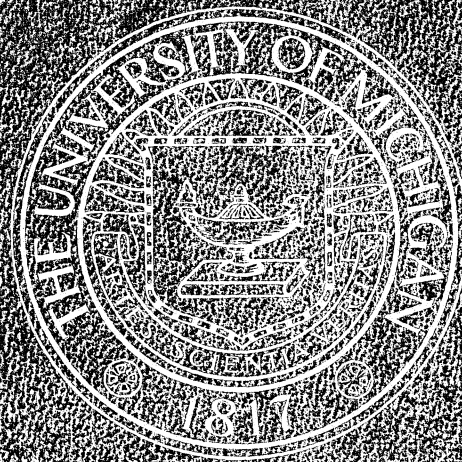


THE UNIVERSITY OF MICHIGAN

Department of Pathology

ANNUAL REPORT



1 July 1985 - 30 June 1986

**THE UNIVERSITY OF MICHIGAN**

**Department of Pathology**

**ANNUAL REPORT**



**1 July 1985 - 30 June 1986**





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## **List of Faculty**

LIST OF FACULTY

<u>Name</u>	<u>Rank</u>	<u>Institutional Affiliation</u>
Abell, Murray R.	Professor Emeritus	The University of Michigan
Abrams, Gerald D.	Professor Director, Anatomic Pathology	The University of Michigan
Annesley, Thomas M.	Assistant Professor	The University of Michigan
Appelman, Henry D.	Professor and Associate Director, Anatomic Pathology	The University of Michigan
Barnes, Barbara A.	Assistant Professor	The University of Michigan
Beals, Theodore F.	Assistant Professor	Veterans Administration Medical Center
Blaivas, Mila I.	Clinical Assistant Professor	The University of Michigan
Burkholder, Peter M.	Professor and	Veterans Administration Medical Center
Capps, Rodney D.	Assistant Professor	The University of Michigan
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
Duque, Ricardo	Assistant Professor	The University of Michigan
England, Barry G.	Associate Professor	The University of Michigan
Fantone, Joseph C.	Assistant Professor	The University of Michigan
Fine, Gerald***	Professor	Henry Ford Hospital
Flint, Andrew	Assistant Professor	The University of Michigan
Friedman, Bruce A.	Professor	The University of Michigan



<u>Name</u>	<u>Rank</u>	<u>Institutional Affiliation</u>
Giacherio, Donald	Instructor	The University of Michigan
Gikas, Paul W.	Professor	The University of Michigan
Gluck, Sandra C.	Instructor	The University of Michigan
Hanks, Carl T.*	Associate 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	The University of Michigan
Hicks, Samuel P.	Professor	The University of Michigan
Hinerman, Dorin L.	Professor	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.	Associate Professor	The University of Michigan
Kunkel, Steven L.	Assistant Professor	The University of Michigan
Lloyd, Ricardo V.	Assistant Professor	The University of Michigan
Marasco, Wayne	Research Investigator	The University of Michigan
McClatchey, Kenneth D.	Associate Professor and Associate Chairman	University of Michigan
McCoy, J. Philip	Instructor	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

<u>Name</u>	<u>Rank</u>	<u>Institutional Affiliation</u>
Oberman, Harold A.	Professor and Director, Clinical Laboratories	The University of Michigan
Phan, Sem H.	Assistant Professor	The University of Michigan
Pierson, Carl L.	Assistant Professor	The University of Michigan
Regezi, Joseph A.*	Associate Professor	The University of Michigan
Rowe, Nathaniel H.*	Professor	The University of Michigan
Saeed, Sheikh M.***	Associate Professor	Henry Ford Hospital
Schmidt, Robert W.	Professor	Wayne County General Hospital
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 Research Investigator †	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
Weatherbee, Lee	Associate Professor	The University of Michigan
Wolter, J. Reimer <sup>+</sup>	Professor	The University of Michigan

- \* Joint Appointment, Dental School
- \*\* Clinical Appointment, Warner-Lambert, Parke Davis
- \*\*\* Clinical Appointment, Henry Ford Hospital
- † Joint Appointment, Department of Pediatrics and Communicable Diseases
- ++ Joint Appointment, Department of Ophthalmology



# **OVERVIEW**

THE UNIVERSITY OF MICHIGAN MEDICAL SCHOOL  
DEPARTMENT OF PATHOLOGY

ANNUAL REPORT FOR 1985/1986

OVERVIEW

The Department of Pathology continues to be vigorous and strong, although the rapidly shifting features of the medical care environment present substantial new challenges. With the opening of new, off-site, ambulatory clinical facilities in the Fall, 1986, the developing arrangements to implement a Health Maintenance Organization, and the movement towards capitated payment for health care services, the Department is moving carefully toward completely new arrangements for delivery of laboratory services.

During the past year two major events in service activities of the Department have taken place: a relocation of all laboratories from the old Main Hospital into the new University Hospitals as well as consolidation of Special Limited Function Laboratories into the Central Pathology Laboratories. With regard to the former, in addition to relocation of the Laboratories described above, major segments of the Surgical Pathology and Cytopathology functions were relocated into the new University Hospitals. Consolidation into the Central Pathology Laboratories has chiefly included Laboratories previously supervised by the Department of Internal Medicine and the Department of Pediatrics and Communicable Diseases. This merger process was very smooth, thanks to the dedicated efforts by faculty in the Department of Pathology, the faculty from Internal Medicine and Pediatrics, as well as the ability of these groups to work for the good of the institution. There appears to be excellent acceptance of the new arrangements developed under the consolidation process, and the institution is achieving substantial financial savings as a result of these events. The relocation of a major part of Surgical Pathology to the new Hospitals facilities has resulted in a physical separation of our Surgical Pathology faculty and staff from those remaining in the Pathology Building. This disadvantage has been offset by the greatly increased interactions between Surgical Pathologists and other clinicians, especially as exemplified by Surgical Pathology Reading Room Number 1, in which all frozen sections are handled and is in direct proximity to the Operating Rooms. The increased space of the Clinical Laboratories and the excellent facilities have greatly enhanced the attractiveness of these Laboratories.

Research programs in the Department continue to be healthy, with several faculty members over the past year receiving new research grant awards. The health of the research activities is reflected in the appended data describing the research grant support. Renewed funding of the NIH Training Grant from the National Heart, Lung and Blood Institute assures stable support for the postdoctoral program in Immunopathology for another five years. Dr. Wayne Marasco received the Dean's Medical Student Award for 1986, which is a great tribute both to the recipient as well as to the vigor of the Department's research enterprise. Douglas Feltner, having recently completed his second year of medical school, was selected as one of the Hughes Medical Student Scholars and will spend the next twelve months at the National Institutes of Health. Again, this is a tribute to Douglas, as well as to the research environment in the Department of Pathology.

In April, 1986, we moved into new research spaces on the seventh floor of the Medical Science Research Building I. The Pathology research programs in the new facility include an emphasis on leukocyte pathophysiology (Johnson, Ward and Till) and blend with the similar research activities of Pediatric faculty located on the same floor of the new building. Some of the space will also house the newly recruited faculty, such as Dr. Vishva Dixit, who arrived in July, 1986, from Washington University (St. Louis) and is engaged in molecular genetics research. At this time we are launching a major recruitment effort to identify individuals who have credentials in the area of molecular genetics and Pathology. In addition to Dr. Dixit, we anticipate the arrival of several new investigators within the next twelve months. It is our hope to be able to have a strong focus of research expertise in the molecular genetics area and that this will have strong positive impacts, both in the other research programs in the Department of Pathology, as well as in the diagnostic area of Surgical Pathology.

New developments in the teaching area include a restructuring of the approaches to the Second Year Pathology Laboratory Course, featuring "team teaching" in a variety of highly specialized areas of Pathology. This has increased the efficiency of the teaching laboratories and, we believe, has strengthened and improved Pathology teaching for Second Year Medical Students. This new academic year will be the last year of the Medical Technology Program, which will cease to exist in the Summer of 1987. This has been a strong and productive program that has had to give way to other priorities more directly linked to the research mission of the Department and the Medical School. With respect to the Pathology Residency Program, we have reluctantly terminated rotations of House Officers to the Hematopathology Service at St. Joseph Mercy Hospital (Ann Arbor). We appreciate the dedication of physicians at that institution to our Pathology Residents. As of July, 1986, we had commenced limited reciprocal rotations of our Residents and those at Beaumont Hospital (Royal Oak, Michigan), taking advantage of some of the unique educational opportunities at both institutions. Within twelve months we will carefully assess this exchange program in order to determine if it should be modified.

At the present time we are proceeding ahead with the M-Labs Program, developing marketing, courier and other services necessary for the program. M-Labs represents one component of our strategy as we become involved in offsite service activities. We anticipate that this program will facilitate the growth of both Anatomic and Clinical Pathology Services as we strive to increase the business of our laboratories by the capture of business beyond the walls of the Medical Center. This is consistent with the rapidly changing focus of health care activities from the in-patient to the ambulatory setting and thus will also permit us to make available to the general public some of our highly specialized and unique diagnostic services.



Peter A. Ward, M.D.  
Professor and Chairman  
23 July 1986

## **Faculty Reports**

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Surgical Pathology Services - 23 weeks.
- B. Necropsy Service - on call.
- C. Pathologist, Cardiac Transplant Team.
- D. Consultant for Gastrointestinal Pathology.
- E. Consultant for Cardiovascular Pathology.

II. TEACHING ACTIVITIES:

- A. Freshman Medical Class:
  - 1. ICS 500, Sequence Coordinator and Lecturer , "Basic Concepts of Disease" - 20 contact hours.
  - 2. Histology 501, Clinical Correlations - two contact hours.
- B. Sophomore Medical Class:
  - 1. ICS 600, Clinico-Pathologic Conferences - nine contact hours.
  - 2. Pathology 600, Lecture, nine contact hours.
- C. Graduate School/Dental School/College of LS&A:
  - 1. Pathology 630, Course Co-Director and Lecturer - 22 contact hours.
  - 2. Pathology 631, Course Co-Director.
  - 3. Biology 262, Lecturer - two contact hours.
- D. Hospital:
  - 1. Cardiovascular Pathology Conference - monthly.
  - 2. Gastrointestinal Surgical Pathology Conference - monthly.
  - 3. Internal Medicine CPC - monthly.
  - 4. Internal Medicine - Necropsy Review - monthly.
  - 5. Gynecologic Pathology, Non-Oncologic - monthly.
- E. House Officers:
  - 1. Training in Surgical and Necropsy Pathology.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Pharmacologic studies on ischemic heart (B.R. Lucchesi, Principal Investigator).

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. Histopathologic aspects of coronary angioplasty (with W. O'Neil et. al.).
- D. Toxicity of mitometh (with D.E. Schteingart).
- E. Nephrotoxicity of chemotherapeutic and antibiotic agents (with V. Schweitzer, H.F.H.).

ARTICLES SUBMITTED FOR PUBLICATION:

- 1. Werns, S.W., Shea, M.J., Vaporcian, A., Phan, S.H., Abrams, G.D., Buda, A.J., Pitt, B. and Lucchesi, B.R.: Superoxide dismutase does not cause scar thinning after myocardial infarction.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

- A. Director of Surgical Pathology.
- B. Member - Medical Service Plan Executive Committee.

MEDICAL SCHOOL/HOSPITAL:

- A. Member, Academic Affairs Council, Medical School.
- B. Member, Ethics Committee, Hospital.
- C. Member, Artwork Committee, Hospital.
- D. Member, Standing Committee for Investigation of Misconduct in Research, Medical School.
- E. Member, Inteflex Policy Committee, Medical School.
- F. Member, Historical Collections Committee, Medical School.

REGIONAL AND NATIONAL:

- A. Member, Membership Committee, Gastrointestinal Pathology Club.
- B. Member, Expert Panel, Performance Improvement Program, CAP.
- C. Deputy Medical Examiner, Washtenaw County.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

- 1. Specialty Conference, GI Pathology, International Academy of Pathology, New Orleans, Louisiana, March, 1986.
- 2. Arthur Purdy Stout Society Lecturer, New Orleans, Louisiana, March, 1986.
- 3. Northern Michigan Summer Conference, Bellaire, Michigan, June, 1986.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

- 1. Kern, S.E., Cowen, M.E. and Abrams, G.D.: Malignant fibrous histiocytoma presenting as unilateral pulmonary thromboembolism and infarct. Human Pathol. 1985;16:1279-1281.

2. Jolly, S.R., Schumacher, W.A., Kunkel, S.L., Abrams, G.D., Liddicoat, J. and Lucchesi, B.R.: Platelet depletion in experimental myocardial infarction. *Basic Res. Cardiol.* 1985;80:269-279.
3. Werns, S.W., Shea, M.J., Mitsos, S.E., Dysko, R.C., Fantone, J.C., Schork, A., Abrams, G.D., Pitt, B. and Lucchesi, B.R.: Reduction of the size of infarction by allopurinol in the ischemic-reperfused canine heart. *Circulation* 1986;73:518-523.
4. Schweitzer, V.G., Rarey, K.E., Dolan, D.F., Abrams, G., Litterst, C.J. and Sheridan, C.: Ototoxicity of cisplatin vs. platinum analogs CBDCA (JM-8) and CHIP (JM-9) *Otol. Head Neck Surg.* 1986;94:458-470.
5. Mitsos, S.E., Askew, T.E., Fantone, J.C., Kunkel, S.L., Abrams, G.D., Schork, A. and Lucchesi, B.R.: Protective effects of N-2 mercaptopropionyl glycine against myocardial reperfusion injury after neutrophil depletion in the dog: Evidence for the role of intracellular-derived free radicals. *Circulation* 1986;73:1077-1086.
6. Agha, F.P., Nostrant, T.T., Abrams, G.D., Mazanec, M., VanMoll, L. and Gumucio, J.J.: Cytomegalovirus cholangitis in a homosexual man with acquired immune deficiency syndrome (AIDS). *Amer. J. Gastroent.* 1986, On Press.
7. Agha, F.P., Elta, G. and Abrams, G.D.: Ileal endometriosis causing acute small bowel obstruction. *Mt. Sinai J. Med.* 1986;53:497-500.

#### BOOKS AND CHAPTERS IN BOOKS

1. Abrams, G.D.: *Introduction to General Pathology: Mechanisms of Disease.*
  - Chapter 1. General Concepts of Disease - Health vs. Disease.
  - Chapter 2. Heredity, Environment, and Disease.
  - Chapter 3. Cellular Injury and Death.
  - Chapter 4. Response of the Body to Injury. Inflammation and Repair.
  - Chapter 5. Response of the Body to Immunologic Challenge.
  - Chapter 6. Response of the body to Infectious Disease.
  - Chapter 7. Disturbances of Circulation.
  - Chapter 8. Disturbances of Growth, Cellular Proliferation and Differentiation.

In "Pathophysiology", Price, S.A. and Wilson, L.M., Editors, 3rd Edition, McGraw Hill, New York, pp. 3-114, 1986.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

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.
- D. Consultant, MDS Laboratories.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

- A. House Officers.
  - 1. Participant, Clinical Pathology Rounds.
  - 2. Lecturer, Clinical Pathology Didactic Lecture Series.
  - 3. Daily Sign-out and Interpretation of Laboratory Results.
- B. Postgraduate Teaching.
  - 1. Planning Committee, Towsley Continuing Education Series in Clinical Chemistry and Immunology.
  - 2. Lectures on High Resolution Electrophoresis.
- C. Medical Technology.
  - 1. Course Instructor, Medical Technology Program (Pathology 410). Areas include thyroid physiology, general endocrinology, RIA/ immunochemical methods.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Co-Investigator: Smokeless Tobacco Research Council. "Significance of Immune Responses to Oral Carcinogens". D. Keren, Principal Investigator; (10% effort).

