and Metabolism Branch of the Health Effects Research Laboratory, U.S. Environmental Protection Agency, Aspen, Colorado, July 19-23, 1987.
4. Program Project Site Visitor and Special Review Committee at Baylor College of Medicine, Houston, Texas, August 3-5, 1987.
5. Lecture on, Inflammation and Repair, Parts I, II, III and IV to Second year class in Pathology at the Medical College of Pennsylvania, Philadelphia, Pennsylvania, August 21, 1987.
6. Participant, Receptors and Cell Activation, cosponsored by the National Heart, Lung, and Blood Institute of the National Institutes of Health and The American Heart Association at the National Institutes of Health, Bethesda, Maryland, September 17-18, 1987.
7. Present Immunopathology Seminar, "Leukocytic Oxygen Radicals and Tissue Injury", to faculty and students of the Department of Pathology, Ohio State University, Columbus, Ohio, September 21-22, 1987.
8. Consultant, Marion Laboratories and Pharmacia Company, Stockholm/Uppsala, Sweden, October 6-8, 1987.
9. Present the I.S. Radvin Lecture in the Basic Medical Sciences, "Oxygen Radicals and Tissue Injury", at the American College of Surgeons, 73rd Clinical Congress, SAn Francisco, California, October 14, 1987.
10. Invited Lecturer, "Complement Mediated Lung Injury", in the Symposium on the Pathogenesis of ARDS, at the 53rd Annual Scientific Assembly of the American College of Chest Physicians, Atlanta, Georgia, October 29, 1987.
11. Participant, Center for Alternatives to Animal Testing Advisory Board Meeting and Chair Section of "Recent Advances in Tissue Culture" in the Symposium, Progress in In Vitro Toxicology", sponsored by the Johns Hopkins School of Hygiene and Public Health, Baltimore, Maryland, November 2-4, 1987.
12. Invited Speaker, "Effects of Pentoxifylline on Phagocyte Responses In Vitro and Acute and Chronic Inflammatory Reactions In Vivo", at the Pentoxifylline and Leukocyte Function Symposium sponsored by Hoechst-Roussel Pharmaceuticals, Inc., Key Biscayne, Florida, November 29-December2, 1987.

13. Invited Lecturer, "Cytokines and Oxygen Radical Mediated Injury", in the 1988 UCLA Symposium on Oxyradicals in Molecular Biology and Pathology, Park City Utah, January 27-29, 1988.
14. Participant, First Eastman Pharmaceuticals Transplantation Advisory Board Meeting, The Ritz Carlton, Naples, Florida, February 12-14, 1988.
15. Guests Lecturer, "Biochemical Mechanisms of Inflammation - Part I: Cytokines, Oxygen Radical Production in Tissue Injury" and "Basic Mechanisms of the Specific and Nonspecific Immune System - The State of the Art", and Moderator of session, "Trauma and Nonspecific Immune Mechanisms" at the 1st International Congress on The Immune Consequences of Trauma, Shock and Sepsis, held at the Klinikum Grofhadern, in Munich, West Germany, March 3-5, 1988.
16. Invited Participant, Second World Conference on Diabetes Research sponsored by the Juvenile Diabetes Foundation International, held at Loew's Monte Carlo Hotel, Monaco, March 6-9, 1988.
17. Invited Guest, East Program Council Meeting of the Transplantation Advisory Board, sponsored by Eastman Pharmaceuticals, Naples, Florida, March 25-27, 1988.
18. Visiting Lecturer and Member of the Organizing Committee, "ATP and Adenosine Effects on Signal Transduction in Neutrophils", in the Symposium, "Signal Transduction in Inflammation and Immunity", a Symposium in honor of Professor Elmer L. Becker, University of Connecticut Health Center, Farmington, Connecticut, April 4, 1988.
19. Invited Sommer Memorial Lecturer, "Oxygen Radicals and Lung Injury", "The Role of Cytokines in Lung Injury", and "Interactions Between Neutrophils and Platelets", sponsored by St. Vincent Hospital, Portland, Oregon, April 6-8, 1988.
20. Visiting Professor, "Acute Lung Injury", Advanced Respiratory Pathophysiology Course sponsored by the Pulmonary and Critical Care Medicine Section of the Department of Medicine, The University of Chicago, Chicago, Illinois, April 11-12, 1988.
21. Invited Participant, Scientific Advisory Board Sub-Committee - Research Review, Armed Forces Institute of Pathology, Washington, D.C., April 13-14, 1988.
22. Invited Lecturer, "Free Radicals and Lung Injury - Implication for Therapy", and moderate morning session in the International Conference on Oxygen-Free Radicals in Health and Disease, Marriot Hotel, London, England, April 16-20, 1988.
23. Invited Lecturer, "Cytokines and Oxygen Radical Mediated Injury", in the Symposium, Endothelial Cells: A Target and Source of Oxidant Injury, sponsored by the American Physiological Society, Las Vegas, Nevada, May 5, 1988.
24. Reviewer of the Department of Laboratory Medicine at the University of Minnesota, Minneapolis, Minnesota, May 11-13, 1988.
25. Invited Lecturer, "Tissue Injury and Oxygen Radicals", Graduate Hospital, Philadelphia, Pennsylvania, May 31, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Oldham, K.T., Guice, K.S., Till, G.O. and Ward, P.A.: Evidence for xanthine oxidase and H_2O_2-dependent generation of serum C5a in thermally injured rats. Surg. Forum 1987;38:104-106.

2. Robinson, J.P., Duque, R.E., Boxer, L.A., Ward, P.A. and Hudson, J.L.: Measurement of antineutrophil antibodies by flow cytometry: Simultaneous detection of antibodies against monocytes and lymphocytes. Diag. Clin. Immunol. 1987;5:163-170.
3. Till, G.O., Morganroth, M.L., Kunkel, R. and Ward, P.A: Activation of C5 by cobra venom factor is required in neutrophil-mediated lung injury in the rat. Amer. J. Pathol. 1987;129:44-53.
4. Grimstad, I.A., Thorsrud, A.K., Varani, J., Ward, P.A. and Jellum, E.: Marker polypeptide differences between spontaneous strongly and weakly metastatic cancer cells identified by 2-dimensional gel electrophoresis. Int. J. Cancer 1988;41:567-572.
5. Ward, P.A., Cunningham, T.W., McCulloch, K.K., Phan, S.H., Powell, J. and Johnson, K.J.: Platelet enhancement of O_2^- responses in stimulated human neutrophils: Identification of platelet factor as adenine nucleotide. Lab. Invest. 1988;58:37-47.
6. Ward, P.A., Cunningham, T.W., McCulloch, K.D. and Johnson, K.J.: Regulatory effects of adenosine and adenine nucleotides on oxygen radical responses of rat and human neutrophils. Lab. Invest. 1988;58:438-447.
7. Morganroth, M.L., Till, G.O., Schoenich, S.O. and Ward, P.A.: Eicosanoids are involved in the permeability changes but not the pulmonary hypertension after systemic activation of complement. Lab. Invest. 1988;58:316-323.
8. Warren, J.S., Kunkel, S.L., Cunningham, T.W., Johnson, K.J. and Ward, P.A.: Macrophage-derived cytokines amplify immune complex triggered O_2^- responses by rat alveolar macrophages. Amer. J. Pathol., 1988;130:489-495.
9. Guice, K.S., Till, G.O. and Ward, P.A.: Activation of complement by hydroxyl radical in thermal injury. Surgery, (In Press).
10. Robinson, J.P., Bruner, L.H., Bassoe, C.-F., Hudson, J.L., Ward, P.A. and Phan, S.H.: Measurement of Intracellular fluorescence of human monocytes relative to oxidative metabolism. J. Leukocyt. Biol., (In Press).
11. Ward, P.A., Warren, J.S., Remick, K., Varani, J., Gannon, D. and Johnson, K.J.: Cytokines and oxygen radical mediated tissue injury. J. Crit. Care Med., (In Press).
12. Warren, J.S., Ward, P.A. and Johnson, K.J.: Tumor necrosis factor: A plurifunctional mediator of acute inflammation. Review article, Modern Pathology, (In Press).
13. Ward, P.A.: Free radicals and lung injury: Implications for therapy. Proceedings of the International Conference on Oxygen Free Radicals in Health and Disease, (In Press).
14. Ward, P.A., Warren, J.S., Remick, D., Varani, J., Gannon, D. and Johnson, K.J.: Cytokines and oxygen radical mediated tissue injury. Journal of Critical Care Medicine, (In Press).
15. Ginsburg, I., Fligiel, S.E.G., Ward, P.A. and Varani, J.: Lipoteichoic acid-anit-lipoteichoic acid complexes induce superoxide generation by human neutrophils. Inflammation, (In Press).

ARTICLES SUBMITTED FOR PUBLICATION:

1. Duque, R.E., Stoolman, L.M., Hudson, J.L., and Ward, P.A.: Multiparameter analysis of immunohematological disorders by flow cytometry.
2. Ginsburg, I., Ward, P.A. and Varani, J.: Lysophosphatides enhance superoxide responses of stimulated human neutrophils. Submitted to Inflammation.
3. Guice, K.S., Oldham, K.T., Johnson, K.J., Kunkel, R.G., Morganroth, M.L. and Ward, P.A.: Pancreatitis-induced acute lung injury: An ARDS model. Submitted to Annals of Surgery.

4. Morganroth, M.L., Schoeneich, S.O., Till, G.O., Pickett, W. and Ward, P.A.: Complement and neutrophil-mediated lung injury is attenuated in rats raised on an essential fatty acid deficient diet. Submitted to the American Journal of Physiology.
5. Phan, S.H., Gannon, D.E., Varani, J., Ryan, U.S. and Ward, P.A.: Xanthine oxidase activity in rat pulmonary artery endothelial cells and its alteration by activated neutrophils. Submitted to the Journal of Clinical Investigation.
6. Till, G.O., Morganroth, M.L., Phan, S.H., Shuger, L.A., Grum, C.M., Varani, J., Ryan, U.S. and Ward, P.A.: Neutrophil-mediated injury of endothelial cells and lung: Evidence for dual source of oxygen radicals. Submitted to the Journal of Clinical Investigation.
7. Ward, P.A., Macconi, D., Sulavik, M.D., Till, G.O., Warren, J.S., Johnson, K.J. and Powell, J.: Rat neutrophil-platelet interactions in oxygen radical-mediated lung injury. UCLA Symposium on Molecular and Cellular Biology, January, 1988.
8. Sullivan, J.L., Till, G.O., Ward, P.A. and Newton, R.B.: Nutritional iron restriction diminishes acute complement-dependent lung injury. Submitted to the American Journal of Pathology.

BOOKS/CHAPTERS IN BOOKS:

1. Ward, P.A. and Stoolman, L.M.: The limited predictive value of T-cell phenotypic analysis in humans, in, Burger, E.J., Tardiff, R.G. and Bellanti, J.A. (eds), Environmental Chemical Exposures and Immune System Integrity, in, Volume XIII, Advances in Modern Environmental Toxicology, Princeton Scientific Publishing Co., Inc., Princeton, New Jersey, 29-33, 1987.
2. Fligiel, S.E.G., Johnson, K.J. and Ward, P.A.: The role of complement in immune complex induced tissue injury, in, Rother, K. and Till, G.O. (eds), The Complement System, Springer-Verlag Publishers, Berlin, Heidelberg, pp. 487-504, 1988.
3. Simon, R.H. and Ward, P.A.: Adult respiratory distress syndrome, in, Gallin, J.I., Goldstein, I.M. and Snyderman, R. (eds), Inflammation: Basic Principles and Clinical Correlates, Raven Press Ltd., New York, New York, pp. 815-827, 1988.
4. Fantone, J.C. and Ward, P.A.: Mechanisms of inflammation, in, Cohen, A.S. (ed), Rheumatology and Immunology, Grune and Stratton, In Press.
5. Till, G.O., Warren, J.S., Gannon, D.E., Chensue, S.W., Kunkel, S.L., Varani, J., Johnson, K.J. and Ward, P.A.: Effects of pentoxifylline on phagocyte responses in vitro and acute and chronic inflammatory reactions in vivo, in, Mandell G. and Novick, W. (eds), Symposium on Pentoxifylline and Leukocyte Function, Haber and Flora Inc., (In Press).
6. Ward, P.A.: Flow cytometric analysis of the immune and phagocytic cells, in, Human Immunotoxicity, Johns Hopkins Press, Baltimore, Maryland, (In Press).
7. Ward, P.A., Till, G.O., Gannon, D.E., Varani, J.A. and Johnson, K.J.: the role of iron in injury of endothelial cells in vitro and in vivo, in, Simic, Ward and Taylor (eds), Oxygen Radicals in Biology and Medicine, 4-ICOR Conference, Plenum Publishing, New York, (In Press).
8. Ward, P.A., Warren, J.S. and Johnson, K.J.: Oxygen radicals, inflammation and tissue injury, in, Pryor, W. and Goldberg, S.L. (eds), Free Radical Biology and Medicine, (In Press).
9. Ward, P.A., Warren, J.S., Johnson, K.J. and Varani, J.: Cytokines and oxygen radical responses, in, Maier, R. (ed), Proceedings of the 1st International Congress on "The Immune Consequences of Trauma, Shock, and Sepsis: Mechanisms and Therapeutic Approaches", (In Press).

10. Ward, P.A., Warren, J.S., Till, G.O., Varani, J. and Johnson, K.J.: Modification of disease by preventing free radical formation: A new concept in pharmacologic intervention, in, Hershko, C. (ed), Iron Chelating Therapy, Bailliere Tindall Limited, Harcourt Brace Jovanovich Publishers, London, England, (In Press).
11. Warren, J.S., Johnson, K.J. and Ward, P.A.: Oxygen radicals in cell injury and cell death, in, Cruse, J.M. (ed) Pathology and Immunopathology Research, (In Press).
12. Warren, J.S., Ward, P.A. and Johnson, K.J.: The inflammatory response, Chapter 8 in, Williams, W.J. (ed), Hematology, (In Press).
13. Warren, J.S., Ward, P.A. and Johnson, K.J.: Oxygen radicals as "Mediators of inflammation", Volume 6 in, Henson, P. (ed), The Handbook of Inflammation, Elsevier Biomedical Division, Amsterdam, The Netherlands, (In Press).
14. Fantone, J.C. and Ward, P.A.: Inflammation, in, Rubin, E. and Farber, J.L. (eds), Pathology, J.B. Lippincott Inc., Philadelphia, 1988, pp. 34-64.
15. Johnson, K.J., Chensue, S.W., Kunkel, S.L. and Ward, P.A.: Immunopathology, in, Rubin, E. and Farber, J.L. (eds), Pathology, J.B. Lippincott Inc., Philadelphia, 1988, pp. 96-139.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Cunningham, T.W., Walker, B.A.M. and Ward, P.A.: Regulatory effects of ATP and adenosine on O_2^- responses of human neutrophils: Role of external calcium. Fed. Proc. 1988;2:A1605.
2. Ginsburg, I., Fligiel, S.E.G., Ward, P.A. and Varani, J.: Lipoteichoic acid anti-lipoteichoic acid complexes trigger superoxide generation by human neutrophils. Fed. Proc. 1988;2:A825.
3. Guice, K.S., Oldham, K.T., Johnson, K.J. and Ward, P.A.: Pulmonary capillary endothelial injury in acute pancreatitis: Protection by oxygen radical scavengers. Fed. Proc. 1988;2:A1608.
4. Guilds, L.S., Till, G.O. and Ward, P.A.: Effect of topical lodoxamide and ibuprofen on edema formation in burned skin. Fed. Proc. 1988;2:A837.
5. Kennedy, T.P., Johnson, K.J., Ward, P.A. and Finch, J.S.: Conditions associated with maximal lung injury in an experimental model of aspiration pneumonitis. Fed. Proc. 1988;2:A1608.
6. Kunkel, R.G., Warren, J.S., Johnson, K.J. and Ward, P.A.: Demonstration of the complement membrane attack complex (MAC) in IgA-immune complex induced acute lung injury. Fed. Proc. 1988;2:A1176.
7. Mandel, D.M., Warren, J.S., Johnson, K.J. and Ward, P.A.: Specific interaction between platelet-activating factor (PAF) and neutrophils in a rat model of immune complex vasculitis. Fed. Proc. 1988;2:A414.
8. Marks, R.M., Ward, P.A., Kunkel, S.L. and Dixit, V.M.: Tumor necrosis factor induces mRNA for thrombospondin in human endothelial cells. Fed. Proc. 1988;2:A1599.
9. Oldham, K.T., Guice, K.S., Till, G.O. and Ward, P.A.: Blood flow alterations and oxidant injury in thermal burns. Fed. Proc. 1988;2:A821.
10. Till, G.O., Morganroth, M.L., Grum, C.M., Fox, I.H. and Ward, P.A.: Dual source of oxygen radicals in complement-mediated microvascular lung injury. Fed. Proc. 1988;2:A1185.
11. Walker, B.A.M., Cunningham, T.W. and Ward, P.A.: Extracellular cation requirement for O_2^- production by human neutrophils stimulated by fMLP and immune complexes. Fed. Proc. 1988;2:A798.

12. Ward, P.A., Warren, J.S., Gannon, D., Johnson, K.J., Phan, S.H. and Varani, J.: Cytokines and oxygen radical medical injury. UCLA Symposia on Molecular and Cellular Biology, J.Cell Biochem. 1988;12A:41.
13. Warren, J.S., Robert, M., Kunkel, S.L., Johnson, K.J. and Ward, P.A.: Modulation of interleukin I (IL-1) and tumor necrosis factor (TNF) production by monocytes and alveolar macrophages: Implications for immune complex-mediated lung injury. Fed. Proc. 1988;2:A1822.
14. Yabroff, K.R., Warren, J.S., Johnson, K.J. and Ward, P.A.: Disparate patterns of susceptibility of pulmonary and dermal vascular beds to phagocyte-derived oxidant injury. Fed. Proc. 1988;2:A1175.
15. Manning, P.B., Morgan, R.A., Coran, A.G., Drongowski, R., Till, G.O., Ward, P.A., Oldham, K.T and Wesley, J.R.: Oxygen free radical activity during live E. coli septic shock in the puppy: The role of tissue ischemia, In Press.
16. Oldham, K.T., Guice, K.S., Till, G.O. and Ward, P.A.: Evidence for xanthine oxidase-dependent generation of C5a chemotactic peptide in thermally injured rats. Crit. Care, In Press.
17. Ward, P.A., Till, G.O., McCulloch, K.D. and Johnson, K.J.: Peptides and complement in lung microvascular injury.

LEE WEATHERBEE, M.D.
ASSOCIATE PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Chief, Laboratory Service, Ann Arbor Veterans Administration Medical Center and Veterans Administration Outpatient Clinic, Toledo, Ohio.
B. Consultant for referred orthopedic cases at University of Michigan.
C. Primary activities in anatomic pathology - surgical and autopsy.
D. General overview of clinical pathology at VA Medical Center.
E. Acting Chief of Staff, Ann Arbor Veterans Administration Medical Center, May - June, 1988.

II. TEACHING ACTIVITIES:

A. One to three days per week read out surgical cases with resident on one to one basis.
B. Review and oversee review of all autopsies with residents.
C. Supervise autopsy conferences with residents.
D. Oversee surgical diagnosis teaching activities by staff and consultant pathologists.
E. Participate in monthly Medicine-Pathology and Surgical Morbidity and Mortality conference at the Veterans Administration Medical Center.
F. Lecture, Bone and Joint, Second Year Medical Students, three lectures.
G. Journal Club, Bone and Joint Pathology, Pathology Residents.
H. Participate in bi-weekly Oncology Review Board at VA Medical Center.
I. Supervise weekly VA Surgical Pathology Conference.
J. Responsible for one pathology laboratory section annually to be taught by VA staff.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None.

PROJECTS UNDER STUDY:

A. Well-differentiated osteosarcoma with Dr. James Ellis.

IV. ADMINISTRATIVE ACTIVITIES:

A. Resident Selection Committee.

MEDICAL SCHOOL/VA MEDICAL CENTER:

A. General administrative responsibility for Laboratory Service at the Ann Arbor Veterans Administration Medical Center and the Veterans Administration Outpatient Clinic, Toledo, Ohio (FTE 59.225 including Toledo Outpatient Clinic, and 3.0 residents in training).
B. Executive Faculty, The University of Michigan Medical School.
C. Clinical Executive Committee (VAMC). Major decision-making board advising Chief of Staff and Director.
D. Clinical Executive Board. (VAMC). Review activites consisting of all service chiefs.
E. Transfusion Committee, Chair, (VAMC).
F. Medical Audit Committee, (VAMC).
G. Clinical and Programs Advisory Council to Chief Medical Director, VA Central Office.
H. Radiation Safety Committee (VAMC).
H. Pharmacy and Therapeutics Committee (VAMC).
I. General responsibility for participation of VA Pathology staff in other medical center committees.
J. General responsibility for participation of VA Pathology staff in other medical center committees.
K. Quality Assurance Board, Chair (VAMC).
L. Dean's Committee VA Representative.

REGIONAL AND NATIONAL:

A. Red Cross Medical Advisory Board, Southeastern Michigan Region.

V. OTHER RELEVANT ACTIVITIES:

A. Inspector for College of American Pathologists, Inspection and Accrediatation Program.
B. Deputy Medical Examiner, Washtenaw County.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Guice, K., Weatherbee, L., et al: Invasive Aspergillosis: An Unusual Case of Hemorrhagic Pancreatitis. Am. J. Gastroenterol., 1987;82(6):563-565.
2. Lynch, M.J., McLeod, M.K., Weatherbee, L., et al: Squamous Cell Cancer of the Liver Arising from a Solitary Benign Nonparasitic Hepatic Cyst. Am. J. Gastroenterol., 1987;83(4):426-431.

J. REIMER WOLTER, M.D.
PROFESSOR OF OPHTHALMOLOGY
DEPARTMENTS OF OPHTHALMOLOGY AND PATHOLOGY

ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

I. CLINICAL ACTIVITIES:

A. Director, General Ophthalmology Service, Kellogg eye Center, University of Michigan Medical Center, including direct patient care and surgery.
B. Associate Director, Veterans Administration Ophthalmology Service, Veterans Administration Medical Center, Ann Arbor, Michigan.
C. In charge of Ophthalmic Pathology Service, Departments of Ophthalmology and Pathology, University of Michigan Medical Center.

II. TEACHING ACTIVITIES:

A. Taking part in the regular teaching efforts for students, residents and fellows as well as the postgraduate programs in Ophthalmology and Ophthalmic Surgery.
B. In charge of teaching and representation of Ophthalmic Pathology in the Departments of Ophthalmology and Pathology as well as at national and international Meetings. Ophthalmic Pathology is one of the basic subspecialties of Ophthalmology - and it is an important part of the written and oral examination of the American Board of Ophthalmology.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

A. Research in Ophthalmic Pathology has had continuous support from the Research to Prevent Blindness, Inc., New York, New York for more than ten years.
B. Experts in both, the Ophthalmology and Pathology Departments, have continuously contributed the most valuable support and advice in the general research effort as well as in specific research projects in Ophthalmic Pathology. As a result of progressing integration of the Ophthalmic Pathology Service, the most modern technical facilities in both Departments have been available and have been utilized continuously with much success.

PROJECTS UNDER STUDY:

A. The place of cells of macrophage origin in ocular pathology.
B. The nature and significance of proteinaceous depositions on intraocular lens implants and similar devices.
C. The role of white clots in the control of massive arterial intraocular bleeding.
D. Pathology of intraocular lens implantation.
E. Stages in the development of malignant uveal melanomas.

F. Pathology of radial keratotomy.
G. The role of the angiogenesis factor in retinoblastoma growth.
H. Transplantation of corneal epithelium deep into the vitreous following trauma.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Planning and organization of daily routine, teaching and research in Ophthalmic Pathology - including continuous publication and presentation of results on an international level.
B. Usual administrative function of a Professor in the Departments of Pathology and Ophthalmology.
C. Some administrative aspects of the Ophthalmology Service in the Ann Arbor Veterans Administration Medical Center.

MEDICAL SCHOOL/HOSPITAL:

A. Member, Medical Student Research Committee.
B. Member, Tissue Committee.
C. VA Hospital Surgery Committee.
D. Member, Medical Staff of University Hospital.
E. Member, Medical Staff of Ann Arbor VA Medical Center.
F. Director, General Ophthalmology Clinic, Kellogg Eye Center.

REGIONAL AND NATIONAL:

A. Member, AMA.
B. Member, American Ophthalmological Society.
C. Member, American Academy of Ophthalmology.
D. Member, German Ophthalmological Society.
E. Member, Association for Research in Ophthalmology.
F. Member, Detroit Ophthalmology Club.
G. Member, University of Michigan Ophthalmology Alumni Association.
H. Member, Contact Lens Association of America.
I. Member, Association of American Ophthalmic Pathologists.
J. Member, Theobald Society of Ophthalmic Pathology.
K. Member, Michigan Ophthalmological Society.
L. Honorary Member, Association of Pediatric Ophthalmology.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Invited Lecturer, "Tumors of the Orbit", ENT Department U of M, January 13, 1987.
2. Invited Lecturer, "Ten Years Without Orbital Optic Nerve, late clinical results after removal of retrobulbar gliomas with preservation of blind eyes". Association for Pediatric Ophthalmology, Scottsdale, Arizona, March 14-18, 1987.
3. Exhibit, "White Thrombi of the Inner Eye". Association for Research in Ophthalmology Meeting, Sarasota, Florida, May 3-8, 1987.