PROJECTS UNDER STUDY:

- A. Immune Response to Oral Carcinogens, with D. Giacherio and D. Keren.: "Immunogenicity of 2-AAF-Carrier Protein conjugates following parenteral and mucosal immunization in rats and rabbits". D. Keren, L. Anselmi, P. Lincoln, T. Annesley, and D. Giacherio. Cancer Letters (submitted).
- B. Characteristics of Cyclosporine in Blood, with D. Giacherio and C. Feldkamp. "Concentration dependent distribution of cyclosporine in blood". T. Annesley, D. Giacherio, and C. Feldkamp. Clin.Chem. (submitted).
- C. Lactate Production During Cardiac Manipulation Studies, with J. Nicklas and F. Morady. "Effect of programmed ventricular stimulation on

transmyocardial lactate extraction in patients with and without coronary artery disease". F. Morady, L. DiCarlo, R. Krol, M. DeBuitlier, J. Nicklas, and T. Annesley. Am.J.Cardiol.

- D. Lactate Dehydrogenase Isoenzymes Following Pulmonary Injury, with P. Ward and G. Till. "Cutaneous thermal burn and acute pulmonary injury. Appearance in serum of lung-related lactate dehydrogenase isoenzyme". T. Annesley, G. Till and P. Ward. J.Free Radicals Biol.Med.

#### IV. ADMINISTRATIVE ACTIVITIES:

##### DEPARTMENTAL:

- A. Director, Drug Analysis and Toxicology Laboratory.  
B. Executive Committee, Department of Pathology.

##### 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-Elect, American Association for Clinical Chemistry.

#### V. OTHER RELEVANT ACTIVITIES:

##### INVITED LECTURES/SEMINARS:

1. "Cyclosporine: Optimizing its Clinical Utility", Kalamazoo, Michigan, American Society of Medical Technologists, April, 1986.  
2. "Distribution of Cyclosporine in Blood", University of Utah, April, 1986.

#### VI. PUBLICATIONS:

##### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Ward, P.A., Till, G.O., Hatherill, J.R., Annesley, T.M., and Kunkel, R.: Systemic complement activation, lung injury and products of lipid peroxidation. J. Clin. Invest. 1985;76:517.  
2. Morady, F., DiCarlo, L., Krol, R., deBuitlier, M., Nicklas, J., and Annesley, R.: Effect of programmed ventricular stimulation on myocardial lactate extraction in patients with and without coronary disease. Am. Heart J. 1986;111:252.  
3. Annesley, T., Matz, K., Davenport, R. and Giacherio, D.: A high performance liquid chromatographic assay for tocainide with alternate application for the determination of lidocaine, procainamide, and n-acetylprocainamide. Res. Comm. Chem. Path. Pharm. 1986;51:86.  
4. Baerman, J., Annesley, T.M., DiCarlo, L., Foley, M.K., Nicklas, J., Crevey, B. and Morady, F.: Inter-relationships between serum levels of amiodarone treatment. Am. Heart J. 1986;111:644.

5. Annesley, T.M., Giacherio, D.A. and Feldkamp, C.S.: Concentration related distribution of cyclosporine in blood. *J. Clin. Immunoassay* 1986;9:53.
6. Guistina, T.A., Stewart, C.B., Ellis, C.M., Regezi, J.A., Annesley, T.M., Woo, T.Y. and Voorhees, J.J.: Topical application of isotretinoin gel improves oral lichen planus: A double blind clinical trial. *Arch. Dermatol.* 1986;122:534.
7. DiCarlo, L., Annesley, T.M., Morady, F., Krol, R. and Schurig, L.: Effects of magnesium sulfate on cardiac conduction and refractoriness in humans. *J. Am. Coll. Cardiol.* 1986;7:1356.
8. Annesley, T.M., Till, G.O. and Ward, P.A.: Cutaneous thermal burn and oxidant-mediated acute lung injury: Appearance in serum of lung-related LDH isoenzyme. *J. Free Radicals Biol. Med.* In Press.
9. Annesley, T.M., Clayton, L., Balogh, L., Matz, K. and Giacherio, D.: Liquid-Chromatographic Analysis for Cyclosporine with Use of a Microbore Column and Small Sample Volume. *Clin. Chem.* In Press.
10. D'Amato, C.J., O'Shea, K.S., Hicks, S.P., Glover, R.A. and Annesley, T.M.: Genetic prenatal aqueduct stenosis with hydrocephalus in rat. *J. Neuropath. Exp. Neurol.* In Press.
11. Rocher, L.L., Giacherio, D.A. and Annesley, T.M.: Refinement in HPLC analysis for cyclosporine, *Transplant. Proc.* In Press.

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

1. Clayton, L., Balogh, L.S., Matz, K., Patel, J., Annesley, T.M. and Giacherio, D.A.: HPLC analysis of cyclosporine utilizing minibore column and reduced specimen requirement. *Proc. First AACC Mich. Section Res. Exposition, Detroit, Michigan, 1985.*
2. Annesley, T.M., Goad, E., Feldkamp, C.S., Matz, K. and Giacherio, D.A.: The concentration related distribution of cyclosporine in blood. *Proc. First AACC Mich. Section Res. Exposition, Detroit, Michigan, 1985.*
3. Giacherio, D.A., Johnson, R.M., Matz, K. and Annesley, T.M.: Serum apolipoprotein assays performed by a turbidometric method on the Cobas-Bio centrifugal analyzer. *Proc. First AACC Mich. Section Res. Exposition, Detroit, Michigan, 1985.*
4. Coon, M.J., Smart, J.B., Annesley, T.M., Giacherio, D.A. and England, B.G.: A comparison study of serum digoxin levels in four immunoassay methods. *J. Med. Technol.* 1986;3:251.
5. Clayton, L., Annesley, T.M., Matz, K., Balogh, L., Patel, J. and Giacherio, D.: HPLC analysis of cyclosporine utilizing minibore column and reduced specimen requirement. *Clin. Chem.*, 1986;6:1050.
6. Giacherio, D. and Annesley, T.M.: Use of volume displacement correction factor with the Roche Isomune CK procedure for the quantitation of creatine kinase MB isoenzyme activity. *Clin. Chem.* 1986;6:1131.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

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

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

- A. Medical Students:
  - 1. Pathology 600, eight full class lectures.
  - 2. Senior medical student electives, seven months instruction in surgical pathology in the reading rooms.
  - 3. Senior medical student elective in pathology rotation, supervisor one month.
- B. House Officers:
  - 1. Surgical Pathology Conference, one hour per week.
  - 2. Autopsy service tutoring, five to six weekends and gross autopsy conference, approximately three and one-half months, twice a week.
  - 3. Surgical pathology diagnosing room instruction for assigned house officer, seven months.
  - 4. Gastrointestinal and hepatic pathology tutoring, full time.
  - 5. Mentor for three fourth-year house officers in gastrointestinal and liver pathology subspecialty, three months total.
- C. Interdepartmental:
  - 1. Medical Gastrointestinal Pathology Conference, one and one-half hours weekly.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None.

PROJECTS UNDER STUDY:

- A. Lymphomas of the gastrointestinal tract, with S. Hirsch, B. Schnitzer and W. Coon.
- B. The significance of granulomas in Crohn's disease, with N.B. Kumar and J.A.P. Wilson.
- C. The effects of hyperalimentation on the infantile liver, with K.P. Heidelberger and members of the Division of Pediatric Surgery.
- D. Inflammatory fibroid polyps of the gastrointestinal tract, with David Sadler.

- E. The rectal biopsy diagnosis of acute self-limited colitis and its distinction from first attack chronic ulcerative colitis with N. B. Kumar and T. T. Nostrant.
- F. Appendiceal epithelial neoplasia.
- G. The effects of prostaglandins on collagen deposition in livers of rats fed a cirrhotogenic diet, with and without ethanol, with K. S. Henley and investigators from the Upjohn Company, Kalamazoo, Michigan.
- H. Peptic-associated gastritis and duodenitis with Grace Elta, results submitted for publication.
- I. Gastric mucosal changes in patient with hepatic arterial chemotherapy pumps with J. Rossett, T. Nostrant and G. Abrams.
- J. The anatomy of the gastroenteric anastomosis with M. Blaivas.
- K. 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.
- B. Member, Executive Committee for Residency Training Program.

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 Laboratory Investigation.
- C. Book reviewer, Gastroenterology.
- D. Chairman, Publications Committee and Member, Executive Committee, Gastrointestinal Pathology Club.
- E. Expert Pathologist, Large Bowel and Anal Canal Neoplasm Panel, College of American Pathologists Performance Improvement Program, 1985-present.
- F. Coordinator for Pathology, Randomized Therapeutic Trial in Cancer of the Esophagus, International Organization for Statistical Studies of Diseases of the Esophagus, Paris, France, 1985-present.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Visiting Professor, Department of Pathology, The Johns Hopkins University Medical School. Lectures on, "Smooth Muscle Tumors of the Gastrointestinal Tract" and "Gastric Polyp and Fold Enlargement", February 5-6, 1986.
2. Moderator, Subspecialty Panel on Gastrointestinal Pathology, Annual Meeting, International Academy of Pathology, New Orleans, Louisiana, March 10, 1986.

3. "Gastrointestinal Tumors", Spring Seminar, Nassau and Suffolk County Societies of Pathologists, Garden City, New York, April 12, 1986.
4. "Pathology of the Gastrointestinal Tract", 35th Annual Spring Seminar, South Bay Pathology Society, Carmel, California, May 31, 1986.
5. Seminar on, "Neoplastic Diseases of the Intestines", American Society of Clinical Pathologists, Course on Surgical Pathology of the Gastrointestinal Tract, Orlando, Florida, June 25, 1986.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFERREED JOURNALS:

1. Appelman, H.D.: Smooth muscle tumors of the gastrointestinal tract: What we know now that Stout didn't know. Am. J. Surg. Pathol. 1986;10:83-99.
2. Nostrant, T.J., Kumar, N.B. and Appelman, H.D.: Histopathology differentiates acute self-limited colitis from ulcerative colitis. Gastroenterol. Accepted for publication.

BOOKS AND CHAPTERS IN BOOKS:

1. Appelman, H.D.: The adenoma carcinoma sequence in the colon. Pathology Update Series, Continuing Professional Education Center, Inc., Princeton, New Jersey, 1985.

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

1. Pike, A., Appelman, H.D. and Lloyd, R.: Differentiation of gut stromal tumors: An immunohistochemical study. Lab. Invest. 1986;54:50A.
2. Barnett, J.L., Johnson, T., Falk, G.W., Nostrant, T.T. and Appelman, H.D.: Hepatic Candidiasis: antemortem diagnosis. Gastroent. 1986;90:1710.
3. Ruwart, M.J., Rush, B.D., Snyder, K.F., Peters, K.M., Appelman, H.D. and Henley, K.S.: 16,16 Diamethyl prostaglandin E<sub>2</sub> (DMPG) modifies collagen formation in a model of chronic liver disease. Presented to the International Symposium on Chronic Hepatitis. Taipei, Taiwan, Republic of China, November 28, 1985.
4. Lee, H.H., Henly, K.S., Appelman, H.D., et al.: Correlation of biochemical and histopathological assessment of collagenization in a model of chronic liver disease. Ibid.



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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

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.
  - 2. Blood Bank Laboratory and Seminar Course for house officers, a nine session tutorial given twice.
- B. Medical Technology Students.
  - 1. Pathology 418, Introduction to Blood Transfusion. This course, is composed of twelve lectures given once, eight two-hour conference sessions held twice, and eight three-hour laboratory sessions held twice.
  - 2. Directed Pathology 449. This course, which includes structured class assignments and clinical paracticum, was repeated for five groups of students. With the advice and consent of Blood Bank Medical Directors, supervisors and administrative technologists, identified staff technologists willing and able to serve as clinical preceptors, provided objectives and discussed their implementation with the clinical preceptors on an ongoing basis.
  - 3. Pathology 308, Introduction to Immunohematology. This course consists of fourteen lectures given once and fourteen three-hour laboratory sessions taught twice.
  - 4. Lectured in Pathology 410.
- C. Blood Bank Staff.
  - 1. Coordinate and present at weekly Continuing Education Conference.
  - 2. Instruct and supervise new employees in clinical laboratory.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None.

PROJECTS UNDER STUDY:

- A. Workshop for physicians and physician office assistants.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. As a member of the Medical Technology Admissions Committee, make and implement policies, interview and evaluate applicants, and make recommendations for acceptance.
- B. Chair subcommittee to revise classification descriptions.

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. Designed and presented a preconference workshop at Towsley Center, June, 1986.
- E. Survey Potential Blood Donors in the Medical Center.

REGIONAL AND NATIONAL:

- A. Inspector for the Inspection and Accreditation Program of the American Association of Blood Banks.
- B. Immunology-Immunoematology Scientific Assembly Chairperson, Michigan Society for Medical Technology.
- C. Michigan Society for Medical Technology, Awards Committee.
- D. American Association of Blood Banks, District Advisory Group.
- E. Michigan Technology Educators, Curriculum Task Force.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Current Topics in Blood Banking Program, Department of Postgraduate Medicine, June, 1986.
  - a. Workshop Director, "Quality Assurance".
  - b. Session presentation, "Dynamic Staffing."
2. Lecture to Medical Technology Class, Eastern Michigan University.
3. Laboratory Professionals Spring Meeting.
  - a. Presenter at Pre-convention Futures Workshop.
  - b. Judge, Advance medical research center poster competition.
  - c. Immunoematology review session.

VI. PUBLICATIONS:

1. Judd, W.J., Barnes, B.A., Steiner, E.A., Oberman, H.A., Averill, D.B. and Butch, S.H.: The evaluation of a positive direct antiglobulin test (auto-control) in pretransfusion testing revisited, Transfusion, May-June, 1986.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

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 Laboratory Service, Veterans Administration Medical Center.
- D. Fine Needle Aspiration, Veterans Administration Medical Center.
- E. Surgical/Autopsy Pathology, Veterans Administration Medical Center.
- F. Tumor Board, Veterans Administration Medical Center.
- G. Deputy Washtenaw County Medical Examiner.
- H. Consultant, Diagnostic electron microscopy.

II. TEACHING ACTIVITIES:

- A. Pathology House Officer monthly elective: Diagnostic Electron Microscopy, eleven months.
- B. Diagnostic Electron Microscopy Case Conference, bi-weekly.
- C. Pathology House Officers, fine needle aspiration technique and interpretation.
- D. Medical School Student Summer Research Project.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Immunologically Active Cell Populations in First Set Liver Grafts, VAMC Merit Review (\$81,300 annual) 1985-88, Principal Investigator.
- B. Adjuvant Chemotherapy in Laryngeal Cancer (G. Wolf, Principal Investigator), Co-Investigator.
- C. Pharmacologic Modification of Vascular Graft Patency (J. Cronenwett, Principal Investigator), Co-Investigator.
- D. VA Cooperative Study #268. A New Strategy to Preserve the Larynx in the Treatment of Advanced Laryngeal Cancer, Co-Investigator.
- E. Marijuana-Bronchoscopy Project (Fligiel/Gong/Tashkin).