4. Demonstration, "Neovascular Glaucoma Following Occlusion of the Central Retinal Artery in a Pseudophakic eye". Theobald Society for Eye Pathology, South Seas Plantation, Florida, April 30 - May 5, 1987.
5. Invited Lecturer, "Late Results of Orbital Glioma Removal". 3rd Annual Alumni/Resident Day, University of Michigan, Department of Ophthalmology, May 14, 1987.
6. Lecture, "Posterior Chamber Lens Implants in the Bag and Out of the Bag: the reactive cytopathology in two eyes of the same patient". Annual Conference of Michigan Ophthalmological Society, Mackinac Island, Michigan. August 20, 1987.
7. Lecture, "Persistent Cataract Wound Leaks: excision of epithelialized fistulas with the use of peripheral corneal grafts". Annual Conference of Michigan Ophthalmological Society, Mackinac Island, Michigan. August 20, 1987.
8. Demonstration, "Mucinous Carcinoma of the Eyelid: with intraorbital extensions". Society of German-Speaking Eye Pathologists, Heidelberg, Germany. September 18, 1987.
9. Demonstration, "Reaction on Posterior Chamber Lens Implant in Chronic Uveitis: removed after eight months". Society of German Speaking Eye Pathologists, Heidelberg, Germany. September 18, 1987.
10. Lecture, "Neovascular Glaucoma in Pseudophakia: Complication following occlusion of central retinal artery". German Ophthalmological Society Meeting, Heidelberg, Germany, September 23, 1987.
11. Demonstration, "Separation of Outer Segment Layer of the Retina: study of pathological nature and clinical associations". International Society of Ophthalmic Pathologists, Dallas, Texas, November 6, 1987.
12. Lecture, "Free-Floating Carcinoma in the Subretinal Space: in metastatic lung carcinoma". American Association of Ophthalmic Pathologists, Dallas, Texas. November 7, 1987.
13. Lecture, "Choroidal Extension of Retinoblastoma in its histological appearance and significance". Joint Meeting of the International Society for Genetic Eye Diseases and International Symposium on Retinoblastoma, Lisbon, Spain, May 12, 1988.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Wolter, J.R.: Macrophage Reaction on the Corneal Endothelium in Pseudophakic Keratopathy, CLAO Journal, 1987;13:59-66.
2. Wolter, J.R.: Corneal Insect Bite Causing Central Retinal Necrosis. Pakistan Journal of Ophthalmology, 1987;3:50-53.
3. Wolter, J.R. and Sugar, A.: Vertical Rupture in Posterior Corneal Layers Associated with Intraocular Lens Implantation. Ophthalmic Surgery, 1987;18:535-537.
4. Wolter, J.R.: Pathology Of Corneal Endothelium in Pseudophakic Keratopathy. Fortschritte der Ophthalmologie, Germany, 1987;84:109-114.
5. Wolter, J.R.: The Nutritional Sources and Limits of Intraocular Retinoblastoma Growth. Ophthalmic Pediatrics and Genetics, England, 1987;8:35-42.
6. Wolter, J.R.: Posterior Chamber IOL's Inside or Outside the capsular Bag: a cytopathological comparison in two eyes of one patient. Ophthalm. Surg. 1987;18:745-752.
7. Wolter, J.R. and Soong, H.K.: Early Pseudophakic Keratopathology: revealing macrophage reaction in endothelial layer. Ophthalm. Surg. 1987;18:821-825.

8. Wolter, J.R.: Retinoblastoma Extension into the Choroid, Ophthalmic Paediatrics and Genetics, England, 1987;18:151-157.
9. Wolter, J.R.: The Corneal Endothelium in Eyes with Lens Implants, Transactions of 1986 International Congress of Ophthalmology, Rome, Italy, (In Press).
10. Wolter, J.R.: Ten Years Without Orbital Optic Nerve: late clinical results after removal of retrobulbar gliomas with preservation of blind eyes, Journal of Pediatric Ophthalmolog and Strabismus, 1988;25:55-59.
11. Wolter, J.R. and Till, G.O.: Protein Deposition and Leukocyte Accumulation on Lens Implants: following exposure to whole blood in vitro, Implants in Ophthalmology, Singapore, (In Press).
12. Soong, H.K., Meyer, R.F. and Wolter, J.R.: Fistula Excision and Peripheral Grafts in the Treatment of Persistent Limbal Wound Leaks, Ophthalmology, 1988;95:31-36.
13. Wolter, J.R.: Neovascular Glaucoma in Pseudophakia: a complication of occlusion of central retinal artery, Fortschritte der Ophthalmologie, Germany, 1988;85:105-112.
14. Wolter, J.R.: Retinoschisis Filled With Condensed Exudate: late stage of retinal blood cyst following complicated trauma, Pakistan Journal of Ophthalmology, 1988;4:17-21.
15. Wolter, J.R. and Garfinkel, R.A.: Ciliochoroidal Effusion as Precursor of Suprachoroidal Hemorrhage. Ophthalmic Surgery, 1988;19:344-349.
16. Wolter, J.R. and Anderson, C.J.: Failing PL-10L Implantation in Pre-existing Bilateral Uveitis Compared with Clinically Successful AL-10L Implantation in the Other Eye of the Same Patient, Ophthalmic Surgery, (In Press).
17. Wolter, J.R.: Necrosis of choroidal melanoma in ciliary artery involvement with temporal arteritis, British Journal of Ophthalmology, (In Press).

SECTION REPORTS

DIVISION OF ANATOMIC PATHOLOGY

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

For the Division of Anatomic Pathology, the 1987-1988 fiscal year has been characterized by significant growth inthe volume of diagnostic activities and the intensity of consultative interaction with our clinical colleagues. This represents a continuation of the trend noted over the past several years, and reflects, in turn, not only an increase in the overall volume of patient care activities, but also the growth of particular programs (e.g. transplantation) dependent on close patient monitoring by serial biopsy techniques. The resulting overall activity level in the Division will clearly require adjustments in professional staffing and space utilization during the coming fiscal year.

During this past year, a significant administrative effort was expended in all parts of the Division planning for and adapting to the installation of our new laboratory data system software package. This process is expected to pay dividends in terms of enhanced communications to other clinical services and improve intradepartmental tracking and utilization of patient related data.

The activities of the several services of the Division are outlined below.

Gerald D. Abrams, M.D.
Director
Anatomic Pathology

AUTOPSY SERVICE

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - JUNE 30 1988

Several advances have been made in the autopsy service which have improved service by decreasing the length of time required to sign out completed cases. The service has additionally been improved by making arrangements for expert help with forensic autopsies through employing the services of Professor Emeritus Robert Hendrix, M.D. Below is a listing of changes made in the service.

I. FORENSIC AUTOPSIES

A. As active consultants to the Washtenaw County Medical Examiner's Office we perform many medical examiner's cases each year. While most of these are routine, some involve complex forensic questions. The Department is fortunate to have the services of Robert Hendrix, M.D., Professor Emeritus of Pathology, a board certifier forensic pathologist and deputy medical examiner, available for consultation with these cases. Dr. Hendrix not only assists with staffing the autopsy, but also is available for expert witness testimony in court. These valuable services relieve the other faculty of the time-consuming chores of court testimony.

B. We now perform toxicology for medical examiner's cases in our own toxicology laboratory. This allows 4 to 6 hour turnaround time, instead of the 4 to 6 month turnaround that was available from the state toxicology lab in Lansing. The Washtenaw County Medical Examiner's Office has agreed to reimburse us for these lab tests.

C. After discussions with John Atwater, M.D., Chief Medical Examiner of Washtenaw County, we now routinely return bodies for autopsy to the county where injury occurred. Dr. Atwater's office will make the arrangements to return the bodies during the week, and on the weekend he has assigned this responsibility to the Deputy Medical Examiner who has ordered the autopsy. While this policy has not been completely successful, it has dramatically reduced the number of out-of-county deaths that we post, and has therefore also subsequently reduced the number of times that faculty must drive to other counties to testify in court.

II. TIMELY COMPLETION OF AUTOPSIES

We have made major strides in shortening the amount of time required to complete routine cases. This has been due primarily to the increased secretarial support such that the typing is now returned promptly. This has also been done in conjunction with the standardized autopsy protocol, so that the amount of time required to type the protocol is reduced.

III. EDUCATION ASPECTS

A. The biweekly gross conference has been certified for category 1 continuing medical education credit, to help maintain the faculty participation at this conference at the present, high level.

B. All medical students are required to observe an autopsy during their second year pathology class. Many students waited until the last week to complete this requirement, and the schedule will be modified next year to prevent this. Even with these problems the rotation was generally informative for the students.

IV. TISSUE FOR RESEARCHERS

The autopsy service receives a number of requests for postmortem tissue and we have developed a short form which investigators must fill out prior to obtaining tissue. This form details the procedure for obtaining tissue, as well as explains that we cannot certify that the tissue is free of infectious agents or radioactive material. By maintaining a log of these requests it is possible to monitor the number of tissue requests, as well as what type of tissue is being requested.

AUTOPSY STATISTICS:

	85/86	86/87	87/88
Total Necropsies	394	381	385
Medical Examiners Cases	70 (18%)	62 (16%)	35 (9%)
Percent Deaths Autopsied	38%	36%	33%
Number of Attending Staff	16	15	15
Outside cases performed (not included in Total)			

The length of time required to sign out cases has dramatically reduced, as outlined above in II. Some statistics will demonstrate how much improvement has occurred, the first period studied was October to December 1987, then the period January to March 1988 was analyzed. The numbers are as follows:

	Oct-Dec 1987	Jan-Mar 1988
Average(days)	104	64
Maximum	158	126
Minimum	41	13
Uncompleted	31	1

The breakdown of the time interval required for completion is shown in the graph below. As can be seen almost all autopsies are now completed within 90 days, and most of then are done within 60 days. Careful dilligence should maintain this performance.

Daniel G. Remick, M.D.
Director
Autopsy Service

CYTOPATHOLOGY LABORATORY

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1987- 30 JUNE 1988

Our workload continues to climb, mainly due to the demand for the service by physicians in the University of Michigan Medical Center but also due to a greater number of specimens from outside hospitals and laboratories. Over the last five years our non-gynecologic cytology specimens have increased 21%, the number of gynecologic cases referred to the pathologists 65%, and the number of aspiration collections (rapid on-site evaluation of aspirates in the Department of Radiology or aspiration of superficial lesions carried out by a pathologist) 174%. All of this activity has placed an extra burden on the pathologists since they are required to examine all of these additional specimens as well as having to attend all of the aspiration collections (about 400 per year).

The workload has also increased for the cytotechnologists and technical staff. However, streamlining of operations in the laboratory and the ability to hire experienced cytotechnologists has enabled the technical staff to keep up with the additional work despite the reduction in the number of cytotechnologists.

The introduction of the Cerner computer system has improved the laboratory's efficiency, enabling the technologists to retrieve information about patients whose specimens they are examining and to issue reports on line. The pathologists have also benefited from the system since it enables them to verify their reports without intervention by transcriptionists. The computer system now enables us, for the first time, to use the SNOMED coding for storage and retrieval of diagnostic information.

During the year the laboratory has given hospitality to visiting pathologists from Finland, Korea and Thailand.

Bernard Naylor, M.D.
Director
Cytopathology Laboratory

DERMATOPATHOLOGY SERVICE

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

LABORATORY ACTIVITIES:

1. Comparative service data for the previous year are not available. (First Annual Report). Ten per cent annual growth on case load has been documented over the past five years.
2. Referral cases for evaluation of scalp biopsies for alopecia continue to increase.
3. A skin lymphoma panel has been coordinated with the Cell I.D. Laboratory.
4. Routine participation, Pigmented Lesion Clinic.
5. Research support for Dermatology Clinical Trials (Topical cyclosporine, topical retin A).

TEACHING ACTIVITIES:

1. Pathology House Officers.
2. Dermatology House Officers.
3. Post Graduate Students.
4. Visiting Guests and others.

GOALS FOR 1988/89:

1. Expand service activities.
2. Improved integration of service and research interests (Drs. Headington, Nickoloff): (a) lymphocyte mediated dermatoses; (b) cutaneous T-cell lymphoma; (c) functional attributes of dermal dendrocytes; (d) possible culture of sebaceous epithelium.

John T. Headington, M.D.
Director
Dermatopathology Service

NEUROPATHOLOGY SERVICE

DEPARTMENT OF PATHOLOGY
ANNUAL DEPARTMENTAL REPORT
1 JULY 1987 - 30 JUNE 1988

The Laboratory of Neuropathology continues to have three interrelated functions: Laboratory diagnostic service, teaching, and research in experimental animal work and human disease.

Full time faculty continuing this year were Constance J. D'Amato, B.S., Assistant Professor, and Paul E. McKeever, M.D., Ph.D., Associate Professor. Dr. Samuel P. Hicks was on Active Emeritus status. Mila Blaivas, M.D., Ph.D., Clinical Assistant Professor, spent 60% of her time in Neuropathology teaching and service programs.

CLINICAL ACTIVITIES:

Clinical services are the examination and diagnosis of disease conditions, and their correlation with the clinical findings, in nervous system tissues, muscle, and other tissues and body components. As of May 31, 1988 the following examinations were completed through the cooperation of our excellent neurohistology, electron microscopic, general histology, immunohistology, faculty and secretarial staff.

1. Five hundred and thirty-three Neurosurgical cases were examined this year from Main, Mott and outside hospitals in consultation. Forty-five cases were referrals from other institutions, a portion of which were part of the NIH funded study of BUDR radio-sensitization of gliomas 1R01CA33768-01A2.
2. 307 brains were examined out of 365 autopsies which is 84% of all autopsies at this Medical Center, and twelve from other institutions and hospitals.
3. Nerve and muscle pathology service has increased over the year. There were 133 muscle biopsies, 8 of which included skin, nearly all with histochemistry, some with electron microscopy. There were 67 peripheral nerve biopsies. This represents a small increase in muscle and a 29% increase in nerve biopsies over the previous year. Teased fiber preparations were performed on approximately a third and electron microscopy was performed on all nerve biopsies. Forty cases were referrals from other institutions. Dr. Mila Blaivas provides quality diagnoses and consultations. The combination of nerve teasing, muscle histochemistry, electron microscopy and morphometry make the service regionally competitive for diagnostic consultation.
4. Ultrastructural neuropathology examined, interpreted and reported 138 (109% increase) cases in semithin section and electron micrographs of 96 (146% increase) cases. The majority were nerve, ceroid and neurosurgical biopsy cases.
5. The ceroid service, buffy coat division, reported approximately 29 cases and consulted on a limited number of skin and rectal biopsies.

TEACHING ACTIVITIES:

1. Medical Students: This year the faculty taught the regular Neuropathology sequence to our medical students (18 hours) in the Neural and Behavioral Sciences (NBS) 600 curriculum. NBS Neuropathology consists of lectures, handouts, and posters for all second year medical students. In addition Ms. D'Amato conducted 10 hours of brain cutting sessions for small groups of the second year students.
2. House Officers, Graduate students, Postgraduate and other students and faculty: All of the service activities are integrated appropriately into teaching. Specific exercises include a conference every other month where neuropathology is reviewed; twice monthly conferences where all biopsies are presented and interpreted; a brain cutting conference where all abnormal brains are examined with all clinicians invited weekly; three types of nerve and muscle biopsy conferences (one weekly, one twice a month and one monthly); individual instruction on autopsies and biopsy material; Neuropathology 858, a 16-18 hour laboratory-lecture course; and elective periods for Neurology House Officers. Continuing Medical Education accreditation has been received for the biopsy conference. Dr. Mila Blaivas was the faculty member honored by the residents of the Department of Pathology for her excellent teaching of neuromuscular and autopsy pathology.
3. International Visiting Pathologist: Dr. Miguel Hernandez from Hospital La Fe, Valencia, Spain spent 5 months in neuropathology learning diagnostic and research techniques.

RESEARCH ACTIVITIES:

1. Dr. Hicks' and Ms. D'Amato's research has centered principally on the development of the nervous system in mammals, mechanisms of malformation and recovery from injury caused by radiation or mutant genes. They also provide neuropathologic support for a biochemical study of Alzheimer's and other dementias conducted by Anne B. Young and John B. Penney, Department of Neurology.
2. Dr. Blaivas is continuing her research on ocular muscle (normal and pathology) and effects of local anesthetics on muscle.
3. Drs. McKeever and Shakui are determining the extent and cause of differences in antigens in brain tumor tissue versus cells in culture. These differences may result from a separate population of cells within brain tumors or from instability of antigen expression by neoplastic cells.
4. The Tumor Immunology, Extracellular Matrix and Neurooncology Groups of the University of Michigan Cancer Center faculty and staff with clinical research interests in brain tumors, met and generated a number of project considerations from Pathology, Neurosurgery, Nuclear Medicine, Neuropathology, Neurology and Neuroradiology collaborations.
5. Collaboration with Neurology, and Epidemiology Departments, Eastern Michigan University, the State of Michigan Department of Public Health, the Alzheimer's Disease and Related Disorders Association and Henry Ford Hospital proposes to establish a registry for dementias and Alzheimer's disease.

6. Collaboration with the Upjohn Center and Unit for Laboratory Animal Medicine will measure BUdR labeling indices in brain tumor specimens.

Paul E. McKeever, M.D., Ph.D.
Director
Neuropathology Service

PEDIATRIC PATHOLOGY SERVICE

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The activities of this service were carried out as in the past, primarily by Kathleen P. Heidelberger, M.D., and Mason Barr Jr., M.D.

Necropsy figures are as follows:

Pediatric deaths (22 weeks gestation or any liveborn, to 18 years)	= 220
Necropsies on above	= 136
Necropsy Percentage	= 62%

Of the 136 posts, 54 patients' bodies were released to Anatomy for study and disposal. These posts were performed by Mason Barr Jr., M.D. Eighty-two patients were posted by the residents and senior staff in pathology, primarily Dr. Heidelberger. Three necropsies listed in general statistics as "Medical Legal" posts were inpatient posts on hospitalized pediatric trauma victims.

A total of 407 necropsies for UMMC hospitals patients were performed (including the 3 pediatric "medical legals"): 54 by Dr. Barr in the Teratology Unit and 353 by the Pathology Department Staff. Thus, 33.4% of the total posts at the UMMC were pediatric posts.

The Quarterly Pediatric Death List is distributed to all service chiefs and lists all deaths by service with their appropriate diagnoses.

The total number of pediatric surgical specimens (including placentas) examined is almost 2,000. This represents an increase of almost 18% from the previous academic year.

Kathleen P. Heidelberger, M.D.
Director
Pediatric Pathology Service

SURGICAL PATHOLOGY SERVICE

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During the 1987-1988 fiscal year, the activities of the Surgical Pathology Service have continued to grow involume and to increase in complexity. The total number of surgical specimens accessioned in University Hospital increased significantly over the prior year's total; and the number of specimens referred in consultation by pathologists in other institutions also showed an increase. During the same period of time, the surgical pathology services of M-labs showed a marked increase over the previous year. The professional demands inherent in this increased workload have been met only through the extraordinary efforts of the staff of the Surgical Pathology service. Clearly, the size of this group needs to be augmented significantly in the immediate future in order to maintain the record of academic excellence established over the years.

During the year there has been a significant planning effort with regard to developing a code of "Body Substance Precautions" as part of the institution's "Universal Precautions" policy. The need for these precautions is particularly pressing the frozen section laboratory of the Surgical Pathology Service. It has become evident that in order to adapt to the needs of the present era, the physical space allotted to the frozen section laboratory must be increased. Architectural consultation has been obtained and planning is proceeding on an urgent basis.

Another trend which has become particularly evident during the past year has been the increasing number of requests from various investigators (mostly in our own institution, but also in affiliated institutions) for tissue samples derived from surgical specimens. These samples are derived from specimens resected for therapeutic purposes (mostly neoplasms) and represent portions of the specimens "left over" when the diagnostic needs of patient care have been satisfied. The growth of these activities, each of which is reviewed and deemed valid by the Institutional Review Board, has led to the development of a Tissue Procurement Service prposed as part of the Unviersity of Michigan Cancer Center. This Procurement Service will be directed by members of the Surgical Pathology Service, and will provide a support staff to expand the procurement activity.

Gerald D. Abrams, M.D.
Director
Surgical Pathology Service

CLINICAL PATHOLOGY LABORATORIES

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While the specific activities of the various Clinical Pathology Laboratories are documented on the following pages, several initiatives are worthy of emphasis.

The implementation of the new Cerner system for data management in the Clinical Laboratories was a major undertaking. This was the first placement of this new system in a hospital of this size, and the success of the project stems from the efforts of key individuals in each of the Clinical Laboratories as well as the overriding leadership of the Pathology Data Systems staff. The new system will provide not only the laboratories, but also the clinical services of University Hospital, with much greater flexibility in management of laboratory data. Since this was the initial placement of this system, the University Hospital had an opportunity to individualize many of the programs, and therefore allow it to be a model for such installations in other hospitals throughout the country.

Although inadvertent delays postponed commencement of the bone marrow transplantation program during this academic year, planning activities took place in many laboratories. The autologous program will heavily impact the Blood Bank and the Hematology laboratories as well as the Microbiology and Chemistry laboratories.

The AIDS epidemic continued to have an impact on the laboratories, especially through implementation of universal precautions guidelines. The requirements for protection of personnel had a particular effect on the Phlebotomy Service.

Consolidation of laboratories within University Hospital continued. The Cytogenetics laboratory was incorporated into the responsibility of the Department and recruitment is underway for supplementation of staff in that laboratory.

Finally, the Residency Program in Clinical Pathology was modified to effect a block rotation. This allowed improved co-ordination of the educational program, and will be particularly valuable with the increase in size of the program in the coming year. In particular, a formal bone marrow sign-out program in the clinical Hematology Laboratory has greatly enhanced training. Fellowships were formulated in the Immunopathology laboratory and the Blood Bank, and these new training positions should be filled in 1988-89. Furthermore, recruitment activities currently are underway for augmentation of the clinical pathology faculty.

Harold A. Oberman, M.D.
Co-Director
Clinical Pathology Laboratories

UNIVERSITY HOSPITALS BLOOD BANK

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PATIENT CARE:

Although the AIDS epidemic has resulted in a national trend for reduced transfusion of blood and blood components, blood utilization in University Hospital has continued to increase. This is related to the pronounced increased activity in the liver homotransplantation program as well as increased volume of cardiovascular procedures. This was especially true during the second half of the academic year. The total number of Red Blood Cells transfused did not differ significantly from the volume transfused during the previous year; however there was a fifteen percent (15%) increase in use of platelet concentrates.

There was continued increased demand for autologous transfusion during this year, and the majority of patients seeking this form of transfusion were accommodated in the Transfusion and Apheresis Service of the laboratory. Approximately 700 such procedures were performed. In addition, fear of transfusion-transmitted AIDS led to implementation of a directed donation program by the hospital. This permits friends and relatives to provide blood for specific patients. Both the autologous program and the directed donation program require careful co-ordination between physician, patient and Blood Bank for successful implementation.

Therapeutic plasma exchange and out-patient transfusion activity continue to increase. The majority of patients treated by therapeutic plasma exchange were from the Neurology Service, especially patients with Guillian-Barre disease and chronic inflammatory demyelinating polyneuropathy.

During the coming year the Blood Bank will assume responsibility for cryopreservation and processing of bone marrow for the bone marrow transplantation program. This will necessitate augmentation of staff of the laboratory and renovation of laboratory facilities.

TEACHING ACTIVITIES:

The Blood Bank continued to have an extensive instructional program. The annual core lecture series for Pathology house officers was presented twice: in July, 1987, and January, 1988. In addition, house officers from the Departments of Internal Medicine and Pediatrics joined Pathology house officers in receiving practical laboratory experience. Medical, technical and nursing staff of the laboratory provided a number of lectures for departments and services in University Hospitals, including an ongoing in-service training program for nursing personnel. This has proven to be an effective way of maintaining quality of performance throughout the hospital, as well as implementing new procedures. The fifteenth annual Post-graduate Course, "Current Topics in Blood Banking", was held on June 2-4, 1988. Over 200 technologists and physicians from throughout the United States attended. Mr. John Judd was Program Director, assisted by Ms. Suzanne Butch and Dr. Oberman.

PROFESSIONAL ACTIVITIES:

Suzanne Butch, Chief Technologist of the Blood Bank, served on the Board of Directors of the American Association of Blood Banks, and John Judd, Associate Professor, served as Vice-Chairman of the Scientific Section Co-Ordinating Committee of that organization. Pam Knafl was awarded the Williams Scholarship by the Michigan Association of Blood Banks. Ronald Salisbury, Supervisory Technologist, assumed a leadership role in implementation of the Cerner laboratory computer system, and will continue to have an advisory role in development of new software for Blood Bank systems. Dallas Forshew, R.N., served on the Board of Directors of the Society of Hemapheresis Specialists. Louann Trudeau and Debbie Williams continued to have leadership functions in the Michigan Association of Blood Banks. Dr. Oberman is the Associate Editor of TRANSFUSION, the most prestigious journal in this field.

Other professional activities of faculty and staff in this laboratory are included in the following Appendix.

RESEARCH ACTIVITIES:

Faculty and staff of the laboratory presented a paper on the cost effectiveness of blood collection by hospitals at the Annual Meeting of the American Association of Blood Banks, and three papers were accepted for presentation at the Biennial Meeting of the International Society for Blood Transfusion in London in July, 1988. These presentations will include discussions of extracorporeal membrane oxygenation, percutaneous umbilical blood sampling, and blood collection effectiveness. In addition, members of the laboratory published 14 scientific papers, book chapters, or abstracts during the year.