PROJECTS UNDER STUDY:

- A. Clinical relevance of ultrastructural characteristics of small cell carcinoma of lung, with R. Green, A. Forastiere.
- B. Role of plastic embedded cell-blocks and electron microscopy in fine needle aspiration.

- C. Evaluation of monoclonal antibodies in the diagnosis and treatment of small cell carcinoma of lung, with M. Stya.
- D. Morphometric analysis of cells and tissue using scanning light microscopy.
- E. Automatic scanning light microscopy in morphometric analysis of immunologically labeled cells.
- F. Surface markers for antigen localization in scanning and transmission electron microscopy.
- G. Ultrastructural localization of viral development in cells using cDNA, with R. Wolber.
- H. Stimulation of alveolar macrophages, with J. Hasday.
- I. Stimulation of the differentiation of embryonic pneumocytes, with R. Viscardi.
- J. Bacteremia from indwelling catheters, with J. Gilsdorf.
- K. Mechanism of reactive hyperemia in coronary arteries following angioplasty induced injury, with E. Bates.
- L. Growth of cells on microcarriers, with J. Varani.
- M. Transbronchial fine needle aspiration in the delineation of pulmonary neoplasms, with J. Hammersley.
- N. Characterization of procoagulant activity in urine and kidneys of rabbits with nephrotoxic nephritis, with R. Wiggins.

#### IV. ADMINISTRATIVE ACTIVITIES:

##### DEPARTMENTAL:

- A. Electron Microscopy Committee.

##### MEDICAL SCHOOL/HOSPITAL:

- A. Tissue Committee, chair, Veterans Administration Medical Center.
- B. Electron Microscopy Committee, chair, Veterans Administration Medical Center.
- C. Human and Financial Resources Committee, Veterans Administration Medical Center.
- D. Medical Records Review Committee, Veterans Administration Medical Center.
- E. Implementation and Evaluation Subcommittee of the Computer Services Committee.

##### REGIONAL AND NATIONAL:

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

#### V. OTHER RELEVANT ACTIVITIES:

- 1. Aspiration Biopsy Cytology of Intrathoracic Lesions, American Society of Cytology, with B. Naylor.

## VI. PUBLICATIONS:

### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFERRED JOURNALS:

1. Beals, T.F.: Electron microscopy for exfoliative cytology and fine needle aspiration. *Micron Microsc. Acta* 1985;16:193-194.
2. Schwartz, D.B., Beals, T.F., Wimbish, K.J. and Hammersley, J.R.: Trans-bronchial fine needle aspiration of bronchogenic cysts. *Chest* 1985;88:573-575.
3. Hyder, D.M., Beals, T.F. and Schnitzer, B.: Leu-M1-positive small cell carcinoma, *Human Pathol.* 1986;17:314-316.
4. Baugh, R.F., Wolf, G.T., Beals, T.F. and Krause, C.J.: Carcinoma of the larynx: Results of therapy. *Arch. Otolaryn.* Accepted for publication.
5. Shenker, Y., Gross, M.D., Grekin, R.J., Rosen S.G., Sanfield, J.A., Shapiro, B., Strodel, W., Thompson, N.W., Beals, T.F. and Lloyd, R.V.: The scintigraphic localization of mineralocorticoid-producing adrenocortical carcinoma. *J. Endocrinol. Invest.* 1986;9:115-120.
6. Silverman, A.K., Ellis, C.N., Beals, T.F. and Woo, T.Y.: Continual skin peeling syndrome. An electron microscopy study. *Arch. Derm.* 1986;122:71-75.

### BOOKS AND CHAPTERS IN BOOKS:

1. McDowell, E.M. and Beals, T.F.: *Biopsy Pathology of the Bronchi.* Chapman and Hall, pp. 1-398, 1986.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Over 100 muscle biopsies and over 30 nerve biopsies done.
- B. Three months in Autopsy Service with and without a resident.
- C. Two months at Central Michigan General Hospital in Mt. Pleasant.
- D. Regular visits to the Chelsea Community Hospital Laboratory.

II. TEACHING ACTIVITIES:

- A. Taught residents in pathology, neurology and rheumatology 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 and neurology, and at the neuropathology evening course.
- D. Monthly conferences on nerve and muscle cases with neurology and rheumatology departments.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

- A. Morphology and biochemistry of human pineal gland.
- B. Methodology of muscle histochemistry and nerve morphometry.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Set up of nerve teasing on a routine basis.
- B. Improved muscle histochemistry.

REGIONAL AND NATIONAL:

- A. Regular visits to Chelsea MDS lab.
- B. Visits to Harrison Hospital MDS lab.

V. OTHER RELEVANT ACTIVITIES:

- A. Attended a course on neuropathology (mostly muscle and nerve pathology) at AFIP for one week.
- B. Attended a course on peripheral neuropathology sponsored by the Mayo Clinic for one week.

RODNEY D. CAPPS  
ASSISTANT PROFESSOR OF MEDICAL TECHNOLOGY  
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Clinical Laboratories Engineering Support, instrumentation and automated analytical equipment.
  - 1. Design.
  - 2. Modifications implementation.

II. TEACHING ACTIVITIES:

- A. Instrumentation Lecture Series, Medical Technology Program.
- B. Lecturer, Technicon Seminar, Pittsburgh, Pennsylvania.
- C. Lecturer, Conference on Current Topics in Clinical Chemistry and Immunology.

III. RESEARCH ACTIVITIES:

- A. Special device for centrifugal preparation of sweat chloride for direct analysis by Beckman ASTRA.
- B. Reconfiguration of K<sup>+</sup> ISE on Technicon SMAC II for improved sensitivity and flow characteristics.
- C. Development of an airborne Emergency Analysis System.
- D. Mechanization of ELISA techniques with moving film technology.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Assistant Director, Clinical Laboratories.

MEDICAL SCHOOL/HOSPITAL:

- A. Program Coordinator: Design and renovation of 2nd level Laboratories (Hematology and Chemical Pathology).

V. OTHER RELEVANT ACTIVITIES:

- A. Advisor, Technicon RA1000 System Development.
- B. Advisor, Macomb Instrument Development Division.

VI. PUBLICATIONS: None.

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 1985 - 30 JUNE 1986

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.

D.D.S. 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:

PROJECTS UNDER STUDY:

- A. Odontogenic tumors and oral malignancies.

IV. ADMINISTRATIVE ACTIVITIES:

DENTAL SCHOOL:

- A. Chairman, Department of Oral Pathology.
- B. Departmental Chairmen Committee.
- C. Graduate Studies Committee.
- D. Member of several Master's degree thesis committees.



MEDICAL SCHOOL/HOSPITAL:

- A. Hospital Dentistry Department.

REGIONAL AND NATIONAL:

- A. Director, American Board of Oral Pathology.  
B. Past President, American Academy of Oral Pathology.  
C. Editorial Board, Journal of Dental Research.  
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:

INVITED LECTURES AND SEMINARS:

1. "An Approach to the Diagnosis and Management of Oral Mucosal Abnormalities", Malaysian-Singapore Dental Congress, Kuala Lumpur, Malaysia, April 12-14, 1985.
2. "Seminar on Unusual Head and Neck Lesions", University of Malaya, School of Dentistry, Kuala Lumpur, Malaysia, April 17, 1985.
3. "Forensic Dentistry", Korean Academy of Oral Pathology, Seoul National University, Seoul, South Korea, May, 1985.
4. "Odontogenic Cysts and Tumors", Yonsei University School of Dentistry, Seoul, South Korea, May, 1985.
5. "Soft Tissue Premalignant and Malignant Lesions in the Head and Neck Region", Seoul National University School of Dentistry, Senior Class, Seoul, South Korea, May, 1985.
6. "Oral Manifestations of Systemic Diseases", Korean Public Health and Hospital Administrators, Seoul, South Korea, May, 1985.
7. "Odontogenic Cysts and Tumors", Chosen University School of Dentistry, Junior and Senior Classes, Kwanju, South Korea, May, 1985.
8. "Problems with Oral Ulcerations and Vesiculo-Bullous Disease", Kyungpook University School of Dentistry, Daegu, South Korea, May, 1985.
9. "Forensic Dentistry", Jackson Dental Society, Jackson, Michigan, October 21, 1985.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Regezi, J.A., Courtney, R.M. and Batsakis, J.G.: Cysts of the jaws. Head Neck Surg. 1981;4:48-57.
2. Courtney, R.M. and Regezi, J.A.: Current concepts of odontogenic tumors. In Preparation.

BOOKS AND CHAPTERS IN BOOKS:

1. Han, S.S., Courtney, R.M. and Morawa, A.P.: Aging of dental pulp, in, Avery's Oral Histology. In Press.

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

1. Courtney, R.M.: An approach to the diagnosis and management of oral mucosal abnormalities. Malaysian Dental Journal In Press.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

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 participate in monthly Brain Cutting Conference for Neurology, Neurosurgery, and Neuroradiology Departments.
- 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, 20 hours, lectures and brain cutting sessions. Sequence leader 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. Annual, 16 - 18 hours. One credit hour elective.
- D. Neuropathology for house officers from the several clinical services concerned 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:

- A. USPHS Grant NS 19825-01, "Recovery or Malformation After Fetal Injury."
- B. USPHS application, "The Role of Glutamate in Alzheimer's Disease", (5% Effort, with Anne Young and John Penney, Dept. of Neurology) pending as of July, 1986.

#### PROJECTS UNDER STUDY:

- A. Work continued under USPHS grant: 1) immunocytochemical studies of constituents of the basal lamina of the cephalic neural tube in a mutant rat in which the basal lamina alterations lead to prenatal aqueduct stenosis and hydrocephalus. Scanning and transmission electron microscopy of neuroepithelium and facial abnormalities in these mutant fetuses are being done. 2) studies of the product of superoxide anion by fetal rat brain macrophages which form in response to cell-killing by radiation of large numbers of primitive cells in the fetus. Whether these macrophages, spewing oxygen radicals, add to the damage done by the radiation remains to be determined. 3) development of the capacity of astrocytes to undergo gliosis (hypertrophy, multiplication and exuberant growth of fibers) in response to injury. 4) roles of astrocytes in the normal development of Purkinje and granule cell neurons in the cerebellum and the effects of radiation on this relationship between developing astrocytes and neurons. Immunocytochemical methods and electron and light microscopy are being used.
- 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. The clinical diagnoses need to be confirmed by pathologic diagnosis.
- 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 Department).

#### IV. ADMINISTRATIVE ACTIVITIES:

##### DEPARTMENTAL:

- A. Anatomic Pathology Committee.

##### MEDICAL SCHOOL/HOSPITAL:

- A. Neural and Behavioral Sciences Curriculum Committee (Medical School).
- B. Neural and Behavioral Sciences Examinations Committee.
- C. 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.

- V. OTHER RELEVANT ACTIVITIES: None.

## VI. PUBLICATIONS:

### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. D'Amato, C.J., O'Shea, K.S., Hicks, S.P., Glover, R.A. and Annesley, T.M.: Genetic prenatal aqueduct stenosis with hydrocephalus in rat. J. Neuropath. Exper. Neurol. In Press.

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

1. O'Shea, K.S., D'Amato, C.J and Hicks, S.P.: Immunocytochemistry of neuro-epithelial basal lamina alterations in rat embryos with genetic hydrocephalus. Soc. Neurosci. 1985;11:998.
2. Rheinheimer, J.S., O'Shea, K.S., D'Amato, C.J. and S.P. Hicks: Early alterations in prenatal hydrocephalus. Abstract and presentation at the May, 1986 Meeting of Scanning Electron Microscopy and submitted for publication.
3. D'Amato, C.J., O'Shea, K./s, Rheinheimer, J.S. and Hicks, S.P.: Developmental prenatal aqueductal stenosis with hydrocephalus. Immunocytochemistry and electron microscopy. Abstract and poster exhibit presented at the Annual Michigan Chapter, Society for Neuroscience Meeting, Ann Arbor, Michigan, May 1986.
4. D'Amato, C.J., O'Shea, K.S., Rheinheimer, J.S. and Hicks, S.P.: Development of genetic prenatal aqueductal stenosis with hydrocephalus in the rat. Teratology 1986;33:33C.

FELIX A. DE LA IGLESIA, M.D.  
ADJUNCT RESEARCH SCIENTIST  
DEPARTMENT OF PATHOLOGY  
ADJUNCT PROFESSOR OF TOXICOLOGY  
SCHOOL OF PUBLIC HEALTH

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES: None.

II. TEACHING ACTIVITIES:

- A. Graduate School:
  - 1. Instructor, EIH 536, Fundamentals of Electron Microscopy.
  - 2. Instructor and Course Coordinator, EIH 646, Advanced Topics in Toxicology.
  - 3. Instructor, EIH 610, Research in Toxicology.
- B. Co-Chair, Doctoral Committee and Research Mentor, Environmental and Industrial Health, School of Public Health.
- C. Postgraduate Seminar, Department of Pathology, Medical College of Ohio, Toledo, Ohio.
- D. Faculty Member, Boston University-MIT Postgraduate Course in Toxicologic Pathology, Boston, Massachusetts.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

My research activities are focused in three areas:

- A. Quantitative morphologic and biochemical correlates of subcellular organelle injury:
  - 1. Quantitative microscopic changes within rat hepatocytes during the induction of hypofunctional endoplasmic reticulum membranes.
  - 2. Changes in fatty acid composition of phospholipids from the endoplasmic reticulum membranes elicited by progesterone.
  - 3. Studies on the stereology of the bile canaliculus and mechanisms of cholestasis induced by oral contraceptives and nutritionally inadequate diets.
- B. Mechanisms of toxicity, carcinogenesis and mutagenesis of antineoplastic agents.
  - 1. Induction of mammary gland neoplasia in rats with fluorophenyl amino dimethyl pyrazoles.
  - 2. Mutagenic, clastogenic and carcinogenic effects of arizidinyl-benzoquinones in genotoxicity assays and the Strain A mouse lung adenoma bioassay.
- C. Comprehensive toxicity and safety evaluation of new pharmacologic agents in order to establish potential health effects.

#### IV. ADMINISTRATIVE ACTIVITIES:

##### DEPARTMENTAL:

- A. Consultant to Drs. Ward and Johnson in quantitative microscopy.

##### REGIONAL AND NATIONAL:

- A. Scientific Consultant, Bundesgesundheitsamt (Ministry of Health) Federal Republic of Germany.
- B. Official Expert in Pharmacology and Toxicology, Ministry of Health of France.
- C. Consultant, National Institutes of Health, (NCI).
- D. Member, Pharmacology-Morphology Scientific Advisory and Fellowship Program Committee, Pharmaceutical Manufacturers Association Foundation.
- E. External Consultant, Medical Research Council of Canada.
- F. Past-President, Michigan Chapter, Society of Toxicology.
- G. Member, Environmental Health Sciences Review Committee, NIEHS.
- H. Member, Research Review Committee, Michigan Eye Bank and Transplantation Center.
- I. Member, Research Review Committee, Arizona State Department of Health.
- J. President-Elect, Society of Toxicologic Pathologists.
- K. Consultant, Image Analysis Center, Medical College of Ohio.