Harold A. Oberman, M.D.
Director
Blood Bank

APPENDIX

Professional Activities of Blood Bank Staff

SUZANNE BUTCH

Presentations/Posters:

1. Employee evaluation and training, Wisconsin Association of Blood Banks Annual Meeting, Appleton, Wisconsin, September 10, 1987.
2. Transfusion Practices, Wisconsin Association of Blood Banks Annual Meeting, Appleton, Wisconsin, September 11, 1987.
3. Resolution of multiple antibody problems. Region IV, ASMT, Louisville, Kentucky, October 29, 1987.
4. Should hospitals draw donors? A cost appraisal. Poster: Butch, S.H., Judd, J.J. and Oberman, H.A. American Association of Blood Banks Annual Meeting, Orlando, Florida, November 6-12, 1987.
5. Selection of computers and equipment, Forum for Directors and Administrators of Hospital Blood Banks and Transfusion Services, American Association of Blood Banks, Orlando, Florida, November 19, 1987.
6. Management topics: Workload recording, computers, personnel evaluation, AABB Advanced Immunohematology Workshop, Long Beach, California, January 16, 1988.
7. Personal computers in the blood bank, Workshop, Current Topics in Blood Banking, Towsley Center, Ann Arbor, Michigan, June 1, 1988.
8. Safety issues in the blood bank, Current Topics in Blood Banking, Towsley Center, Ann Arbor, Michigan, June 3, 1988.
9. Immunohematology case studies, ASMT Annual Meeting, San Antonio, Texas, June 20, 1988.
10. Opportunities in Consulting in the Workshop: Consulting to Decentralized Labs, ASMT Annual Meeting, San Antonio, Texas, June 22, 1988.

Publications:

1. Butch, S.H. and Coltre, M.A.: Techniques of Transfusion, in, Kasprisin, D.O. and Luban, N.L.C. (eds), Pediatric Transfusion Medicine, Volume I, CRC Press, Boca Raton, Florida, 1987.

Activities:

A. American Association of Blood Banks.
   1. Board of Directors, North Central District Director.
   2. Pediatric Hemotherapy Committee.
   3. Regional Education Committee.
   4. Inspector, Inspection and Accreditation.

B. Michigan Society for Medical Technology.
   MSMT Student Bowl Judge, April 23, 1988.

C. Michigan Association of Blood Banks.
   1. Annual Meeting Program Committee.
D. American Society for Medical Technology.
   1. Audit and Budget Committee.
E. ASMT Education and Research Fund, Inc.
   1. Chairperson.
F. National Certifying Agency for Medical Laboratory Personnel.
   1. Item Reviewer.
G. Consulting Editor, Clinical Laboratory Science.
H. Alpha Mu Tau, Honorary Medical Technology Fraternity.
   1. Scholarship Committee.
I. Hospital and Health Services Credit Union.
   1. Credit Committee.

University Hospital Committees:

A. Disaster Committee.
B. Quality Assurance Committee.
C. Patient Care Evaluation Work Group, Quality Assurance Committee.
D. Transfusion Committee.

DEB WILLIAMS

1. Chairman of the Membership Committee for the Michigan Association of Blood Banks.

PAM KNAFL

1. Awarded the Vi Williams Scholarship from the Michigan Association of Blood Banks.
2. Researched and submitted paper for the American Association of Blood Banks Annual Meeting: ECMO: Minimal Impact on the Blood Bank.

LOUANN TRUDEAU

1. Served on the Editorial Board of "In a Different Vein", the newsletter of the Michigan Association of Blood Banks.

JOHN ELLIOTT

1. Appointed Safety Officer of the Department of Pathology.

D. MCCOY-PARDINGTON

1. Presented the workshop, "Problem Solving in the Blood Bank" at the Current Topics in Blood Banking: 15th Annual Symposium. Towsley Center, Ann Arbor, June 1, 1988.
2. Researched and submitted paper for the American Association of Blood Banks Annual Meeting: ECMO: Minimal Impact on the Blood Bank.

JUDY DOUVILLE

1. AABB: Inspection and Accreditation Inspections.
2. Speaker, Workshop on Autologous and Directed Donations, Michigan Society for Medical Technology, Spring Meeting.
3. Speaker, Workshop on Autologous and Directed Donations, 1988 MABB Meeting.
4. Speaker, "Current Topics in Blood Banking", Pre-Conference Workshop on Autologous and Directed Blood Programs, 15th Annual Symposium, Towsley Center, Ann Arbor, Michigan.

ANN STEINER

1. Case study presentation at Annual Meeting of the Michigan Assocation of Blood Banks, September 17, 1987.
2. Lecture on PUBS to Detroit Red Cross Continuing Education Program, February 2, 1988.
3. Presentation on Antibody Problem Resolution. Southeastern Michigan Area Review for the SBB Examination, February 11, 1988.
4. Presentation on Antibody Problem Resolution. Annual Meeting of the Indiana and Ohio Blood Bank Associations, March 23, 1988.
5. Lecturer at MABB Spring Workshop, May 4-6, 1988.
6. Presentation of Workshop. Postgraduate Course, Current Topics in Blood Banking, Towsley Center, Ann Arbor, Michigan, June 1, 1988.
7. Lecture: PUBS, Current Topics in Blood Banking, Towsley Center, Ann Arbor, Michigan, June 3, 1988.

CLINICAL BIOCHEMISTRY SECTION

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SECTION OVERVIEW:

During the past year, the Clinical Biochemistry Section has experienced another increase in test volume and requests for new procedures. Further, we have been instrumental in assisting the institution's policy of centralizing laboratory testing and downsizing redundant laboratories. As we have the biggest single laboratory in the institution, we were considerably affected by the change by the MedLab to the Cerner computer system. In some areas, such as the automated instrumentation in the General Chemistry Laboratory, the conversion was relatively smooth due to the hard work of the staff both in Pathology Data Systems (PDS) and our own laboratory. However, in other laboratories which require more direct technologist input in the final report, we have had considerable difficulties. The clinical immunology laboratory has been impacted by the conversion to the Cerner system due to the slowness and relative inflexability of the system. Currently there are efforts being made by PDS and the laboratory staff to improve this situation. The Ligand Assay laboratory will expand somewhat in the next year. However, the remaining laboratories have been constrained and we have lost some potential space in the chemistry laboratory preparation area. This will have a negative effect on future test development. If past trends hold true, the number of laboratory procedures required for patient care and their complexity will only increase in the future. Lacking sufficient space, it will be difficult to maintain the quality of care which would be expected from an institution of this level.

GENERAL CHEMISTRY LABORATORY - Donald Giacherio, Ph.D., Laboratory Director.

The Chemistry Laboratory continues to experience significant increases in test volume. Fee code statistics have increased by 8.9% over the previous year. Because of increases in ordering of panels of tests, the actual number of tests reported has increased by 15% to over 2.3 million tests. Net revenue generated from this workload has increased by 17.6% over the previous year. These increases in test volume have been managed with only a 2% increase in the laboratory operating budget.

Two events not reflected in workload statistics have nevertheless had a major impact on the lab in the past year. The implementation of the new Cerner computer software system has perhaps been the major focus of the laboratory for the past year. The efforts of the supervisory staff in chemistry were critical to minimizing the problems associated with the transition. In addition, a committee within the laboratory has spent a great deal of time and effort in reviewing currently available chemistry instrumentation. The search for new instrumentation to replace the current Technicon SMACII analyzers in the lab is now entering its final stages. The acquisition and installation of new analyzers promises to be one of the highlights of the coming year.

A major focus of the lab over the past year has been cholesterol screening and risk factors for coronary heart disease. Over 1,500 cholesterol determinations were performed in the lab on samples from various health fairs associated with M-Care sites and the MedSport Clinic. In addition, the lab provided staffing and technical support for the on-site determinations of cholesterol at a 3 day long health fair sponsored by the American Health Foundation, M-Labs, and MedSport. The volume of the CHD Profile (Cholesterol, Triglycerides, HDL-Cholesterol, and calculated LDL-Cholesterol) continues to grow, with current workload at over 1,500 samples per month. Testing for HDL-subclasses (HDL-2 and HDL-3), indicators of risk for coronary disease was recently introduced. This, along with the CHD Profile, Apolipoprotein A1 and B assays, and Lipoprotein Electrophoresis make up a complete battery of lipid tests for risk assessment and diagnosis of hyperlipidemias, and allow for the consolidation fo the Hyperlipidemia Laboratory.

The Chemistry Lab has assumed overall responsibility for the operation of the Anesthesiology Blood Gas and Electrolyte Laboratories located in the operating rooms of Main and Mott Hospitals. Quality control procedures on evenings and weekends will be performed by staff from the Chemistry laboratory. We are moving to upgrade current instrumentation to simplify and standardize these two lab operations.

DRUG ANALYSIS AND TOXICOLOGY LABORATORY - Thomas Annesley, Ph.D., Laboratory Director

The Drug Analysis and Toxicology Laboratory has again seen increases in the demand for laboratory services. Overall laboratory volume was up 29% with cyclosporine assays again leading changes with an increase of 42%. The increases in workload are especially important since they represent changes in the demand for esoteric, labor-intensive testing. The laboratory has successfully incorporated this increase workload through scheduling modifications and introduction of new and more efficient analytic methods. A significant addition to the lab which has produced both increased efficiency and net cost reductions was the acquisition of a Syva ETS analyzer for performing urine drug screens.

Although lab volume has increased 29%, the overall lab budget has increased only 11.5%. Particularly worth mention is the fact that lab revenues have increased over 34%, a reflection of the increased volume of esoteric and special testing. Not included in the clinical revenue is the money generated by the lab and its staff through the support of numerous internal and externally funded projects. These activities have yielded special billings for over $25,000 in extra revenue for the hospital.

Several pieces of new instrumentation were acquired during the last fiscal year. These include a replacement gas chromatograph, a photodiode array detector, and new HPLC equipment to handle the increased demands for cyclosporine assays. The Perkin Elmer 5100 Metals Analyzer has finally arrived and awaits laboratory renovations and installation.

The Drug Analysis and Toxicology Laboratory has enrolled in the CAP Forensic Drug Testing Program. Having successfully passed a stringent set of blind testing samples, the laboratory has qualified for final inspection and accreditation in the near future. A number of the laboratory staff have participated in the analysis of these blind survey samples. This testifies to the high quality and experience of the staff within the laboratory.

LIGAND ASSAY LABORATORY - Barry England, Ph.D., Laboratory Director.

The Ligand Assay Laboratory processed 86,706 specimens between July 1 and April 30 of the current fiscal year and processed 73,337 specimens during the same period during the previous year. The projected number of samples that will be processed throughout the year is 104,000. This represents an increase of approximately 18% over the previous year. This increase in laboratory volume has occurred in a year marked by major changes in laboratory operation. The Laboratory Director was absent on a Sabbatical leave during the first half of the year, the laboratory moved to new quarters to await the renovation of laboratory space, the Medlab computer system was converted to the Cerner system and several problems related to this conversion have not been corrected which has dramatically affected operational efficiency.

Several radioimmunoassay procedures have been converted to nonisotopic immunoassay procedures. These include Hepatitis B Core Antigen, Thyroid Stimulating Hormone (TSH), Vancomycin, Methotrexate, Digitoxin, and Carcinoembryonic Antigen. Two new instruments have been added to the laboratory to perform these assay procedures; a fluorescence polarization analyzer (TDx) from Abbott Labs, and a chemilluminescence analyzer (Magiclite) from Ciba-Geigy. The chemilluminescence immunoassay for TSH has greatly increased assay sensitivity and permitted the laboratory to differentiate between euthyroid and hyperthyroid patients. All of the nonisotopic assay procedures have decreased assay turnaround time and reduced the technical time required to complete the assay procedures. In addition to these above changes the assays for prostate specific antigen (PSA) and somatomedin C (IGF-1) have been evaluated and will be provided as soon as the computer interfaces and other necessary accompaniments have been completed.

Lastly, we have upgraded our confirmation of a positive HIV test. Formerly the positive ELISA procedure would be confirmed by a Western Blot which was subjective and less sensitive than the ELISA. We now offer the SmithKline HIVAGEN procedure which uses molecular biologically engineered probes for specific viral components. This has resulted in fewer "indeterminate" tests.

CLINICAL IMMUNOPATHOLOGY LABORATORY - David F. Keren, M.D., Laboratory Director.

Personnel changes made last year have worked well in the laboratory. Both Drs. Jeffrey Warren and John Lowe have taken an active part in the clinical diagnostic aspects of the Immunopathology Laboratory. They have proven to be extremely valuable additions to the laboratory. In addition, Dr. Warren has helped with the administrative activities.

We have become a major center for testing for two newly described autoantibodies. One is the cardiolipin antibody which is important in patients with systemic lupus erythematosus. It has been correlated strongly with the presence of the lupus anticoagulant. The latter is responsible for thrombotic phenomena throughout the body in patients with systemic lupus erythematosus. In addition, during pregnancy the presence of a high tittered cardiolipin antibody correlates with fetal distress and death. The second autoantibody which has received considerable utilization from our own institution and throughout the Midwest is the neutrophil cytoplasmic antibody test. This antibody has been shown to correlate well with Wegener's granulomatosis. This condition is difficult to diagnose and often requires renal and other biopsies in order to secure a diagnosis.

We are in the middle of a study comparing pediatric ANA samples by tissue section with that of HeP-2 culture lines. Our preliminary results indicate that the HeP-2 test is more sensitive for detecting SLE.

The overall workload for this laboratory has increased 14% this past year. Specifically the work load for the ANA area has increased dramatically 18% in the past year. Due to the considerable technologist time required for this labor intensive test, we are expending considerably more personnel efforts in the area. If this trend continues, we will need to explore some newer ANA methodologies which could allow for a more rapid and efficient screen for ANA activity. Fortunately, we have been able to streamline other areas such as immunofixation by using an immunochemical approach to diagnose most monoclonal gammopathies. The combination of high resolution electrophoresis and immunoglobulin quantification including kappa and lambda have decreased our performance of unnecessary immunofixation by almost 90% according to a study just completed this year in our laboratory.

Published Manuscripts

1. Annesley, T.M., Matz, K., Giacherio, D. and Feldkamp, C.: Cyclosporine distribution in blood: Concomitant effect of hematocrit, concentration, metabolites, and temperature. J. Clin. Immunoassay 1987;10:226.
2. Keren, D.F.: Protection against mucosal infections by secretory IgA. Clin. Immunol. News. 1987;8:1.
3. Kahn, P., Roth, M.S., Keren, D.F. and Foon, K.A.: Light chain disease associated with the hyperviscosity syndrome. Cancer 1987;60:2267-2268.
4. Keren, D.F.: Intestinal immune defense mechanisms. Am. J. Surg. Pathol. 1988;12, Suppl.:100-105.
5. Keren, D.F.: Autoreactivity and altered immune responses in inflammatory bowel disease. Clin. Lab. Med. 1988;8:325-336.
6. Morady, F., Kou, W.H., Schmaltz, S., Annesley, T.M., DeBuitleir, M., Nelson, S.D. and Kushner, M.A.: Pharmacodynamics of intravenous procainamide as used during acute electropharmacologic testing. Am. J. Cardiol. 1988;61:93.
7. Silbart, L.K., Nordbloom, G., Keren, D.F., Wise, Jr., D.S., Lincoln, P.M. and Townsend, L.B.: A rapid and sensitive screening method for the detection of anti-2-acetylaminofluorene immunoglobulins. J. Immunol. Methods. 1988;109:103-112.
8. Annesley, T.M. and Matz, K.: Liquid chromatographic analysis for flecainide with use of a microbore column and small sample volume. J. Liq. Chromatogr. (In Press).
9. Annesley, T.M. and Matz, K.: Liquid chromatographic analysis for flecainide with use of microbore column and ultraviolet detection. J. Liq. Chromatogr. (In Press).
10. Bush, D. and Keren, D.F.: Quantification of kappa and lambda containing immunoglobulins with the Beckman Array. Clin. Chem. (In Press).
11. Davenport, R.D. and Keren, D.F.: Oligoclonal bands in cerebrospinal fluid: significance of corresponding bands in serum for diagnosis of multiple sclerosis. Clin. Chem. (In Press).
12. Keren, D.F.: Immunofluorescence techniques. Immunochemica (In Press).
13. Keren, D.F.: Mucosal IgA elaboration. CRC Press (In Press).

14. Keren, D.F., Kumar, N.B. and Appelman, H.D.: Quantification of IgG-containing plasma cells as an adjunct to histopathology in distinguishing acute self-limited colitis from active idiopathic inflammatory bowel disease. Pathol. Immunopathol. Res. (In Press).
15. Keren, D.F., Warren, J.S. and Lowe, J.B.: Combined use of high resolution electrophoresis, kappa/lambda quantification and immunofixations for efficient detection of monoclonal gammopathies. Am. J. Clin. Patho. (In Press).
16. Levinson, S.S., Keren, D.F. and Goldman, J.O.: Immunoglobulins from immunologically activated persons show greater tendency to aggretate than normal. Clin. Chem. (In Press).
17. Nelson, S.D., Kou, W.H., Annesley, T.M., DeBuitleir, M. and Morady, F.: Significance of ST segment depression during paroxysmal supraventricular tachycardia. J. Am. Coll. Cardiol. (In Press).
18. Grenman, S., Roberts, J.A., England, B.G., Gronroos, M. and Carey, T.E.: In Vitro Growth Regulation of Endometrial Carcinoma Cells by Tamoxifen and Medroxy-Progesterone Acetate. Gynecologic Oncology, 1988 (In Press).
19. Henson, M.C., Piper, E.L., Perkins, J.L. and England, B.G.: Changes in Pelvic Conformation and Peripheral Estrone Levels in Pre- and Postpartum Beef Cows. Dometic Animal Endocrinology, 1988, (In Press).
20. Smart, J.B. and England, B.G.: A Chemilluminescence "Sensitive" TSH Assay: How Does it Measure Up? 1988, (In Press).
21. Grenman, S.J., VanDyke, D.L., Worsham, M.J., England, B.G., McClatchey, K.D., Hopkins, M., Grenman, R. and Carey, R.E.: UM-SCV-IA and UM-SCV-IB, Two New Tamoxifen-Sensitive Hypotetraploid Cell Lines Derived From Primary and Metastatic Tumors in a Patient with Squamous Cell Carcinoma of the Vulva. (Submitted).
22. Wagner, J.G., DiCarlo, Jr., L., England, B.G., Sakmar, E., Gonzalez, M.A. and Noonan, P.K.: Interaction Between Digoxin and the Calcium Antagonist Gallopamil. Clinical Pharmacology and Therapeutics, (Submitted).
23. McCully, M.J., Tue, D., England, B.G. and Smart, J.B.: Low End Performance of Two Non-Radiometric TSH Assays as Compated to an IRMA TSH Assay (Abstract), Annual Meeting of the Midwest Clinical Ligand Assay Society.
24. England, B.G.: Present and Future Role of Molecular Biology in the Clinical Laboratory (Abstract), Annual Meeting of the Clinical Ligand Assay Society, Washington, D.C., May 9-11, 1988.
25. England, B.G.: Immunoaffinity extraction and immunological analysis of Estrone and Estradiol. Ciba-Geigy Lecture, Tarrytown, New York, June 11, 1988.

David F. Keren, M.D.

Head
Clinical Biochemistry Section

ELECTRON MICROSCOPY SERVICE

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During the period of 1 July 1987 - 30 June 1988, the Electron Microscopy Service in the Department of Pathology processed a total of 1050 cases. Of this total, 460 cases were clinical biopsies with 102 being renal biopsies. The 1050 cases processed this past year represent a marked increase of around 30% over the number of cases processed last year which numbered 741. The fact that these large numbers of cases were processed by only four individuals reflects very well on their hard work and dedication.

During this past year, two new individuals have joined the Electron Microscopy Service. Ms. Cindy Lamm works in the clinical laboratory and Mr. Bradley Nelson works in the research area. Both of these individuals had received extensive EM training prior to joining the laboratory and both continue the tradition of high quality service and rapid turnaround times. We are fortunate to have two such highly qualified individuals join the laboratory.

During the upcoming year, we will continue to work very closely with the clinicians and researchers to provide rapid and complete electron microscopy analysis. Our markedly increased volume of cases is a tribute to the staff and is particularly gratifying in view of the fact that many other Electron Microscopy Services are seeing a marked decrease in volume.

Kent J. Johnson, M.D.
Director
Electron Microscopy Service

CLINICAL FLOW CYTOMETRY LABORATORY

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Fiscal Year 87/88 has produced major changes in the structure of the Flow Cytometry Laboratory. Dr. Curtis Hanson is the new Medical Director of the laboratory and has assumed responsibility for a significant portion of the report signouts in addition to administrative coverage. Dr. Lloyd Stoolman conducts the balance of the medical signouts, presents a monthly seminar series on clinical flow cytometry and provides administrative backup. Administratively, the Clinical Flow Cytometry Laboratory has been officially split from the research arm of the laboratory. This has involved physically relocating the laboratory across the hallway from the existing Flow Cytometry Laboratory, which remains as the Research Flow Cytometry Laboratory. To aid in this transition, a smaller, air cooled flow cytometer was obtained for the clinical laboratory.

The laboratory has continued its active role in Diagnostic Clinical Pathology. A total of 1,230 specimens were handled by the laboratory during the past twelve months. 750 specimens were processed for cell surface markers or cellular DNA content studies. Approximately 50% of these specimens were evaluated for hematologic disorders (bone marrows, peripheral bloods, body fluids, lymph nodes, needle aspirates submitted for diagnosis of leukemia or lymphoma) while the remainder of the specimens were for the evaluation of transplant patients or individuals with primary or acquired immune deficiencies. A sizeable proportion of the latter group is in the area of cellular monitoring of transplant patients receiving OKT3 monoclonal antibody therapy. An additional 500 specimens were studied for platelet-associated immunoglobulins and neutrophil-specific antibodies. Each specimen requires from 10-30 individual staining, quantitation and analytic procedures. Quality control and calibration procedures further add to the specimen load. Thus, the laboratory staff conducted approximately 25,000 individual marker studies in Fiscal Year 87/88. The laboratory continues to provide 12-24 hour turnaround for studies on acute leukemia and selected transplant patients. Overall, patient revenue is up and a significant reduction in commodity expenses has occurred. This has led to an actual gross margin that is more than 1,600% better than the gross margin expected by budget.

The anti-neutrophil and anti-platelet antibody assays have continued to be an integral part of the laboratory. Previously, questions have arisen concerning the sensitivity and specificity of these procedures along with some of the technical aspects of the assays. Numerous changes were made in the preparative and analytic aspects to further refine the tests and increase their reproducibility, sensitivity and specificity. A new test, the neutrophil oxidative burst assay, was introduced as a clinical procedure this year with the assistance of Dr. Paul Robinson. This has allowed for a panel of neutrophil assays to be available: neutrophil oxidative burst assay, CD11 surface glycoprotein and anti-neutrophil antibody assays.

The laboratory recently implemented a new generation of assays utilizing DNA-hybridization technology. Tests for immunoglobulin and T-cell receptor gene rearrangement are now available with detection of BCR gene-rearrangement available in the near future. These new offerings expand the laboratory's role in diagnostic hematopathology and reflect the Pathology Department's commitment to developing state-of-the-art diagnostic techniques.

New developments in the laboratory in the upcoming year will include implementation of direct and two-color staining with monoclonal antibodies. In addition, a new cytometer accessory is being evaluated that may substantially reduce processing time. These developmental changes should increase productivity while decreasing turnaround time for clinical samples. Marketing of the Flow Cytometry Laboratory through M-Labs has also begun with an increase in specimens being referred from outside sources. Work units are being established and evaluated in the laboratory to help document case load and potential problem areas. Finally, the laboratory is developing more comprehensive quality control/assurance testing, making it one of the limited number of flow cytometry facilities so organized.

Curtis A.Hanson, M.D.
Lloyd M. Stoolman, M.D.

Directors
Clinical Flow Cytometry Laboratory

CLINICAL HEMATOLOGY LABORATORY

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LABORATORY ACTIVITIES:

1. During the past fiscal year, the total number of billable tests in the Hematopathology Laboratory has increased by 12 per cent over last year. The increase in labor-intensive laboratory tests is as follows:

    a. 17 per cent increase in the total number of differential white blood cell counts with an increase of 26 per cent of differential counts requiring pathologist's review.
    b. 9 per cent increase in the total number of body fluid counts and differential white cell counts and a 14 per cent increase of these differentials requiring review.

2. A formal bone marrow sign-out has been successfully implemented.

3. A formal sign-out of abnormal blood smears from Falzone Laboratories (circa 40/month) has been added to the daily review of abnormal in-house blood smears, body fluids and joint fluids.

4. Acquisition of Coulter S-Plus Stacker Instruments.

TEACHING ACTIVITIES:

A. Pathology House Officers participated in the following activities:
    1. Daily review of abnormal blood smears, body fluids, bone marrow aspirates, bone marrow biopsies, and in-house lymph node biopsies.
    2. Review of consultation cases in hematopathology (lymph node biopsies, bone marrow biopsies, aspirates, and splenectomy specimens).
    3. Correlation of morphology with special studies (cytochemistry, flow cytometry, immunoperoxidase and occasionally electron microscopy).
    4. Daily review of abnormal blood smears from M-Lab clients.
    5. A formal teaching program for House Officers has been initiated.
    6. Review of SWOG cases.
    7. Weekly Interdepartmental Lymphoma Conference.

B. Andrew D. Leavitt, M.D., one of the Chief Residents in Internal Medicine spent one month on the Hematopathology Service prior to starting a Fellowship in Hematology/Oncology in San Francisco.

FY 87/88 GOALS:

A. Investigate the possibility of introducing the automated 5-part differential white blood cell count with the hope of further decreasing the number of manual white blood cell count differentials.
B. Instituting a Journal Club in Hematopathology.