#### V. OTHER RELEVANT ACTIVITIES:

- A. Member, Editorial Board, Toxicology and Applied Pharmacology.
- B. Editorial Advisory Board, CRC Press.
- C. Member, Editorial Board, Drug Metabolism Reviews.
- D. Editor, Toxicologic Pathology.
- E. Member, Editorial Board, Toxicology.

#### V. PUBLICATIONS:

##### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Kim, S.N., Fitzgerald, J.E. and de la Iglesia, F.A.: Spermatocytic seminoma in the rat. Toxicol. Path. 1985;13:215-221.
2. Lumb, G., Mitchell, L. and de la Iglesia, F.A.: Reversibility of pathologic changes induced by the long-term administration of contraceptive steroids to rodents. Toxicol. Path. 1985;13:283-295.
3. Watkins, J.R., Kim, S.N., Jayasekara, U., Anderson, J.A., Fitzgerald, J.E. and de la Iglesia, F.A.: Preclinical toxicity of the new antineoplastic agent, Amaetantrone acetate, in mice and dogs. J. Appl. Toxicol. 1986;6:31-36.
4. Martin, R.A., Barsoum, N.J., Sturgess, J.M. and de la Iglesia, F.A.: Leukocyte and bone marrow effects of a thiomorpholine quinazolinone antihypertensive agent. Tox. Appl. Pharmacol. 1985;81:166-173.
5. Barsoum, N.J., Gough, A.W., Sturgess, J.M. and de la Iglesia, F.A.: Morphofunctional investigation of spontaneous pituitary tumors in Wistar rats. Toxicol. Path. 1985;13:200-208.
6. Barsoum, N.J., Gough, J.M., Sturgess, J.M. and de la Iglesia, F.A.: Parkinson-like syndrome in non-human primates receiving a tetrahydropyridine derivative. Neurotoxicology 1986;7:119-126.

7. McGuire, E.J., DiFonzo, C.J., Martin, R.A. and de la Iglesia, F.A.: Evaluation of chronic toxicity and carcinogenesis in rodents with the synthetic analgesic, tilidin fumarate. *Toxicology* 1986;39:149-163.
8. Petrere, J.A., Anderson, J.A., Sakowski, R., Fitzgerald, J.E and de la Iglesia, F.A.: Teratogenesis of calcium valproate in rabbits. *Teratology* 1986 In Press.
9. Fitzgerald, J.E., Petrere, J.A., McGuire, E.J. and de la Iglesia, F.A.: Preclinical toxicology studies with a lipid regulating agent. *Gemcadiol. Fund. Appl. Toxicol.* 1986;6:520-531.
10. Weinberg, J.M., Johnson, K.J., de la Iglesia, F.A. and Allen, E.: Acute alterations of tissue calcium and lethal tubular cell injury during HgCl<sub>2</sub> nephrotoxicity. *Am. J. Path.* 1986. In Press.
11. Anderson, J.A., Petrere, J.A., Sakowski, R., Fitzgerald, J.E. and de la Iglesia, F.A.: Teratology study in rats with amsacrine, an antineoplastic agent. *Fund. Appl. Toxicol.* 1986. In Press.
12. Feuer, G., DiFonzo, C.J., Gracon, S.I., Dhami, M.S.I., Sturgess, J.M. and de la Iglesia, F.A.: Changes in drug metabolism by steroid treatments of female rats. 4th Cong. Hung. Pharmacol. Soc., Budapest, 1986. In Press.
13. Martin, R.A. and de la Iglesia, F.A.: Preclinical toxicology of pirmenol hydrochloride. *Am. J. Cardiol.* 1986. In Press.
14. Fitzgerald, J.E., McGuire, E.J., Andrews, L.K. and de la Iglesia, F.A.: Structure-activity relationships in the induction of mammary gland neoplasia in rats with substituted aminopyrazoles. *Am. J. Path.* 1986. In Press.
15. Robertson, D.G., Kim, S.N., Gray, R.H. and de la Iglesia, F.A.: The Pathogenesis of trimethyltin chloride-induced nephrotoxicity: Neurotoxic implications. *Fund. Appl. Pharm.* 1986. In Press.
16. Petrere, J.A., Kim, S.N., Anderson, J.A., Fitzgerald, J.E., de la Iglesia, F.A. and Schardein, J.L.: Teratology studies of amentantrone acetate in rats and rabbits. *Teratology*, 1986. In Press.
17. Walker, R., Martin, R.A., DiFonzo, C., Sturgess, J.M. and de la Iglesia, F.A.: Lack of hepatotoxic interaction between the anticonvulsant drugs phenytoin, sodium valproate and phenobarbital in the rat. *Biochem. Pharmacol.* 1986. In Press.
18. Anderson, J.A., Petrere, J.A., Fitzgerald, J.E. and de la Iglesia, F.A.: Studies on reproduction in rats with pirmenol, an antiarrhythmic agent. *Fund. Appl. Tox.* 1986. In Press.

#### BOOKS AND CHAPTERS IN BOOKS:

1. Feuer, G. and de la Iglesia, F.A.: Molecular biochemistry of human disease. Volume I, CRC Press, Boca Raton, Florida, pp. 1-220, 1985.
2. Feuer, G. and de la Iglesia, F.A.: Molecular biochemistry of human disease. Volume II, CRC Press, Boca Raton, Florida, pp. 1-243, 1986.
3. Feuer, G. and de la Iglesia, F.A.: Molecular biochemistry of human disease. Volume III, CRC Press, Boca Raton, Florida, 1986. In Press.

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

1. Newberne, P.M. and de la Iglesia, F.A.: Philosophy of blind slide reading in toxicologic Pathology. *Editorial. Toxicol. Pathol.* 1985;13:255.



2. de la Iglesia, F.A.: Emmanuel Farber, M.D., Ph.D. Honorary Member of the Society of Toxicology Pathologists. *Toxicol Pathol.* 1985;13:175-176.
3. Peter, G.K., Wise, L.D., Anderson, J.A., Schardein, J.L. and de la Iglesia, F.A.: Teratology studies of an antihypertensive agent. *Teratology* 1985;31:56-57.
4. de la Iglesia, F.A.: Factors influencing short and long-term studies on the carcinogenesis evaluation of lipid regulating agents. *Proceeding, 3rd Sardinian International Meeting, Agents and Processes in Chemical Carcinogenesis*, p. 16, 1985.
5. DiFonzo, C.J., Gracon, S., Dharni, M.S.I., Sturgess, J.M., de la Iglesia, F.A. and Feuer, G.: Changes in drug metabolism by steroid treatments of female rats. *Proceeding 4th Congress Hungarian Pharmacology Society*, Budapest, 1985.
6. Ghosal, A., Gracon, S., Roomi, M., Cameron, R., Sturgess, J., de la Iglesia, F.A. and Feuer, G.: Effects of bile acids on microsomal progesterone receptor binding and cytochrome P-450. *Proceeding 5th International Congress Biochemistry, Biophysics and Induction of Cytochrome P-450*. Vereczkey, L. and Magyar, K., editors. *Akademiai Kiado, Budapest*, pp. 525-528. 1985.
7. Martin, R.A., de la Iglesia, F.A., Ulrich, C.E., Goldenthal, E. and Tanaka, N.: Six month inhalation toxicity <sup>2</sup>evaluation of procaterol aerosol. *The Toxicologist*. 1986;6:59.
8. Figueroa, I.C., Pegg, D.G., Kim, S.N. and de la Iglesia, F.A.: Assessment of methodology for determining the acute cardiotoxic potential of anticancer drugs. *The Toxicologist*. 1986;6:199.
9. Kim, S.N., Fitzgerald, J.E., de la Iglesia, F.A. and Goldenthal, E.I.: Systemic toxicity evaluation of amsalog in mice, rats and dogs. *Proc. Am. Assn. Cancer Res.* 1986;27:419.
10. Kim, S.N., Pegg, D.G. and de la Iglesia, F.A.: Cardiotoxicity of CI-937, an anthrapyrazole anticancer candidate drug, in rat. *J. Molec. Cell. Cardiol.* 1986;18:39.
11. Ghoshal, A., Gracon, S., Roomi, M.W., Cameron, R.G., Sturgess, J.M., de la Iglesia, F.A. and Feuer, G.: Effect of bile acid on microsomal progesterone receptor binding and cytochrome P-450 content. *Proceeding 5th International Conference on Biochemistry, Biophysics and Ind. Cytochrome P-450*, 1985.
12. Martin, R.A., de la Iglesia, F.A., Schardein, J.L., Goldenthal, E. and Tanaka, N.: Inhalation teratology of procaterol aerosol in rats. *The Toxicologist*. 1986;6:93.
13. Martin, R.A. and de la Iglesia, F.A.: Preclinical toxicology of pirlmenol hydrochloride. *Angiology*. 1986. In Press.

BARRY G. ENGLAND, PH.D.  
ASSOCIATE PROFESSOR OF REPRODUCTIVE BIOLOGY  
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Director, Ligand Assay Laboratory.

II. TEACHING ACTIVITIES:

- A. Pathology house officers laboratory rotation.
- B. Medical Technology Student laboratory rotation.
- C. Medical Technology Student mini-course (two weeks) on radioimmunoassay techniques.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. "Study of Reproductive Endocrinology and Ligand Assay Techniques", New England Nuclear Corporation, Research Grant, Principal Investigator, \$15,000/yr, 1976 to present.
- B. USPHA (NIAMDD) AM20572, Michigan Diabetes Research and Training Center; Director, Ligand Assay Core Facility, \$117,000/yr, 1983-1988.

PROJECTS UNDER STUDY:

- A. Hexasaccharide-substituted human chorionic gonadotropin: A specific marker for hCG secreting neoplasms, B.G. England and L. Cole.
- B. Examination of circulating levels of estradiol and estrone following buccal administration of estradiol-17B, B.G. England.
- C. A sensitive and specific HPLC assay methodology for the catecholamines and leukotrienes, B.G. England and S. Grauds.
- D. Gonadotropin receptor, steroidogenesis and prostaglandin synthesis in ovine follicles, B.G. England and H. Shaw.
- E. Mutant Forms of Insulin in Mature Onset Diabetes of the Young. B.G. England, A. Vinik, S. Fajans and L. Reeves.

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.

REGIONAL AND NATIONAL:

1. Participant in a National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases, Site Visit of the Diabetes Endocrinology Research Center at the Baylor College of Medicine, Houston, Texas, July 24-26, 1985.
2. Participant in National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases, Site Visit of the Diabetes Research and Training Center at the University of Pennsylvania, Philadelphia, Pennsylvania, December 9-11, 1985.
3. Participant in National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases, Site Visit of the Diabetes Endocrinology Research Center at the Indiana University Medical School, Indianapolis, Indiana, March 19-21, 1986.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Nordblom, G.D., Counsell, R.E. and England, B.G.: A specific radioimmunoassay for androstenedione with reduced bridge-binding. *Steroids* 1986;44:276-282
2. Reeve, L.E., Vinik, A.I., Chaudhuri, M., Adelman, R.C. and England, B.G.: Age dependent changes in the regulation of insulin secretion in the rat. *Endocrinology*. Submitted.
3. Coon, M.J., England, B.G., Giacherio, D.A. and Annesley, T.M.: Interference by antilymphocyte and antithymocyte globulin in a double antibody digoxin radioimmunoassay. *Clinical Chemistry*. Submitted.

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

1. Coon, M.J., Smart, J.D., Annesley, T.M., Giacherio, D.A. and England, B.G.: A comparison study of serum digoxin levels in four immunoassay methods. *J. Med. Technol.* 1986;3:251.
2. Sims, E., Shaw, H.J., England, G.B. and Midgley, A.R.: Effects of continuous versus pulsatile perfusion of luteinizing hormone on steroidogenic responsiveness of anestrus ewe follicles. Society for the Study of Reproduction, 15th Annual Meeting, Cornell University.
3. Reeve, L.E., England, B.G. and Vinik, A.I.: Differential effects of aging on secretion of insulin I and II in the rat. The Endocrine Society, Program and Abstracts, 68th Annual Meeting, Anaheim, California, 1986.
4. Shaw, H.J. and England, B.G.: In vitro prostaglandin production by ovine follicles. Society for the Study of Fertility, Annual Meeting, 1986.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

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, Continuing Medical Education: Emergency Medicine.
- F. Lecturer, Microbiology and Immunology 624.
- G. Lecturer, Immunobiology 414.
- H. Lecturer, Medical Student Research Forum.
- I. Lecturer, Department of Surgery: Transplantation Seminar.
- J. Lecturer, Division of Cardiology: Research Seminar.
- K. Preceptor, Undergraduate and Medical Student Research.
- L. Graduate Student Ph.D. Thesis Committee (#2).

III. RESEARCH ACTIVITIES:

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

SPONSORED SUPPORT:

- A. Clinical Investigator Award, "Lung Inflammation", NIH-HL-00905; 1981-1986.
- B. Principal Investigator, "Modulation of Immune Complex Lung Injury", NIH-R01-HL-32024; 1985-1990.
- C. Principal Investigator, "Phagocytic Cells and Acute Lung Injury", American Heart Association Grant-in-Aid; 1985-1986.
- D. Co-investigator, "Mechanisms and Genetic Regulation of Pulmonary Fibrosis", S.H. Phan (Principal Investigator), NIH-5-R01-HL 28737, 1986-1991.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Director, Educational Activities.
- B. Interview resident applicants.

MEDICAL SCHOOL/HOSPITAL:

- A. Medical Student Advisor (3rd and 4th years).
- B. ICS, Executive Committee.
- C. Associate Director of Sophomore Medical Student ICS Course (ICS-600-601).
- D. Basic Science Phase Committee.
- E. Medical Student Basic Science Academic Review Board.
- F. Medical Student Clinical Academic Review Board.
- G. Graduate Students (two) Ph.D. Thesis Committee.
- H. Basic Science Phase Committee Retreat; Medical Education, March, 1986.
- I. Medical School Retreat on Education, June, 1986.

REGIONAL AND NATIONAL:

- A. NIH Site Visit: Program Project: Endothelium as a Regulatory Interphase, University of Massachusetts, 1986.
- B. Reviewer, Medical Research Council of Canada Research Grants.
- C. Reviewer, Veteran's Administration Research Grants.
- D. Reviewer for: Journal of Clinical Investigation, Journal of Immunology, Science, American Journal of Pathology, Laboratory Investigation, Prostaglandins, Journal of Biological Chemistry, Clinical Immunology, Immunopathology and American Review of Respiratory Disease.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

- 1. "Modulation of Neutrophil Dependent Tissue Injury", Inflammation and immunology Division, Pfizer Pharmaceutical Corporation, Groton, Connecticut, 1985.
- 2. "Modulation of Reactive Oxygen Metabolite Mediated Tissue Injury", Cardiovascular Research Division, Upjohn Company, Kalamazoo, Michigan, 1985.
- 3. "Modulation of Neutrophil Dependent Tissue Injury", Inflammation Division, Rahway, New Jersey, 1986.
- 4. "Modulation of Oxygen Metabolite Mediated Tissue Injury", 2nd World Conference on Inflammation, Monte Carlo, Monaco, 1986.
- 5. "Mechanisms of Inflammatory Cell Mediated Tissue Injury", Canadian Association of Pathologists, Kingston, Ontario, Canada, 1986.