Bertram Schnitzer, M.D.

Curtis A. Hanson, M.D.

Directors
Clinical Hematology Laboratory

CLINICAL MICROBIOLOGY LABORATORY

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CLINICAL ACTIVITIES:

Based on the first 10 months of activity of this period, 110,805 microbiology tests were completed which is an increased of 10% over the same period of last year. M-Labs tests accounted for 4.3% of this test volume, an increase of 108% above last year's volume. Tests showing volume increases of 20% to 95% in order from highest to lowest include: Ureaplasma culture, Neisseria screen, Chlamydia test, Clostridium difficile toxin, fungus culture, ova and parasites, routine sterile culture, Rubella antibody screen, stool culture, anaerobe culture and Streptococcus screen.

Conversion to the new Cerner computer system was the single largest accomplishment requiring major contributions by all staff members with the Chief Technologist in the leadership role. This was a very complex process requiring much planning, staff coordination and followup. This effort included: the building of data bases, designing and testing online worksheets, developing workflow, staff training and culminated with successful system conversion and stabilization.

Several other goals were achieved. In response to clinical requests, an Acanthamoeba culture procedure was added as a new test and the guidelines for CSF direct antigen testing were tightened to produced more clinically significant results with a corresponding 31% reduction in test volume. A method to improve the quality of sputum specimens received and processed has been investigated and is to be started. In cooperation with the Infectious Disease Section, several modifications were made on the antimicrobic susceptibility panels. Areas of the laboratory where "Body Substance Precautions" procedures are necessary have been instituted in the specimen receiving and blood culture areas. A Quality Assurance program has been developed and implemented. A much-needed air handling system was installed in the autoclave/discard room.

DEVELOPMENTAL ACTIVITIES:

New diagnostic kits were evaluated for the rapid detection or identification of bacteria that involved use of ELISA technology:

- the Allelix group A Streptococcal detection device
- the Boots Celltech Chlamydia system

and DNA probe technology:

- Mycobacterium tuberculosis direct specimen and culture confirmation
- Chlamydia trachomatis direct specimen test

In addition, several clinical and technical studies were conducted with other departments:

- Vascular contamination study (Surgery)
- Detection on group B Streptococci in vaginal specimens using antibody-coated latex beads (Ob/Gyn)
- Monitoring for gentamicin-resistant Enterococcus (Medicine)
- Group A Streptococcus in Pediatric Walk-in Clinic (Pediatrics)
- Contamination of hyperalimentation fluids (Pharmacy)

EDUCATIONAL ACTIVITIES:

A. PRESENTATIONS AT NATIONAL MEETINGS:

1. Lockwood, W., Friedman, C., Bus, N., Pierson, C. and Gaynes, R.: An Outbreak of Mycobacterium terrae in Clinical Specimens Associated with Potable Water. IC-AAC, 1987.
2. Denys, G., Pierson, C., Berry, D. and Robinson, B.: Comparison of Commercial and Reference Broth Microdilution, Disk Diffusion and Disk Elution Susceptibility Test Methods for Mycobacterium chelonae and Mycobacterium fortuitum. IC-AAC, 1987.
3. Young, C. and McClatchey, K.D.: Use of Latex Agglutination for the Presumptive Identification of Postive Blood Cultures. IC-AAC, 1987.
4. McNeeley, G., Pierson, C., Weir, S., and Hoeft-Loyer, C.: The Susceptibility of Anaerobic Pathogens to Ampicillin plus Sulbactam versus Cefoxitin. ASM, 1988.
5. Shalis, P.J., Chief Technologist, presented "PathNet 300 Microbiology at the University of Michigan" at the National Cerner Corporation Microbiology Users Group Meeting held in Miami, 1988.

B. PRESENTATIONS AT REGIONAL MEETINGS:

1. Young, C., and McClatchey, K.D.: "Use of Latex Agglutination for Presumptive Identification of Positive Blood Cultures", South Central Association for Clinical Microbiology, 1988.
2. Pierson, C.: "Use of DNA Probe for Detection of AFB", TriCounty Clinical Microbiology Association, 1987.

C. PUBLICATIONS

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Zervos, M.J., Patterson, J.E., Edberg, S., Pierson, C.L., Kauffman, C.A., Mikesell, T.S. and Schaberg, D.R.: Single-Concentration Broth Microdilution Test for Detection of High-level Aminoglycoside Resistance in Enterococci. J. of Clin. Microbiol. 1987;25:2553-2444.
2. Cuchural, G.J., Tally, F.P., Jacobus, N.V., Aldridge, K., Cleary, T., Finegold, S.M., Hill, G., Iannini, P., O'Keefe, J.P., Pierson, C.L., Crook D., Russo, T. and Hecht, D.: Susceptibility of the Bacteroides fragilis Group in the United States: Analysis by Site of Isolation. Antimicrobial Agents Chemother. 1988;32:717-722.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Lockwood, W., Friedman, C., Bus, N., Pierson, C.L. and Gaynes, R.: An outbreak of Mycobacterium terrae in Clinical Specimens Associated with Potable Water. Abstracts, Interscience Conference on Antimicrobial Agents and Chemotherapy. 1987;1286:321.
2. Denys, G., Pierson, C.L., Berry, D. and Robinson, B.: Comparison of Commercial and Reference Broth Microdilution, Disk Diffusion and Disk Elution Susceptibility Test Methods for Mycobacterium chelonae and Mycobacterium fortuitum. Abstracts, Interscience Conference on Antimicrobial Agents and Chemotherapy, 1987;1361:333.
3. McNeeley, G., Pierson, C.L., Weir, S. and Hoeft-Loyer, C.: The Susceptibility of Anaerobic Pathogens to Ampicillin plus Sulbactam versus Cefoxitin. Abstracts, American Society for Microbiology, 1988;A130:22.

D. PATHOLOGY HOUSE OFFICER TRAINING PROGRAM

1. Each of our Senior Medical Technologists gave lectures and prepared laboratory demonstration involving their areas of expertise to two groups of Pathology House Officers.
2. Twelve Pathology House Officers received a one month rotation into the Clinical Microbiology Laboratory during the year.

Kenneth D. McClatchey, M.D., D.D.S.
Director
Clinical Microbiology Laboratory

Carl L. Pierson, Ph.D.
Associate Director
Clinical Microbiology Laboratory

PATHOLOGY DATA SYSTEMS

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The most significant event which occurred during the last academic year with regard to Pathology Data Systems (PDS) was the installation of a new laboratory information system on February 13, 1988. The new software, PathNet (Version 300), was developed by the Cerner Corporation in conjunction with the Department of Pathology. The University of Michigan Hospitals complex was the first site in the country to install and run this brand new version of the PathNet software. Since the installation in February, teams of laboratory personnel from hospitals around the country have come to Ann Arbor to examine the system in operation.

Listed below are some characteristics and measures of the new laboratory information system. As might be expected with any new complex piece of software, there were some initial "teething" problems with the system. Nevertheless, it can be seen from these data that the system is accommodating well to the very heavy test volume in the institution.

DESCRIPTION OF THE CENTRAL COMPUTER CLUSTER:

Software	PathNet 300
Processing power	Two 6-MIPS processors (VAX 8700s)
Memory	64 Mbytes each
Disk storage	11.6 gigabytes (cluster-wide)

PERIPHERAL DEVICES THROUGHOUT THE HOSPITAL COMPLEX:

Lab printers	About 60
Lab terminals	About 170
PCs (clinical areas)	About 100
VT220s (clinical areas)	About 100
Stat printers	10 direct to PathNet 10 via HIS in ICUs
Client printers	14

DAILY ACTIVITY LEVELS:

Accessions	2,700-3,200 (specimen collections)
Test orders	7,300-8,000
Test results	47,000-55,000 (not all reported)
Result inquiry sessions	1,500-1,800/day

One of the most powerful and novel features of the new PathNet system is its ability to generate *ad hoc* reports based on interpatient comparisons. The ability to generate such reports will have a profound effect on quality assurance and risk management in the future, ultimately shifting the primary locus of such activities from chart audits and retrospective incident reporting to a proactive interrogation of the electronic laboratory data base.

In addition to the patient service responsibilities, PDS personnel also support microcomputer, research, and office system applications within the Department. Despite the demands of bringing up the new laboratory information system, PDS personnel were also active throughout the year in supporting these other computer applications. A strategic plan for the Department has also been formulated with strong emphasis on workstations for individual faculty members which will operate on both a standalone basis as well as utilize many of the VAX cluster resources. This strategic plan will be further refined in the coming year.

Bruce A. Friedman, M.D.

Director
Pathology Data Systems

EDUCATIONAL ACTIVITIES*

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The Department of Pathology has continued to offer a number of diverse programs within the Medical School Dental School, School of Public Health, College of Literature, Science and the Arts, and the Rackham School of Graduate Studies. These include courses requiring formal lecture and laboratory exercises, as well as providing for senior medical student pathology elective clerkships. Many faculty continue to serve on graduate student thesis committees and supervise medical student research experiences. Within the Medical Center context, Departmental teaching activities extend not only to medical students, but also house officers and the staff of many clinical departments in the form of regularly scheduled formal conferences. Departmental teaching also extends to practitioners in the region and nation through courses given through Continuing Medical Education Programs of the University of Michigan and the International Association of Pathologists (IAP).

This represent the fourth year in which the Sophomore Pathology Course (Path 600) has been taught under a "revised" teaching format. The structure of the course is predicated on the students' acceptance of a significant responsibility for their own education, under faculty guidance. This is achieved through the use of focused faculty lectures, directed laboratory sessions, and more emphasis placed on student home study requiring text reading, utilization of microscopes, and slide sets, and descriptive syllabi. During the past year independent study exercises in hematopathology and renal pathology were developed and made available to the students through the Learning Resource Center. Formal course evaluation indicated that the revised course format continues to function smoothly and is generally well accepted by the students. In addition, efforts to closely correlate the Introduction to Clinical Sciences Course (ICS-601) with the Sophomore Pathology Course continues to function to enhance the students' educational experience and reinforce "core material". A formal Departmental review of medical student teaching will take place at a Departmental faculty retreat in June, 1988.

Following review of the combined Dental/Graduate Student Course last year a separate graduate student section was formulated as an alternative to teaching systemic pathology to graduate students. This section was composed of approximately 15 students and focused on the study of the cellular/molecular basis of the inflammatory response and the role of the extracellular matrix in disease. This allowed more indepth discussion of the specific topic areas in a small group seminar format and was generally received well received by the students. Further development of a graduate course in general pathology separate from the dental course has continued and will be offered in the upcoming year.

During the past year, a proposal for the development of a graduate program based in the Department of Pathology has been developed and it is anticipated that it will be offered

beginning in 1989. The primary focus of this graduate program will be on the cellular and molecular basis of disease processes and will provide training in basic research relevant to the student of human disease.

*House Officer training, postdoctoral research training, and the Medical Technology program are discussed elsewhere.

Formal courses given within the Department include:

I. COURSES IN THE "STANDARD" MEDICAL CURRICULUM

A. ICS 500:
   1. Introductory Lectures on General Pathology (20 contact hours).

B. ICS 600/601:
   1. Immunopathology Sequence (15 contact hours).
   2. Clinicopathologic Conferences (10 contact hours).
   3. Selected Topics in Surgical Pathology.

C. NBS 600:
   1. Neuropathology (18 contact hours).

D. Pathology 600:
   1. 67 hours of whole-class lecture, 37 hours of laboratory (in each of four sections) (104 contact hours).

E. Pathology Clerkships:
   1. Elected by 35 students at University Hospitals.

II. COURSES IN THE DENTAL CURRICULUM GRADUATE SCHOOL LS&A ALLIED HEALTH/SCHOOL OF PUBLIC HEALTH:

A. Pathology 630:
   1. General Pathology Lectures (45 contact hours).

B. Pathology 631:
   1. Pathology Laboratory (90 contact hours) each of three sections (assisted by Oral Pathology staff).
   2. Graduate Student Section.

C. Pathology 858:
   1. Neuropathology (23 contact hours).

III. POSTGRADUATE MEDICINE/CONTINUING MEDICAL EDUCATION:

A. Current Topics in Blood Banking, June 1-3, 1988.
B. Clinical Laboratory Computers, June 9-11, 1988.

IV. CLINICAL CONFERENCES:

The Department of Pathology provides an important educational service tomany other clinical departments through regular participation in interdepartmental working/teaching conference. The Department is involved in many such conferences on a weekly, bi-weekly, and monthly basis. The units served include:

Internal Medicine

- Gastroenterology
- Nephrology
- Hematology/Oncology
- Nuclear Medicine
- Pulmonary Medicine
- Arthritis
- Cardiology
- General (Necropsy Review, CPC)

Dermatology

Thoracic Surgery

Urology

Pediatrics

- Cardiology
- Oncology
- Gastroenterology
- General (Death Conference, CPC)

Obstetrics and Gynecology

- Oncology

Oral Surgery

General Surgery (Breast, GI)

Otorhinolaryngology

Joseph C. Fantone, M.D.
Director
Educational Activities

RESIDENT TRAINING PROGRAM

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I. The Residency Training Program, has recruited five outstanding candidates in the last year:

1. Sarah E.S. Campbell, Wayne State University, School of Medicine, Detroit, Michigan.

2. Barbara Ann Markey, M.D., Wayne State University, School of Medicine, Detroit, Michigan.

3. Philip Lee Perkins, M.D., The University of Michigan, School of Medicine, Ann Arbor, Michigan.

4. Loretta Jeanne Register, M.D., University of South Florida, School of Medicine, Tampa, Florida.

5. Cheryl Ann Utiger, M.D., The University of Michigan, School of Medicine, Ann Arbor, Michigan.

II. Activities:

A. Recruitment activities:
   1. 280 letters of inquiry.
   2. 170 completed applications received.
   3. 30 candidates invited to interview.