## VI. PUBLICATIONS:

### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Fantone, J.C. and Ward, P.A.: Polymorphonuclear leukocyte-mediated cell and tissue injury: Oxygen metabolites and their relations to human disease. Human Pathol. 1985;16:973-978.
2. Duque, R.E., Fantone, J.C., Marasco, W.A. and Phan, S.H.: The role of stimuable particulate phospholipase A<sub>2</sub> in neutrophil activation: Effects of p-bromophenacyl bromide on stimulus response coupling. Brit. J. Pharm. 1986;88:463-472.
3. Mitsos, S., Askew, T., Fantone, J.C., Kunkel, S.L., Abrams, G.D., Schork, M.A. and Lucchesi, B.R.: Protective effects of N-2-mercaptpropionyl glycine against myocardial reperfusion injury after neutrophil depletion in the dog: Evidence for the role of intracellular derived free radicals. Circulation. 1986;73:1077-1086.
4. Werns, S.W., Shea, M.J., Mitsos, S.E., Dysko, R.C., Fantone, J.C., Schork, M.A., Abrams, G.D., Pitt, B. and Lucchesi, B.R.: Reduction of infarct size by allopurinol in the ischemic-reperfused canine heart. Circulation. 1986;73:518-524.
5. Fantone, J.C., Feltner, D., Brieland, J. and Ward, P.A.: Phagocytic cell derived inflammatory mediators and lung injury. Chest. In Press.
6. Mitsos, S., Fantone, J.C., Gallagher, K.P., Walden, K.M., Simpson, P.J., Abrams, G.D., Schork, M.A. and Lucchesi, B.R.: Canine myocardial reperfusion injury: Protection by a free radical scavenger, N-2-mercaptpropionyl glycine. J. Cardiovas. Pharm. In Press.
7. Simpson, P.J., Mitsos, S.E., Gallagher, K.P., Fantone, J.C., Abrams, G.D., Schork, M.A. and Lucchesi, B.R.: Prostaglandin I<sub>2</sub> protects ischemic-reperfused myocardium in the dog by inhibition of neutrophil activation. Amer. Heart J. In Press.

### BOOKS AND CHAPTERS IN BOOKS:

1. Fantone, J.C. and Ward, P.A.: Oxygen derived radicals and their metabolites: Relationship to tissue injury. Current Concepts Series. Upjohn Pharmaceuticals, Kalamazoo, Michigan, 1985.
2. Kunkel, S.L., Chensue, S.W., Fantone, J.C. and Ward, P.A.: Role of prostaglandins in macrophage cell function, in, Bellanti, J.A. and Herscovitz, H.B. (Editors), The Reticuloendothelial System, Vol. 6, Plenum Publishing Company, New York, New York, pp. 289-30, 1985
3. Fantone, J.C., Kunkel, S.L. and Zurier, R.B.: Effects of prostaglandins in in vivo immune and inflammatory reactions, in, Goodwin, J.S. (Editor), Prostaglandins and Immunity, pp. 123-146, 1985.
4. Fantone, J.C. and Ward, P.A.: Mechanisms of inflammation, in, Cohen, A.S. (Editor), Rheumatology and Immunology, Grune and Stratton, 1986. In Press.

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

1. Mitsos, J.E., Askew, T.E., Fantone, J.C., Kunkel, S.L. and Lucchesi, B.: Protective effects of N-2-mercaptpropionyl glycine against myocardial

- reperfusion injury following neutrophil depletion in the dog. Amer. Heart Assoc. Washington, D.C., 1985.
2. Robinson, J.P., Phan, S.H. and Fantone, J.C.: Neutrophil membrane fluidity alteration with activation. Fed. Proc. 1986;45:309.
  3. Fantone, J.C., Mitsos, S. and Kim, D.: Arachidonic acid peroxidation by hemeproteins and hydrogen peroxide. Fed. Proc. 1986;45:451.
  4. Brieland, J. and Fantone, J.C.: Effects of acute lung injury on pulmonary alveolar macrophage superoxide production. Fed. Proc. 1986;45:682.
  5. Kunkel, R.G., Brieland, J.K. and Fantone, J.C.: Pulmonary alveolar macrophage and acute lung injury. Amer. Rev. Resp. Dis. 1986;133:A172.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Surgical Pathology Rotation, August (2/4), November (2/4), December (2/4), May (2/4), June (2/4).
- B. Cytopathology Rotation: , July (2/4), October (2/4).
- C. Hematopathology Consultations, June (3/4).

II. TEACHING ACTIVITIES:

- A. Pathology 600; Laboratory Instructor.
- B. Pathology Lectures:
  - 1. Pulmonary Inflammation I.
  - 2. Pulmonary Inflammation II.
- C. Group Leader: M4 student elective, April, 1986.

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, A Comparative Study Using Conventional Radiography, Conventional Tomography, Computed Tomography, and Nuclear Magnetic Resonance Imaging, Gary N. Glazer, M.D., Principal Investigator.
- C. Flow Cytometric Analysis of DNA Content of Basal Cell Carcinomas, J. Philip McCoy, Ph.D., Principal Investigator.
- D. Pathology Consultant, Prospective Investigation of Pulmonary Embolism Diagnosis, John G. Weg, M.D., Principal Investigator.

PROJECTS UNDER STUDY:

- A. Flint, A.: Pulmonary involvement by Hodgkin's disease: Association with Langerhans'-like cells. Arch. Pathol. Lab. Med. Submitted.
- B. Grant Application (86-1603-JL) pending: Prediction of tumor radiation response by oncogene expression (M. Sklar, Principal Investigator), A. Flint, Co-Investigator.
- C. Lampe, H.B., Flint, A., Wolf, G.T.: Flow cytometry - DNA analysis of squamous cell carcinoma of the upper aerodigestive tract. Otolaryngology. Submitted.
- D. DNA quantitation by image analysis: A comparison of ovarian neoplasms of borderline malignancy and outspoken malignancy.
- E. Roundness of prostatic carcinoma nuclei and their DNA content: Is there a correlation between nuclear roundness and DNA content?
- F. Histiocytosis X: Immunochemical characterization.



#### IV. ADMINISTRATIVE ACTIVITIES:

##### DEPARTMENTAL:

- A. Member, Residency Candidate Selection Committee.
- B. Coordinator, Senior staff service rotations.

#### V. OTHER RELEVANT ACTIVITIES:

##### INVITED LECTURES/SEMINARS:

- 1. Pembine Thoracic Conference, Pembine, Wisconsin - Guest Pathologist, September 1985.
- 2. Flow Cytometry: Applications to Diagnostic Cytology. American Society of Cytology, New York, New York, 1985.
- 3. Tri-State Thoracic Society, Biloxi, Mississippi - Guest Pathologist, 1986.
- 4. Flow Cytometry: Applications to Surgical Pathology and Diagnostic Pathology. ASCP Teleconference, 1985.
- 5. Visiting Professor, Department of Pathology, Medical College of Georgia, Augusta, Georgia, 1986. Lecture Title: (1) Diagnostic Problems in Pulmonary Pathology I; (2) Diagnostic Problems in Pulmonary Pathology II.
- 6. Pulmonary Pathology Didactic Seminars - Department of Pathology, University of Michigan, 1985, 1986.
- 7. The Eosinophilic Pneumonias, Seminar, Division of Pulmonary Medicine, Department of Internal Medicine, University of Michigan, 1986.
- 8. Synovial Fluid Analysis, Central Michigan Community Hospital, Mt. Pleasant, Michigan, 1986.

#### VI. PUBLICATIONS:

##### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

- 1. Whitcomb, C.C., Cousar, J.B., Flint, A., Crissman, J., Bartolucci, A.A., Durant, J.R., Gams, R.A., Collins, R.D. and Byrne, G.E.: Malignant lymphomas of small cleaved cells: Is growth pattern a significant prognostic factor? Cancer. In Press.
- 2. Flint, A.: Aspiration biopsy cytology. Medilab. In Press.
- 3. Flint, A., Beckwith, A.L. and Naylor, B.: Pneumocystis carinii pneumonia: Cytologic manifestations and rapid diagnosis in routinely prepared Papanicolaou-stained preparations. Am. J. Med. In Press.
- 4. Flint, A. and Cookingham, C.L.: The cytologic diagnosis of the papillary variant of renal cell carcinoma. Acta Cytologica In Press.
- 5. Flint, A., Lloyd, R.V., Colby, T.V. and Wilson, B.S.: Pulmonary histiocytosis X: Immunoperoxidase staining for HLA-DR antigen and S-100 protein. Arch. Path. Lab. Med. In Press.
- 6. Flint, A., McCoy, J.P., Esch, T.R., Beckwith, A.L. and Morley, G.W.: Simultaneous measurement of DNA content and detection of surface antigens of cervical vaginal cells by flow cytometry. Anal. Quant. Cytol. Histol. Accepted.

BOOKS AND CHAPTERS IN BOOKS:

1. Flint, A. and Colby, T.V.: Surgical pathology of diffuse infiltrative lung disease. Grune & Stratton, New York, 1986.
2. Flint, A.: DNA Measurement and analysis: Applications to diagnostic pathology and cytology, in, Keren, D.F. and Lovett, III, E.J. (Editors), Use of surface Markers and DNA Studies in Diagnostic Pathology, Amer. Soc. Clin. Pathol., Chicago, 1986.

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

1. Mervak, T., Flint, A. and Schnitzer, B.: Flow cytometric DNA analysis of non-Hodgkin's lymphomas: determination of ploidy of fresh and paraffin embedded tissues. Lab. Invest. 1986;54:43A.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. RHP Activation Director for the Department of Pathology.
- B. Director, Pathology Data Systems.
  - 1. Supervised all PDS activation activities including the move of the Medlab system to the AGH, the installation of the new VAX computer, and the implementation of Pathology on the Local Area Network.
  - 2. Planning for a phased upgrade of the laboratory information system.
- C. Director, Phlebotomy Services/Central Distribution.
- D. Associate Director, Blood Bank.
  - 1. Planning for a hospital-based blood donor program.
  - 2. Staff physician back-up.
- E. Autopsy Service (two months).

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

- A. Program Director of the Fourth Annual Clinical Laboratory Computer Symposium, Towsley Center, Ann Arbor, Michigan, June, 1986.
- B. Planning committee of a symposium entitled, "Technical and Management Perspectives of the Phlebotomy Team", Towsley Center, Ann Arbor, Michigan, May, 1986.
- C. Projects under study.
  - 1. The development of an on-line computer conference in the field of laboratory computers as a model for continuing medical education in the future. A grant for seed money for the project has been requested from the Information Technology Division, University of Michigan.
  - 2. The use of an on-line computer conference as a communications system for House Officers in the University of Michigan Hospitals.
  - 3. Introduction of computerized bibliographic searches into the medical school curriculum and post-graduate medical education programs at the University of Michigan Medical Center.

III. RESEARCH ACTIVITIES:

- A. Development of an organizational model for information systems in hospitals.
- B. Development of hospital policies regulating access and control of clinical databases in hospitals.

#### IV. SERVICE ACTIVITIES:

##### DEPARTMENTAL:

- A. Microcomputer Steering Committee (Chairman).
- B. Director of the capital campaign program for the Department of Pathology.

##### MEDICAL SCHOOL/HOSPITAL:

- A. Medical Record Work Group (Chairman).
- B. Medical Informatics Task Force (Chairman).
- C. Physicians' Liaison Council (Chairman).
- D. Hospital Quality Assurance Committee.
- E. Hospital Quality Control Steering Committee.
- F. Medical School Grievance Board.
- G. Hospital Information Systems Advisory Committee.
- H. Ad hoc Committee on Computers in the Medical School Curriculum.

#### V. OTHER RELEVANT ACTIVITIES:

##### INVITED LECTURES AND SEMINARS:

1. Reducing costs in the Blood Bank without sacrificing quality. A workshop sponsored by the American Society of Clinical Pathologists at the Fall Meeting, November, 1985.
2. Control and access of data in a multipurpose hospital database. A panel discussion at the Ninth Annual Symposium on Computer Applications in Medical Care, November, 1985.
3. Ownership and access of the laboratory database. A lecture presented to the Michigan Society of Pathologists, February, 1986.
4. A review of the complications of venipuncture, skin puncture and arterial puncture. A lecture delivered at a seminar entitled, "Technical and Management Perspectives of the Phlebotomy Team" at the Towsley Center, Ann Arbor, Michigan, May, 1986.
5. Should hospitals draw more blood? A lecture presented at the Current Concepts in Blood Banking symposium at the Towsley Center, Ann Arbor, Michigan, May, 1986.
6. The impact of the telecommunications revolution on hospitals and the clinical laboratories. A lecture presented at the Clinical Laboratory Computer Symposium at the Towsley Center, Ann Arbor, Michigan, June, 1986.

#### VI. PUBLICATIONS:

##### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Friedman, B.A.: Some personal observations on differing goals and objectives in the planning of hospital information systems. Proceedings of the Ninth Annual Symposium on Computer Applications in Medical Care, 1985;405-409.
2. Friedman, B.A.: Pathologists, computers, and control of the clinical laboratory database. (To be published in the September issue of Pathologist).

3. Wyszewianski, L., Thomas, J.W., and Friedman, B.A.: Case-based payment and the control of quality and efficiency in hospitals. (Accepted for publication in Inquiry).

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN UNREFERRED JOURNALS:

1. Friedman, B.A., Liberman-Lamphear, M.D. and Morrow, T.D.: A streamlined system for test requisitions. Med. Lab. Observer, November, 1985.

DONALD A. GIACHERIO, PH.D.  
INSTRUCTOR IN PATHOLOGY  
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

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 Labs.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL

- A. Pathology House Officers:
  - 1. Participant, Clinical Pathology Rounds.
  - 2. Lecturer, Clinical Pathology Didactic Lecture Series.
  - 3. Review daily sign-out and interpretation of electrophoresis results.
  - 4. Review of selected topics in Clinical Chemistry.
- B. Medical Technology:
  - 1. Lecturer, Path 410, 3 hours on steroid chemistry.
  - 2. Three contact hours per week during lab rotation on electrophoresis and centrifugal analyzers.
  - 3. Program Director, Continuing Education Series for Medical Technologists (biweekly).

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Co-Investigator (10% effort): Smokeless Tobacco Research Council Grant, "Significance of Immune Response to Mucosal Carcinogens".

PROJECTS UNDER STUDY:

- A. Immune responses to orally administered carcinogens in rats.
- B. Adaptation of assays to centrifugal analyzers.
  - 1. Evaluation of turbidimetric immunoassays for apolipoproteins A-1 and B on the Cobas-Bio centrifugal analyzer.
  - 2. Enzymatic assays for urine oxalate and citrate on a centrifugal analyzer.
  - 3. Evaluation of plasma fructosamine as an indicator of blood glucose control in diabetics. Comparison with glycosylated hemoglobin.
  - 4. Adaptation of a colorimetric assay for beta-N-acetylglucosaminidase to a centrifugal analyzer.

- C. Determination of CK-BB levels in the serum and CSF of anoxic neonates.
- D. Cardiac risk factors.
  - 1. Utility of apolipoprotein A-1 and B levels in patients undergoing coronary angiography. (with C. Orringer).
  - 2. Establishment of normal ranges for apolipoproteins and HDL-subfractions. Comparison with a diabetic population (with D. Martin).
- E. Improved HPLC assay of cyclosporine.
- F. HPLC analysis of plasma and urine catecholamines.
- G. Radioimmunoassay as a screening technique for the detection of anabolic steroids.
- H. Evaluation of immunoassays for digoxin.

#### IV. ADMINISTRATIVE ACTIVITIES:

##### DEPARTMENTAL:

- A. Director, General Chemistry Laboratory.

##### REGIONAL AND NATIONAL:

- A. Coordinator, College of American Pathologists Clinical Chemistry Standards Assay Laboratory.
- B. Program Committee, Michigan Section AACC.

#### V. OTHER RELEVANT ACTIVITIES:

##### INVITED LECTURES/SEMINARS:

- 1. "Isoenzymes of Creatine Kinase and Lactate Dehydrogenase", Beckman Symposia on Enzymology. Toledo, Ohio.
- 2. "Apolipoprotein Assays on the Cobas-Bio", Roche Diagnostic systems Workshop, Toledo, Ohio.
- 3. "Volume Displacement Correction Factor for the Roche Isomune CK Assay", Roche Diagnostic Systems Workshop, Toledo, Ohio.
- 4. "Evaluation of Turbidimetric Immunoassays for Apolipoproteins", Abbott Labs, North Chicago, Illinois.

#### VI. PUBLICATIONS:

##### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

- 1. Rocher, L.L., Giacherio, D. and Annesley, T.: Refinement in HPLC analysis for cyclosporine: Comparison of octyl and octadecyl columns. Transplant Proc. In Press.
- 2. Annesley, T., Giacherio, D., and Feldkamp, C.: The concentration related distribution of cyclosporine in blood. J. Clin. Immunoassay 1986;9:53-56.
- 3. Annesley, T., Matz, K., Davenport, R. and Giacherio, D.: A high performance liquid chromatography assay for tocainide with alternate application for the determination of lidocaine, procainamide, and n-acetylprocainamide. Res. Comm. Biochem. Pharmacol. 1986;51:173-181.

4. Annesley, T., Matz, K., Balogh, L., Clayton, L. and Giacherio, D.: Liquid chromatographic analysis for cyclosporine with use of a microbore column and small sample volume. Clin. Chem. 1986;32:1407-1410.
5. Coon, M.J., England, B., Giacherio, D. and Annesley, T.: Interference by anti-lymphocyte and anti-thymocyte globulin in a double antibody digoxin assay. Clin. Chem. Accepted for Publication.

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

1. Clayton, L., Balogh, L., Matz, K., Patel, J., Annesley, T. and Giacherio, D.: HPLC analysis of cyclosporine utilizing a minibore column and reduced specimen requirement. Michigan Section AACC Fall Symposia, 1985.
2. Giacherio, D., Johnson, R.M., Matz, K. and Annesley, T.: Serum Apolipoprotein assays performed by a turbidimetric method on the COBAS-BIO centrifugal analyzer. Michigan Section AACC Fall Symposia, 1985.
3. Coon, M., Smart, J., Annesley, T., Giacherio, D. and England, B.A.: A comparison study of serum digoxin levels in four immunoassay methods. J. Med. Tech. 1986;3:251.
4. Giacherio, D. and Annesley, T.: Use of a volume correction factor with the Roche isomune CK procedure for the quantitation of creatine kinase MB isoenzyme activity. Clin. Chem. 1986;32:1131.
5. Clayton, L., Annesley, T., Matz, K., Balogh, L., Patel, J. and Giacherio, D.: HPLC analysis of cyclosporine utilizing minibore columns and reduced specimen requirement. Clin. Chem. 1986;32:1050.
4. Viscardi, R., Donn, S., Giacherio, D. and Goldstein, G.: Serum creatine kinase brain specific isoenzyme (CK-BB) in term asphyxiated infants. Ped.Res. 1985;19:396A.
5. Giacherio, D. and Annesley, T.: Cyclosporine: Promising new immunosuppressant for organ transplantation. MediLab 1985;2:20-25.
6. Rocher, L.L., Giacherio, D. and Annesley, T.: Evaluation of two columns for the HPCL determination of cyclosporine in whole blood.



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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Necropsy Service, six weeks.
- B. Surgical Pathology, sixteen weeks.
- C. Cytopathology, sporadic assignment to cover when regular staff is away.
- D. Diagnostic EM, share nephropathology work with Dr. K. Johnson.
- E. Consultation service for Uropathology.
- F. Conduct monthly conference in Urologic Pathology with Urology Section.
- G. Conduct monthly conference with Rheumatology Section.
- H. Participate in weekly Renal Biopsy Conference with Dr. K. Johnson.

II. TEACHING ACTIVITIES:

- A. Lectures to Sophomore Pathology Class:
  - 1. Tubulo-interstitial disease of kidney.
  - 2. Prostatic and penile lesions.
  - 3. Testicular lesions.
  - 4. Death certification and forensic pathology.
  - 5. Pathogenesis of highway injuries.
- B. Instructor for Pathology 600 Laboratory Section.
- C. Lecture to N223 Personal Health and Illness Course.
- D. Nominated for Kaiser Teaching Award, May 1986.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

- A. Collaborate with Urology Staff and General Surgery Staff on projects.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

- A. Director of Necropsy Service.

MEDICAL SCHOOL/HOSPITAL:

- A. Hospital Medical-Legal Committee.

UNIVERSITY:

- A. Faculty Representative to Big Ten Intercollegiate Conference and National Collegiate Athletic Association (NCAA).
- B. Chairman, Big Ten Awareness Committee on Alcohol and Drug Abuse.

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.

V. OTHER RELEVANT ACTIVITIES: None.

VI. PUBLICATIONS:

- 1. Jasinski, R.W., Amendola, M.A., Glazer, G.M., Bree, R.L. and Gikas, P.W.: Computed tomography of renal oncocytomas. Computerized Radiol. 1985;9:307-314.
- 2. Griffin, D.J., Oke, E.J., Cho, K.J. and Gikas, P.W.: Chemical ablation of the canine kidney using sodium tetradecyl sulfate (sotradecol). Invest. Radiol. 1986;21:217-220.

SANDRA C. GLUCK, M.S., M.T. (ASCP) CLS  
INSTRUCTOR OF MEDICAL TECHNOLOGY  
PROGRAM DIRECTOR, MEDICAL TECHNOLOGY  
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES: None.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

- A. Planned, coordinated, and implemented Pathology 411, 431, and 441 lecture courses for Medical Technology students. Identified topics and scheduled guest lecturers. Carried sole responsibility for some topics and student exercises.

III. RESEARCH ACTIVITIES: None.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

- A. Administration of Medical Technology program.  
1. Direct teaching staff, coordinate curriculum.  
2. Act as problem-solver with teaching staff and students.  
3. Identify program and curriculum needs and directions.  
4. Plan and implement graduation picnic and laboratory staff party.
- B. Liaison with LSA and Medical School.  
1. Managed all student records.  
2. Maintain contact with LSA and Medical School faculty and staff involved with program and students.
- C. Public relations.  
1. Program publicity.  
2. Plan and implement Laboratory Week display in Hospital.
- D. Pathology Residency Training Program.  
1. Reviewed applications.  
2. Coordinated interview schedules.  
3. Developed scoring sheet for committee use.
- E. M-Labs.  
1. Participate in market planning, sales calls.  
2. Serve as Client Services Representative.

MEDICAL SCHOOL/HOSPITAL:

- A. Participate in Hospital Allied Health Education Program Directors' meetings.
- B. Participate in Laboratory Communications Committee meetings.
- C. Co-developer and implementer of Blood Bank survey for Donor Room expanded program.

REGIONAL AND NATIONAL:

- A. Critique self-studies of other Medical Technology programs for the National Accrediting Agency for Clinical Laboratory Science (NAACLS).

V. OTHER RELEVANT ACTIVITIES:

- A. Participate in biannual meetings of Michigan Medical Technology program directors.
- B. Attend regional and national professional meetings.
- C. Participate in variety of continuing education programs.

VI. PUBLICATIONS: None.

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 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES: None.

II. TEACHING ACTIVITIES:

D.D.S. LEVEL:

- A. 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.)
- B. Pathology 631. General Pathology Laboratory for Dental Students (three credits).

DENTAL HYGIENE:

- A. Oral Pathology 293. General and Oral Pathology Lectures (two credits). (Course director and principal lecturer - 28 of 32 lectures.) (Winter term, junior year).
- B. Oral Pathology 323. Clinical Oral Pathology Lectures (two credits). (Course director and principal lecturer - 16 out of 26 lectures). (Fall term; senior year).

GRADUATE LEVEL:

- A. Oral Pathology 698. Graduate seminar in Oral Pathology (one credit). Histopathology seminar, two hours, participant.) (Fall and Winter term).

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Sybron/Kerr - Electromagnetic Stimulation of Bone and Connective Tissue Growth: Tissue Culture Studies. 1979-1985.
- B. Biomedical Research Committee, The University of Michigan Dental School - "In Vitro Synthetic Bone Matrix for Repair of Alveolar Bone Defects." (C.T. Hanks and R. Fonseca, Chairman of Oral Surgery, Co-Investigators). This is funding for a pilot project for a longer grant application to the N.I.H. 1983-1985.
- C. Biomedical Research Committee, The University of Michigan, School of Dentistry--"Autoradiographic Study of Electromagnetic Stimulation of Cells in Culture", C.T. Hanks, Principal Investigator, 9/1/84 - 12/31/85.

- D. Dental Research Institute, The University of Michigan. First year of an Associate's program between laboratories of Biomaterials (Robert Craig), Microbiology (Salam Syed), and Experimental Oral Pathology (C.T. Hanks). C.T. Hanks, Principal Investigator. C. Keall, Associate. Project entitled, "In Vitro Dentin-Culture Chamber for Study of Mammalian and Microbial Cells to Various Classes of Materials Used in Dentistry."

PROJECTS UNDER STUDY:

- A. Project on effects of electric fields on cells in culture. This is a continuation of the Research Committee funded project for 1985-1986. In this study we will emphasize the role of ion transport (especially Ca++) in the cell response. This project is in collaboration with Dr. Parkinson, Physics Department. Drs. Parkinson and Hanks submitted three grant applications to outside funding agencies in June, 1986, to further this research.
- B. Project on the effect of piezo-polymers on proliferation of cells in culture. This project is in collaboration with Drs. J.K. Avery and E. Fukada of the Institute of Physical and Chemical Research, Wako, Satrama, Japan.
- C. Second year of the DRI Associate's Program. Drs. Hanks, Craig and Syed submitted an NIH grant application in June, 1986, to further this research.

IV. ADMINISTRATIVE ACTIVITIES:

SCHOOL OF DENTISTRY AND DEPARTMENT OF ORAL PATHOLOGY:

- A. Master's Degree Thesis Committee for Dr. Bjorn Stephenson, Department of Periodontics.
- B. Master's Degree Thesis Committee for Ann Rathburn, Department of Biomaterials.
- C. Master's Degree Thesis Committee for Dr. Sam Daniels, Department of Orthodontics.
- D. Master's Degree Thesis Committee for Dr. Donald George, Department of Orthodontics.
- E. Electron Microscope Facility Advisory Committee, School of Dentistry and Institute of Dental Research.
- F. Animal Care Committee, School of Dentistry.
- G. Strategic Planning Committee for School of Dentistry.
- H. University Senate Assembly, University of Michigan.
- I. SACUA Ad Hoc Committee on "University Programs".
- J. University Committee for Use and Care of Animals, (Vice-Chairman), University of Michigan.

V. OTHER RELEVANT ACTIVITIES:

PROFESSIONAL ORGANIZATIONS:

- A. International Association for Dental Research.
- B. American Academy of Oral Pathology.

- C. American Association for Advancement of Science.
- D. Omicron Kappa Upsilon.
- E. Tissue Culture Association (Nation).
- F. Michigan Biomedical Materials and Prosthetic Group.
- G. New York Academy of Sciences.
- H. Sigma Xi.

REVIEWER FOR JOURNALS:

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

VI. PUBLICATIONS:

1. Parkinson, W.C. and Hanks, C.T.: Response of primary and transformed cells to electromagnetic fields, *Ionic Currents in Development*, Alan R. Liss, Inc., New York, 1986, pp. 329-336.
2. Hanks, C.T., Kim, J-S. and Edwards, C.A.: Growth control of cultured rat calvarium cells by platelet-derived growth factor. *J. Oral Pathology*. Accepted for Publication.
3. Hanks, C.T., Moskwa, J., Kim, J-S. and Avery, J.K.: In vitro testing for development of coils and waveform for intra-oral EM device. *Transactions of the 5th Annual Meeting of the Bioelectrical Repair and Growth Society*, 1985, p.55.
4. Keall, C.L., Hanks, C.T., Cox, C.F., Craig, R.G. and Syed, S.: Pulp cell culture on plastic, basement membrane, and dentin slice, *Annual Meeting of AADR*, March, 1986, *J Dent Res* 1986;65(sp):238.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Clinical Dermatology.
- B. Dermatopathology, private consultations.
- C. Dermatopathology, MDS.
- 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. Androgenetic alopecia.
- B. Cutaneous ganglioneuromas.
- C. Neurocristic melanomas.
- D. Regressing atypical histiocytosis.
- E. Cyclosporin and psoriasis.
- F. Anti-melanoma mouse monoclonal antibodies for detection of lymph node metastases.
- G. Retinoic acid and aging.
- H. Articles submitted for publication:
  - 1. Gupta, A.K., Rasmussen, J.E. and Headington, J.T.: Extensive congenital erosions and vesicles healing with reticulate scarring. Arch. Dermatol.
  - 2. Headington, J.T. and Astle, N.: Familial focal alopecia. Arch. Dermatol.
  - 3. Hashimoto, K., Ito, K., Kumakiri, M. and Headington, J.T.: Nylon brush macular amyloidosis. Arch. Dermatol.
  - 4. Silverman, A.K., Shea, M. and Headington, J.T.: Unilateral zosteriform nevus associated with hypertrophic cardiomyopathy. Arch. Dermatol.
  - 5. Iacobucci, J.J., Stevenson, T.R., Swanson, N.A. and Headington, J.T.: Cutaneous leiomyosarcoma. Arch. Plastic Surg.



IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Pigmented Lesion Clinic.

MEDICAL SCHOOL/HOSPITAL:

A. Dermatopathology Unit.

B. Co-Director, Clinical Microbiology Laboratory.

REGIONAL AND NATIONAL:

A. Director, Annual Dermatopathology Symposium, The International Academy of Pathology.

B. Executive Board Member, The American Society of Dermatopathology.

C. Editorial Board, Archives of Dermatology.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES AND SEMINARS:

1. "The Dermal Dendrocyte", British Association of Dermatologists, London, England, July 1985.
2. "Melanoma, Clinical Recognition and Criteria for Margins of Excision", Michigan State Medical Society, Dearborn, Michigan, November 1985.
3. "The Carney Complex. Alpha-1-Antitrypsin Deficiency", The American Society of Dermatopathology, Las Vegas, Nevada, December, 1985.
4. "Pseudopelade: Androgenetic Alopecia. ", The American Academy of Dermatology, Las Vegas, Nevada, December, 1985.
5. "Precursors of Melanoma, Squamous Cell Carcinoma of Skin", Symposium on Skin Malignancies, American Academy of Facial and Skin Reconstructive Surgery, Copper Mountain, Michigan, March, 1986.
6. "Neurocristic Melanoma", International Academy of Pathology, New Orleans, Louisiana, March, 1986.
7. "Pathobiology and Treatment of Alopecia Areata", South Central Ohio Dermatology Association, Greenbrier, Ohio, March. 1986.
8. "Cutaneous Vasculitis: Pathogenetic Mechanisms", American Dermatological Association, Greenbrier, Ohio, May, 1986.
9. "Cutaneous Manifestations of Systemic Disease", American Academy of Dermatology, Boston, Massachusetts, June, 1986.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Duque, R.E., Lloyd, R.V., Headington, J.T. and Schnitzer, B.: Site dependent phenotypic heterogeneity in peripheral T-cell lymphoma. Hum. Pathol. In Press.
2. Milgram, S.S. and Headington, J.T. Tungiasis. Arch. Dermatol. In Press.