B. The establishment of the Coagulation rotation: Several residents have already served on this rotation. Residents' opinions have been very positive regarding the educational value of this rotation.

C. Clinical Hematology: This rotation has been bolstered by the addition of Dr. Hanson to the Hematopathology staff. At present, two to three residents rotate on the service each month. Other residents plan hematology electives.

D. Beginning July, 1988, two residents will be assigned to Room I. This will reduce the service load of the Room I resident and allow for more study and reading time (this was the only aspect of the Residency Program which was viewed in a negative light by last year's resident candidates).

E. Formal incorporation of M-Labs pathology sign out into the daily residents activities.

F. Establishment of a centralized residency program budget.

G. "Computerization" of residency training program records and files.

H. Acquisition of new microscopes for resident use.

I. Revision of resident evaluation forms.

J. Establishment of resident's evaluation committee (Members: Drs. Flint, Keren, and Naylor).

K. Establishment of formal yearly evaluations for House Officers II - IV and twice yearly evaluations of House Officers I.
L. Establishment of resident counseling sessions.
M. Conception and implementation of "Super Saturday": Saturday autopsy sign out.
N. Revision of Anatomic Pathology Didactic Evening Seminars.
O. Successful implementation of six month rotation blocks in Anatomic and Clinical Pathology.
P. Streamlining of resident recruitment activities.
Q. Modification of House Officer I service schedules in order to further reduce overdue autopsy reports.
R. Institution of a Molecular Biology Didactic Seminar Series.
S. Career counseling fair: M-3 students, Spring, 1988.
T. ASCP Inservice Examination for Residents (Residents' test scores were significantly higher than the national averages).

Andrew Flint, M.D.
Director
Residency Training Program

ADMINISTRATIVE/FINANCIAL AFFAIRS SECTION

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The Administrative and Financial Affairs Section, which is under the auspices of the Office of the Chairman and his designee, includes five subsections which are organized as follows:

A. Administrative Support Center - Pathology Laboratories:
   1. Thomas D. Morrow, Assistant Clinical Administrator
   2. Beverly J. Smith, Administrative Assistant
   3. Administrative Coordinator (open position)
      a. Surgical Pathology Clerical Area
         - Edith Gilchrist-Brayton
         - June M. Possley
   4. Nancy A. Coray, Financial Analyst and Billing Coordinator

B. Clinical Faculty Offices, University Hospitals
   1. Marjorie H. Owens, Office Supervisor

C. Medical Service Plan (Billing Office and Fiscal Affairs)
   1. Douglas M. Kennedy, Manager
   2. Douglas E. Harris, Financial Analyst

D. Office of Grants and Contract Administration
   1. Maria A. Ceo, Administrative Associate

E. Office of the Chairman
   1. Mary Anne Tishma, Staff Assistant
   2. Laura Blythe, Administrative Assistant

In addition to the management of daily activities, each of the units completed major projects. They are as follows:

ADMINISTRATIVE SUPPORT CENTER - PATHOLOGY LABORATORIES

1. The M-Labs Program continues to expand and this year we initiated service agreements with new clients: Falzone Laboratories, Foote Hospital and Port Huron Hospital. The addition of a Client Services Representative (Ms. Sandra Gluck) dedicated to attracting and retaining clients for this Program, has assisted in its continued success.

2. Completed and distributed to our M-Labs clients, a Users' Manual and Directory of Services. This manual provides an overall explanation of all services provided by the M-Labs Program as well as the requirements for processing of specimens.

3. Consolidated the Special Limited Function Laboratory, Cytogenetics and planned for the consolidation of the following laboratories: Lithium; Tissue Typing; GI Endocrine; as well as planning to perform the C Difficile Toxin and Beta Lipoprotein procedures in the Pathology Laboratories.

4. Finalized an agreement with the Financial Division to begin M-Labs Program billing to third party payers. We will provide a detailed statement for services provided and the Hospital Accounting Department will bill the patients' insurance carriers.

5. Assisted with the implementation of the CERNER Laboratory Computer System.

6. Developed a new Budget and Variance reporting system of the Pathology Laboratories for Departmental and Hospital Administration.

CLINICAL FACULTY OFFICES

1. The AGH Library has been catalogued using automated reporting and all professional journals have been combined and are now recorded in the automated system.

2. All secretarial support staff have been assigned IBM Personal Computers and intensive training using the Microsoft Word software program has begun.

3. Administration of the House Officer Training Program is now performed in the Clinical Faculty Offices.

MEDICAL SERVICE PLAN (BILLING OFFICE AND FISCAL AFFAIRS)

1. The continued growth in the M-Labs Program has necessitated the development of a procedures manual to efficiently manage professional fee billing. A system was developed to obtain patient demographic information which has saved time for billing. The development of a collection policy has enhanced the Department's relationship with its M-Labs patients and our clients.

2. Developed a Billing Office Procedures Manual which is used by current staff and in the training of new staff.

3. Revised our policy for granting of Professional Courtesy and implemented the new policy in December 1987.

4. Development of PC software, including the ability to download existing information from the IDX Billing system to a personal computer. This has allowed us to merge and manipulate data to provide timely financial reports, produce Patient Information forms and audit complicated or unidentified accounts.

5. Designed and developed a series of Microsoft Word Training sessions in cooperation with the staff of Pathology Data Systems.

6. Completed "Phase III" of the renovation to the Pathology Building which included Dr. Kunkel's Research Laboratory, the Histology Laboratory, the Cutting/Tissue Dumping Room, Third Level Restrooms and the Clinical Flow Cytometry Laboratory.

GRANT AND CONTRACT ADMINISTRATION

1. Served as Departmental liaison with architects and construction staff for several projects in the MSRBI and Medical Science I Buildings including: three research laboratories in the MSRBI; and, the Photography Unit and Animal Rooms in the Medical Science I Building.

2. Coordinated the submission of the Program Project Competing Renewal application including the subsequent site visit in June 1988.

3. Processed personnel paperwork including posting of positions, interviewing, etc., for 32 new permanent employees; 27 temporary employees and 3 promotions and terminations.

4. Processed 48 grant and contract applications to various sponsors.

5. Coordinated the quarterly publication of the Pathology Telephone Directory including inputting and updating of personnel data and distribution of the final Directory.

6. Development of an RBase database and Users' Manual for the Photography Unit for monitoring volume of work in the unit and a Lotus Program for administration of House Officer expenditures (non-salary).

7. Coordinated the Flow Cytometry Research Billing. This included processing of transfer vouchers, obtaining account numbers from investigators, following up on delinquent accounts and monitoring the MSP Flow Cytometry account with total billings of $45,000.

GENERAL

1. Reorganized the administrative structure of the Department, reassigning a full time supervisor to the Administrative Support Center and assigning all M-Labs and Laboratory billing responsibilities to administrative personnel in this area. An Office Supervisor was appointed in the Clinical Faculty Offices and a Staff Assistant to the Office of the Chairman.

2. Served on the Search Committee for the Director of the Medical Service Plan which was completed with the hiring of Mr. G. Philip Schrodel in February 1988.

3. Completed data for use by an external review committee for the Division of Anatomic Pathology. This information will also be used during the search process for a Director of Anatomic Pathology. Met with this committee and participated in the interview process for the Director of Anatomic Pathology.

4. Obtained approval from Hospital Administration for the expansion of the Frozen Section Room and will begin renovation to this space in the next Fiscal Year. Additionally, approval has been granted to renovate the Clinical Faculty Office area to accommodate the addition of several new faculty members including the new Director of Anatomic Pathology.

5. Appointed as Executive Secretary of the A. James French Society of Pathologists. The first business meeting of the Society and guest lectureship was held in concert with the International Academy of Pathologists (IAP) Meeting in February 1988.

6. Assisted with Federal registration of the M-Labs Trademark.

7. Negotiated settlement of outstanding payments due for service provided M-Labs clients with Metric Laboratories and MDS Laboratories, Inc.

8. Became a charter member of the Pathology Management Assembly of the Medical Group Management Association.

9. Negotiated contracts for M-Labs services with Port Huron Hospital and Foote Hospital.

SUMMARY OF FINANCIAL DATA

A. Grants and Contracts:

71 Active grants, contracts and other accounts

Total Direct Expenditures	$3,200,852	
Indirect Research Expenditures	$1,317,569	
Total Sponsored Projects		$4,518,421
Other Expenditures	$1,918,112	
Total Expenses		$6,436,533

B. Medical Service Plan:

Average number of active accounts	10,517
Total number of charge entries	57,332
Gross billings	$6,446,558
Net Collections	$3,300,173

C. Pathology Laboratories:

Number of fee code procedures	2,842,469
Number of laboratory test results (estimate)	11,101,000
Gross Revenue	$65,027,819
Direct Expenses	$22,241,112

Details regarding the financial data included in this report are available in the Office of the Chairman.

Respectfully Submitted,

Eugene J. Napolitan
Administrator

VETERANS ADMINISTRATION MEDICAL CENTER
LABORATORY SERVICE

DEPARTMENT OF PATHOLOGY - UNIVERSITY OF MICHIGAN
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INTRODUCTION:

The VA Medical Center Laboratory Service maintains a strong and close relationship with the University of Michigan Medical Center Department of Pathology. Pathology residents receive part of their training in surgical and autopsy pathology at the VA. Electives in electron microscopy and in research methods are available at the VA. There are frequent mutual consultation activities and educational seminars that are attended by both staffs. The VA staff members participate in teaching of medical students and residents. Research activities are frequently cooperative in nature. There are four full time pathologists within the VA Laboratory Service whose teaching and consultation are performed on an irregular schedule.

ANATOMIC PATHOLOGY:

A. Surgical Pathology: 4,084 cases have been completed and nearly all were processed by a resident with close supervision of a staff pathologist. The resident acts as coordinator of the surgical pathology section and is responsible for the initial discussion of cases with clinicians. The teaching activities are intense and involve all of the staff. Interesting surgical cases are reviewed in a weekly conference with all staff in attendance.

B. Autopsy Pathology: 143 autopsies were done during this time, the majority dissected by a resident and completed microscopically by the resident with staff supervision. The autopsy rate of 52% speaks to the clinical interest in the autopsy. A monthly autopsy conference reviews in depth a selection of cases with the internal medicine department.

C. Cytology: 2,311 cases were reported during this time. Although the resident does not directly serve in this section, this material is available to correlate with surgical and autopsy cases and is used for resident teaching on an ad hoc basis.

D. Electron Microscopy: An elective rotation is available in electron microscopy taught by Dr. Beals. In addition, the resident is instructed in the use of electron microscopy along with surgical pathology, autopsy and cytology.

CLINICAL PATHOLOGY:

A wide range of clinical pathology procedures is available in this laboratory. Over 1.6 million unweighted tests were done during this period in Chemistry, Microbiology, Hematology and Blood Bank. Although residents are not directly involved in these areas of the laboratory, they are free to observe procedures, obtain and use data and participate in activities that may relate to their official rotation schedules. Dr. Chensue has assumed the duties of clinical pathologist with particular emphasis in hematology and chemistry.

EDUCATION AND TEACHING:

All staff members devote a considerable amount of time in "on-the-job" teaching of residents in surgical and autopsy pathology. In addition, Dr. Beals has conducted bi-weekly conferences in electron microscopy for residents, Dr. Weatherbee gave bone pathology lectures to medical students and Dr. Burkholder taught both medical and dental student laboratories.

RESEARCH:

Dr. Beals continues as a member of the VA Research and Development Committee. Dr. Weatherbee serves on the Human Studies Committee. Dr. Beals continues his sponsored research and Dr. Chensue has received funding for his research from both the RAG system and VA Merit Review. All staff members have participated with other investigators in a number of studies usually clinically oriented.

SUMMARY:

The pathology staff at the VA are highly committed to the practice of high quality medicine in this Medical Center. Close cooperation with the University of Michigan is considered necessary to accomplish this goal. Every effort is made to improve and strengthen the professional interchange between the two institutions. Our aim is to assure that there are mutual benefits in this interaction. Although our first responsibility is toward proper diagnosis and care of patients, we are also dedicated to high quality research and education.

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