3. Burger, T.G., Lane, A.T., Headington, J.T., et al. Solitary benign congenital Langerhans cell tumor of the skin: A solitary variant of Hashimoto-Putzher disease. Am. J. Ped. Derm. In Press.
4. Regezi, J.A., Stewart, J.C.B., Headington, J.T. and Lloyd, R.V.: Immunohistochemical staining of Langerhans cells and macrophages in oral lichen planus. Oral Surg. Oral Med. Oral Path. In Press.
5. Headington, J.T.: The Histiocyte: In Memorium. Arch. Dermatol (Editorial). Arch. Dermatol 1986;122:532-533.

BOOKS AND CHAPTERS IN BOOKS:

1. Headington, J.T. Primary plasma cell tumors of skin, In, Murphy, G.F. and Mihm, Jr. (Editors), Lymphoproliferative Disorders of the Skin, Butterworths, Boston, Massachusetts, pp. 160-174, 1986.
2. Headington, J.T.: The dermal dendrocyte, in, Golitz, L.E. and Callen, J.T. (Editors), Advances in Dermatology, Year Book Publishers, Chicago, Illinois, pp. 159-170, 1986.

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

1. Shum, J.T., Pace, W.E., Smout, M.S. and Headington, J.T.: Unusual skin pigmentation from long-term metacycline and minocycline therapy. Arch. Dermatol. 1986.
2. Headington, J.T.: Letter to the Editor. J. Am. Acad. Derm. 1985;13:834.
3. Headington, J.T.: Book Review, of Unusual Malignant Skin Tumors. Proc. Mayo Clinic, 1986. In Press.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

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. MDS Surgical Pathology, 1.5 months.
- E. Adult Necropsy Service, 1.5 months.
- F. Continued to organize and maintain the Michigan Cardiac Registry, twelve months.
- G. Continued to direct and interpret the Lung Morphometric Program, twelve months.
- H. Teratology Unit, Histology, as necessary, approximately 30 cases per year.
- I. Children's Cancer Study Group, coordinate all pathological material and data necessary for all children registered in national tumor protocols.
- J. 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 1.5 month plus call weekends.
- F. Surgical Pathology Conference, one hour/week, twelve months.
- G. Gross Autopsy Conference, one hour/week, twelve months.
- H. Supervised Pediatric Hematology Fellows (one) for AP elective period.
- I. 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 at various ages.

#### PROJECTS UNDER STUDY:

- A. Long-term study with Dr. Appelman and the Pediatric surgeons on the effects of hyperalimentation on the neonatal liver.
- B. Continued detailed study of the lethal neonatal chondrodysplasias and their morphologic characterization. (See publications).
- C. Histologic studies of myocardium in hypoplastic left heart syndrome.
- D. Study with Drs. John Wesley and Michael DiPietro of various congenital lung masses in infancy and childhood. (See publications).
- E. Study of embryological etiology of primitive CNS tumor causing congenital deformity, with Drs. Barr and Dorovini-Zis. (See publications).
- F. Report of bizarre fatal liver neoplasm in infant, with Drs. Wesley, DiPietro, Hutchinson, Blane and Coran. (See publications).
- G. Study of fetal/placental neuroblastoma, its causes and effects, with Drs. Barr and Sanders (see Abstracts).
- H. Documentation of the validity of rectal suction biopsy in the diagnosis of Hirschprung's disease: A review of twelve years' experience (See publications).
- I. Participant in 14 institution study of associated lethal defects in hypoplastic left heart syndrome.

#### IV. ADMINISTRATIVE ACTIVITIES:

##### DEPARTMENTAL:

- A. Departmental ACAPT.

##### MEDICAL SCHOOL/HOSPITAL:

- B. Executive Committee for Mott/Women's/Holden Unit. Chairman, Pediatric Diagnostic Laboratories Review Committee.

##### REGIONAL AND NATIONAL:

- A. Completed (March '86) three-year term as Councilor of the Society for Pediatric Pathology.
- B. Member, American Board of Pathology Test Committee for Pediatric Pathology.
- C. Member of the Education Committee of the Society for Pediatric Pathology, Subcommittee I, charged with the definition of a core curriculum for fellowship training in pediatric pathology.

#### V. OTHER RELEVANT ACTIVITIES:

- A. Invited participant IAP Specialty Panel in Pediatric Pathology, March 10, 1986.

#### VI. PUBLICATIONS:

##### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Wesley, J.R., Heidelberger, K.P., DiPietro, M.A., Cho, K.J. and Coran, A.G.: Diagnosis and management of cystic disease of the lung in children. J. Pediatr. Surg, 1986;21:202-207.

2. DeStephano, D.B., Wesley, J.R., Heidelberger, K.P., Hutchinson, R.J., Blane, CE. and Coran, A.G.: Primitive cystic hepatic neoplasm of infancy with mesothelial differentiation: Report of a case. *Pediatric Pathology* 1985;4:291-302.
3. Barr, M, Heidelberger, K.P. and Dorovini-Zis K.: Scalp neoplasm associated with cranium bifidum in a 24-week human fetus. *Teratology* 1986;33:153-157.
4. 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* Accepted for Publication.
5. Polley, T.Z., Coran, A.G., Heidelberger, K.P. and Wesley, J.R.: The suction rectal biopsy in the diagnosis of Hirschsprung's disease and chronic constipation. *Pediatric Surgery International*. Accepted for Publication.
6. Heidelberger, K.P. and DePietro, M.: Fibrodysplasia ossificans progressiva. *Pediatric Pathology*. Accepted for Publication.

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

1. Bromberg, B.I., Beekman, R.H. and Heidelberger, K.P.: Heart block with viral myocarditis. (letter) *J. Pediatrics* 1986;108:790.
2. Barr, M., Heidelberger, K.P. and Sander, C.H.: Lethal fetal neuroblastoma: A lack of morphogenetic control. *Greenwood Genet. Center* 1986;5:109.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Microscopic examination of brains from University Hospital autopsies, and autopsy brains sent from other hospitals from patients suspected of having Alzheimer's, Huntington's or other dementing diseases.

II. TEACHING ACTIVITIES:

- A. Dual microscope study of autopsy brains with residents in Pathology and occasionally with staff in Pathology, and residents in other Departments.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. USPHS Grant NS 19825, "Recovery or Malformation after Fetal Injury, in collaboration with Thomas M. Annesley (consultant), Constance J. D'Amato (coinvestigator), Ricardo V. Lloyd (consultant), K. Sue O'Shea (coinvestigator, Department of Anatomy and Cell Biology), and James Varani (consultant).

PROJECTS UNDER STUDY:

- A. The following areas of developmental neurobiology have been centers of interest this past year under USPHS NS19825. 1) Continued immunocytochemical studies of constituents of the basal lamina of the cephalic neural tube in a mutant rat in which the basal lamina alterations lead to prenatal aqueduct stenosis and hydrocephalus. Scanning and transmission electron microscopy of neuroepithelium and facial abnormalities in these mutant fetuses, and whole embryo and tissue culture of early stage fetuses are being done. 2) Continued studies of the production of superoxide anion by fetal rat brain macrophages which form in response to cell-killing by radiation of large numbers of primitive cells in the fetus. Whether these macrophages, spewing oxygen radicals, add to the damage done by the radiation remains to be determined. 3) The development of the capacity of astrocytes to undergo gliosis (hypertrophy, multiplication and exuberant growth of fibers) in response to injury. 4) Roles of astrocytes in the normal development of Purkinje and granule cell neurons in the cerebellum and the effects of radiation on this relationship between developing astrocytes and neurons. Immunocytochemical methods and electron and light microscopy are being used.

- B. Examine neuropathologically the autopsy brains from patients with Alzheimer's, Huntington's and other dementias, which brains are being simultaneously studied biochemically in a project conducted by Anne B. Young and John B. Penney, Department of Neurology.

IV. SERVICE ACTIVITIES:

- A. Help plan work in I, II, III.

MEDICAL SCHOOL/HOSPITAL:

- A. Neural and Behavior Sciences Curriculum Committee (Medical School).

REGIONAL AND NATIONAL:

- A. Occasionally review grant applications, manuscripts, other documents.

V. OTHER RELEVANT ACTIVITIES:

None.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. D'Amato, C.J., O'Shea, K.S., Hicks, S.P., Glover R.A. and Annesley, T.M.: Genetic prenatal aqueduct stenosis with hydrocephalus in rat. J. Neuropath. Exper. Neurol. 1986. Accepted for Publication.

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

1. O'Shea, K.S., D'Amato, C.J. and Hicks, S.P.: Immunocytochemistry of neuroepithelial basal lamina alterations in rat embryos with genetic hydrocephalus. Soc. for Neurosci. 1985;11:998.
2. D'Amato, C.J., O'Shea, K.S., Rheinheimer, J.S. and Hicks, S.P.: Development of genetic prenatal aqueductal stenosis with hydrocephalus in the rat. Teratology 1986;33:33C.
3. D'Amato, C.J., O'Shea, K.S., Rheinheimer, J.S. and Hicks, S.P.: Developmental prenatal aqueductal stenosis with hydrocephalus. Immunocytochemistry and electron microscopy. Abstract and poster exhibit presented at the Annual Michigan Chapter: Society for Neuroscience Meeting, Ann Arbor, Michigan, May, 1986.
4. Rheinheimer J.S., O'Shea, K.S., D'Amato, C.J. and Hicks, S.P.: Early alterations in prenatal hydrocephalus. Presented at the May, 1986, Meeting of Scanning Electron Microscopists and abstract.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Cytometry Laboratory.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

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

OTHER:

- A. Faculty Advisor: Senior Honors Projects, Kalamazoo College.
- B. Faculty Advisor: High School Student Science Fair Projects.

INVITED LECTURES/SEMINARS:

1. "Flow Cytometry in Immunotoxicology", The 99th Meeting of the Association of Official Analytical Chemists. Washington, D.C., October 28, 1986.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Cytometry Research and Development Project, EPICS Division, Coulter Corporation (J.L. Hudson, Ph.D., Principal Investigator; P.A. Ward, M.D., Co-Investigator), 1 July 1984 - Present.
- B. Immune Responses in Head and Neck Cancer Patients, Veterans Administration Hospital, Ann Arbor, Michigan, (G.T. Wolf, M.D. Principal Investigator; J.L. Hudson, Ph.D., Consultant), 1 July 1984 - Present.
- C. Flow Cytometric Immunotoxicology Profile Development, The Procter and Gamble Company, Postdoctoral Research Fellowship, (J.L. Hudson, Ph.D., Faculty Administrator), to be initiated 1 July 1986.
- D. Immune Status and Nutritional Support in Postoperative and Post-traumatic Recovery, Departments of Surgery and Pathology, (R.H. Bartlett, M.D., R.H. Dechert, M.S., J.H. Greenwood, M.S., P.A. Ward, M.D., and J.L. Hudson, Ph.D., Co-Investigators) 1 July 1984 - Present.



- E. Cellular Effects of Tricyclic Nucleotides, National Cancer Institute and the American Cancer Society, (L.L. Wotring, Ph.D., Principal Investigator, J.L. Hudson, Ph.D., Consultant), 1 July 1984 - Present.
- F. Automated Image Analysis Development Project, Coulter Corporation, (J.L. Hudson, Ph.D., Principal Investigator), 1 July, 1984 - Present.
- G. Flow Cytometry Applications Development, Diagnostics Division, Coulter Corporation, (J.L. Hudson, Ph.D., and J.P. Robinson, Ph.D., Co-Investigators), 1 July 1985 - Present.
- H. Flow Cytometric Immune Profile Analysis of Arthritic Patients, The Pfizer Company, (J.L. Hudson, Ph.D., Principal Investigator), to be initiated 1 July 1986.
- I. Flow Cytometry Core Laboratory/Inflammatory Cells and Lung Injury Supplemental Grant, (J.L. Hudson, Ph.D., and P.A. Ward, M.D., Co-Investigators), to be initiated 1 August 1986.

PROJECTS UNDER STUDY:

- A. A series of studies involving research and development for clinical applications and immunotoxicity assessment using automated cytology (flow cytometry and image analysis) including: Cell surface marker analysis (phenotype/activation state), immune cell function, cell surface receptor analysis, cell cycle analysis, cell membrane electronic potential analysis, neoplastic cell screening and diagnosis (immune system, breast, cervical, endocrine, bladder, colon, and head and neck tissues), prototype instrumentation development, instrumentation-computer networking, and software development for cytometry data analysis and cytometry data base systems.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

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

MEDICAL SCHOOL/HOSPITAL:

- A. Cell Identification Center.
- B. Faculty Senate.
- C. Advisory Committee, Center for Medical School Research Computing.

REGIONAL AND NATIONAL:

- A. Reviewer:
  - 1. Cytometry.
  - 2. CRC Press.
  - 3. Brain Research.
  - 4. J. Leukocyte Biology.
  - 5. Review of Scientific Instruments.
- B. Member, National Immunotoxicology Discussion Group.

- C. Organizing Committee: Clinical Applications of Cytometry, 30 September - 3 October 1986, Charleston, South Carolina.
- D. Consultant:
  - 1. Coulter Corporation.
  - 2. The Pfizer Company.
  - 3. The Procter and Gamble Company.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

- 1. National Immunotoxicology Discussion Group, IIT Research Institute, Chicago, Illinois, 8-9 October 1985.
- 2. International Conference, Analytical Cytology XI., Hilton Head, South Carolina, 17-22 November 1985.
- 3. Coulter EPICS User's Conference, New Orleans, Louisiana, 3-5 December 1985.
- 4. First Annual Coulter Immunology Conference, New Orleans, Louisiana, 6 December 1985.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

- 1. McCoy, J.P., Schade, W., Merz, G.E., Esch, T., Varani, J. and Hudson, J.L.: DNA content of murine fibrosarcoma cell lines with varying metastatic potential. *Cancer Res.* 1985;45:5757-5761.
- 2. Wotring, L.L., Paaatore, J.E., Roti Roti, J., Hudson, J.L. and Townsend, L.B.: Effects of the tricyclic nucleoside 6-amino-4-methyl-8-(B-D-ribofuranosyl)-pyrrolo [4,3,2-de]pyrimido[4,5-c]pyridazine on the viability and cell cycle distribution of L1210 cells in vitro. *Cancer Res.* 1985;45:6355-6361.
- 3. Sidi, Y., Hudson, J.L. and Mitchell, B.: Metabolic cell cycle changes resulting from guanine ribonucleotide accumulation in lymphoblasts. *Cancer Res.* 1985;49:40-4945.
- 4. Roa, R.A., Carey, T.E., Pasamani, P.P., Greenwood, J.H., Hsu, S., Ridings, E.O., Schwartz, D.R., Wolf, G.T. and Hudson, J.L.: DNA content of human squamous cell carcinoma cell lines: Analysis by flow cytometry and chromosome enumeration. *Arch. Otolaryngol.* 1985;111:565-575.
- 5. Duque, R.E., Stoolman, L.M., Hudson, J.L. and Ward, P.A.: Multiparameter analysis of immunohematological disorders by flow cytometry: Survey and synthesis. *Pathology Research* 1985;4:323-340.
- 6. Richardson, B.C., Kahn, L.E., Lovett, E.J. and Hudson, J.L.: DNA methylation and T-cell maturation: II. Effect of 5-azacytidine on T-cell phenotype. *J. Immunol.* 1986;137:35-39.
- 7. McKeever, P.E., Fligiell, S.E.G., Varani, J., Hudson, J.L., Smith, D., Castle, R.L. and McCoy, J.P.: Products of cells cultured from gliomas: IV. Extracellular matrix proteins of gliomas. *International J. Cancer.* 1986;37:867-874.

BOOKS AND CHAPTERS IN BOOKS:

- 1. Hudson, J.L., Duque, R.E. and Lovett, III, E.J.: Applications of flow cytometry in immunotoxicology, in, Dean, J., Munson, A. and Luster, M.

- (Editors), "Immunotoxicology and Pharmacology", Raven Press, New York, New York. 1985.
2. Swartzendruber, D.A., Lovett, III, E.J. and Hudson, J.L.: Flow cytometry and monoclonal antibodies, in, Gordon, D. (Editor), "Monoclonal Antibodies in Clinical Diagnostic Medicine", Igaku-Shion Medical Publishers, Inc., New York, New York, 1985.
  3. Schnitzer, B., Kahn, L.E., Lovett, III, E.J. and Hudson, J.L.: American adult T-cell leukemia/lymphoma: A flow cytometric and morphological study, in, Andreef, M. (Editor), "Clinical Applications of Flow Cytometry", Annals of the New York Academy of Science, Vol. 468:256-267, New York, New York, 1986.
  4. 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., Guilamondegui, O.M. and Ballantyne, A.J. (Editors), "Treatment of Metastatic Cancer of the Head and Neck", MacMillan Publishing Company, New York, New York. In Press.

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

1. Carey, T.E., Roa, R.A., Hsu, S., Greenwood, J.H., Ridings, E.O., Schwartz, D.R. and Hudson, J.L.: Abnormal DNA in human squamous carcinoma: Evidence for in vivo evolution of cell populations with streamlined DNA content. Abstract presented at the Meeting of the American Society of Human Genetics. Salt Lake City, Utah, 9-12 October 1985.
2. Kresowik, T.F., Dechert, R.E., Hudson, J.L., Till, G.O., Greenwood, J.H., Kahn, L.E., Whitehouse, Jr., W.M. and Bartlett, R.H.: Host defenses following operation and postoperative semistarvation. American College of Surgeons Surgery Forum, 1985.
3. Robinson, J.P., Duque, R.E., Hudson, J.L. and Ward, P.A.: Measurement of antineutrophil antibodies by flow cytometry: Simultaneous detection of antibodies against monocytes and lymphocytes. Presentation at Analytical Cytology XI, Hilton Head, South Carolina, 17-22 November 1985.
4. Duque, R.E., Kelley, S.L., Robinson, J.P. and Hudson, J.L.: Kinetic analysis of the oxidative burst in human granulocytes. Presentation at Analytical Cytology XI, Hilton Head, South Carolina, 17-22 November 1985.
5. Duque, R.E., Robinson, J.P., Hudson, J.L. and Ward, P.A.: Detection of anti-platelet antibodies in serum by flow cytometry. Presentation at Analytical Cytology XI, Hilton Head, South Carolina, 17-22 November 1985.
6. Hudson, J.L., Greenwood, J.G., Armstrong, L.A., Marasco, W.A., Hiserodt, J.R., Robinson, J.P., Duque, R.E. and Ward, P.A.: Flow cytometry in immunotoxicology. Proceedings of the 99th Meeting of the Association of Official Analytical Chemists, Washington, D.C., 28 October 1985.
7. Robinson, J.P., Comment, C., Reidy, M., Schlegelmilch, J., Duque, R.E. and Hudson, J.L.: Flow cytometric evaluation of serum autoantibodies: Anti-neutrophil and anti-platelet. EPICS Users Meeting, New Orleans, Louisiana, 3-5 December 1985.
8. Schnitzer, B., Stoolman, L.M., Duque, R.E. and Hudson, J.L.: Diagnosis of lymphomas and leukemias in body fluids by flow cytometry. EPICS Users Meeting, New Orleans, Louisiana, 3-5 December 1985.
9. Robinson, P.R., Hudson, J.L., Bruner, L.H., Ward, P.A. and Phan, S.H.: Measurements of intracellular fluorescence of human monocytes indicative of oxidative metabolism. Abstract, Sixth International Congress of Immunology, Toronto, Ontario, Canada, 6-11 July 1986.

10. Baugh, R.F., Hudson, J.L., Wolf, G.T. and Carey, T.E.: Assessment of A9 antigen expression on normal and malignant squamous cells using flow cytometry. American Academy of Otolaryngology - Head and Neck Surgery - Research Forum, San Antonio, Texas, September 1986.
11. Babyak, J.W., Hudson, J.L., Wolf, G.T., Peterson, K.A., Bough, R.F. and Carey, T.E.: Further characterization of the A9 monoclonal antibody to squamous carcinoma cells. American Academy of Otolaryngology - Head and Neck Surgery Foundation, Inc. and the Association for Research in Otolaryngology - Research Forum, San Antonio, Texas, September 1986.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

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

II. TEACHING ACTIVITIES:

- A. Lecturer Renal 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. Clinical Investigator Award, National Institutes of Health, \$199,500 for five years.
- D. Oxygen-Derived Free Radicals, Immune Complexes and Tissue Injury. Council for Tobacco Research, \$70,000. Co-Investigator with Peter A. Ward and Barry Wilson.
- E. Effectors in Pulmonary Hypertension from Monocrotaline. National Institutes of Health, \$264,183 for three years. Co-Investigator with Bob Roth.
- F. Mediators in IgA and IgG Lung Injury. National Institutes of Health. \$466,791 for five years.
- G. Mediator Systems in Experimental IgA Glomerulonephritis. National Kidney Foundation of Michigan. \$14,775 for one year.
- H. Pathogenesis of Pancreatitis Induced Pulmonary Injury. National Institutes of Health. \$285,558 for three years. Co-Investigator with Karen Guice. (Pending).
- I. Crescentic Nephritis. Program Project. National Institutes of Health. Roger Wiggins, Principal Investigator. Principal Investigator; Section 5 and Morphology Core. \$619,631 for five years. (Pending).

PROJECTS UNDER STUDY:

- A. Oxygen Free Radical Mediated Tissue Injury.

#### IV. ADMINISTRATIVE ACTIVITIES:

##### DEPARTMENTAL:

- A. Director, Immunopathology Fellowship Program.
- B. Renal Pathology Conference - Bi-weekly.
- C. Residency Selection Committee.

#### V. OTHER RELEVANT ACTIVITIES:

- A. Consultant on Dermatology and Nephrology training grants.

#### VI. PUBLICATIONS:

##### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Rehan, A., Johnson, K.J., Kunkel, R.G. and Wiggins, R.C.: Role of oxygen radicals in phorbol myristate acetate-induced glomerular injury. *Kid. Int.* 1985;27:503-511.
2. Ward, P.A., Sulavik, M.C. and Johnson, K.J.: Correlation of arachidonate products with enzyme secretion but not with  $O_2^-$  generation. *Amer. J. Pathol.* 1985;120:112-120.
3. Ward, P.A., Johnson, K.J. and Till, G.O.: Current concepts regarding adult respiratory distress syndrome. *Annal. Emerg. Med.* 1985;14:724-728.
4. Rehan, A., Johnson, K.J.: IgM nephropathy associated with penicillamine. *Amer. J. Nephrol.* 1986;6:71-74.
5. Rehan, A., Johnson, K.J., Kunkel, R.G. and Wiggins, R.C.: Intravascular complement activation and acute glomerular injury. *Amer. J. Path.* 1986;465:26-32.
6. Johnson, K.J., Ward, P.A., Kunkel, R.G. and Wilson, B.S.: Mediation of IgA induced lung injury in the rat: Role of macrophages and reactive oxygen products. *Lab. Invest.* 1986;54:499-506.
7. Ward, P.A., Johnson, K.J. and Till, G.O.: Oxygen radicals and arachidonate metabolites on lung injury. *Ann. N.Y. Acad. Sci.*, 1986;465:26-32.
8. Ward, P.A., Johnson, K.J. and Till, G.O.: Oxygen radicals and microvascular injury of lungs and kidneys. *Acta Physiol. Scand.* 1986;548:79-85.
9. Ward, P.A., Johnson, K.J. and Till, G.O.: Complement and experimental respiratory failure. *Intensive Care Med.* 1986;12:17-21.
10. Ward, P.A. and Johnson, K.J.: Lung inflammatory mechanisms. *Human Pathol.* In Press.
11. Ward, P.A., Johnson, K.J. and Till, G.O.: Animal models of oxidant lung injury. *Eur. J. Res. Dis.* In Press.
12. Ward, P.A., Johnson, K.J. and Till, G.O.: Oxygen radicals, neutrophils and acute tissue injury. *Amer. Physiol. Soc. Clin. Monograph* In Press.
13. Ward, P.A., Johnson, K.J. and Till, G.O.: Mechanisms of lung injury. *Prax. Klin. Pneumol.* In Press.
14. Weinburg, J.M., Johnson, K.J., de la 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.
15. Powell, J., Johnson, K.J. and Ward, P.A.: Platelets enhance  $O_2^-$  production in human neutrophils. Submitted for publication.
16. Warren, J.S., Ward, P.A. and Johnson, K.J.: Activation of rat neutrophils and alveolar macrophages with IgA and IgG immune complexes: Differential patterns of enzyme secretion and  $O_2^-$  generation. Submitted for publication.

#### BOOKS AND CHAPTERS IN BOOKS:

1. Johnson, K.J. and Ward, P.A.: Mechanisms of acute and chronic immune inflammatory response in the lung, in, Daniele, R.P. (Editor), "Pulmonary Immunology and Immunologic Diseases of the Lung", Blackwell Scientific Publications Publishers. In Press.
2. Johnson, K.J. and Ward, P.A.: Inflammation and active oxygen species, in, Oberley, L.W. (Editor), "Superoxide Dismutase". Volume III; Pathological Studies. CRC Press, 1985.
3. 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. (Editors), "Complement", Springer Publishers. In Press.
4. Wiggins, R.C. and Johnson, K.J.: Glomerulonephritis, in, Humes, R.D. (Editor) "Pathophysiology of Electrolyte and Renal Disorders", Churchill, Livingston Press. In Press.
5. Ward, P.A., Johnson, K.J. and Till, G.O.: Tissue injury caused by toxic oxygen products from phagocytic cells, Proceedings of the Satellite Symposium, in, "Chemical Mediators of Inflammation". Academic Press, Japan, Inc. Iwata, Japan. In Press.
6. Ward, P.A., Johnson, K.J. and Till, G.O.: Leukocytic oxygen radicals and acute lung injury, in, Karemi, H., Hymed, A.L. and Koelowitz, P.J. (Editors), "Acute Lung Injury Pathogenesis of Adult Respiratory Distress Syndrome", PSG Publishing Company, Littleton, Massachusetts, pp. 107-114, 1986.
7. Johnson, K.J.: Neutrophil independent oxygen radical mediated tissue injury, in, Taylor, A.W. (Editor), "Oxygen Radicals", Clinical Physiology Series. American Physiological Society. In Press.
8. Ward, P.A., Johnson, K.J. and Till, G.O.: Neutrophil dependent-oxygen Radical mediated tissue injury, in, Taylor, A.E. (Editor), "Oxygen Radicals", Taylor. American Physiological Society. In Press.
9. Ward, P.A., Johnson, K.J. and Till, G.O.: Tissue injury as a consequence of oxygen radicals produced by phagocytic cells. Proceeding of Symposium by Comparative Respiratory Society. In Press.
10. Ward, P.A., Johnson, K.J. and Sulavik, M.: Lung injury produced by oxygen derived free radicals from leukocytes, in, Mechanisms of Lung Injury, George F. Stickley Company, Philadelphia, Pennsylvania, pp. 58-80, 1986.
11. Johnson, K.J.: Inflammatory mediators in glomerulonephritis, in, Simiak, R. (Editor), "Renal Disease", Vol. IV World Health Organization. In Press.
12. Warren, J.S., Johnson, K.J. and Ward, P.A.: Phagocytes and reactive oxygen substances as mediators of acute lung injury, in, Hyers (Editor), "Diffuse Alveolar Damage and Respiratory Failure, Futura Press. In Press.
13. Ward, P.A., Warren, J.S. and Johnson, K.J.: Leukocytic oxygen products and their diverse biological effects, in, Movat, H.A. (Editor), "Leukocyte Emigration and its Sequellae", Satellite Symposium of the 6th International Congress of Immunology, Karger, Basel, 1986. In Press.
14. Till, G.O., Johnson, K.J. and Ward, P.A.: Oxygen free radicals in inflammation, in, Messmer, K. and Hammersen, F. (Editors), Prog. Appl. Microcirc., Vol. 9, Karger, Basel. In Press.
15. Ward, P.A., Johnson, K.J. and Till, G.O.: Leukocyte oxygen radicals and acute lung injury, Proceedings of a Symposium on "Acute Lung Injury", PSG Publishing Co., Littleton, Massachusetts. In Press.
16. J.S. Warren, P.A. Ward and K.J. Johnson: Mechanisms of damage to pulmonary endothelium, in, Ryan, U.S. (Editor). "Endothelial Cells", Mrcel Decker, Inc., New York, New York. In Press.

17. Johnson, K.J., S.W. Chensue, S.L. Kunkel and P.A. Ward. Immunopathology, in, Rubin, E. and Farber, J (Editors), "Textbook of Pathology" Lippincott Inc., New York, New York. In Press.

ABSTRACTS, BOOK REVIEWS, PUBLISHED LETTERS TO THE EDITOR, MISCELL-  
ANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Johnson, K.J.: Leukocytic oxygen radicals and tissue injury. Sixth Annual Symposium of the American Society for the Immunology of Reproduction. 1985.
2. Johnson, K.J., Sulavik, M. and Ward, P.A.: MONO-HETE production by neutrophils: relationship to enzyme release and superoxide production. FASEB 1985;44:2874.
3. Johnson, K.J.: Neutrophil independent oxygen radical mediated tissue injury. Symposium at the American Physiological Society meetings. Fall 1985.
4. Ward, P.A., Johnson, K.J. and Till, G.O.: Neutrophil dependent, oxygen radical mediated tissue injury. Symposium at the Fall meeting of American Physiological Society. 1985.
5. Warren, J.S., Ward, P.A. and Johnson, K.J.: Differential generation of superoxide radical by rat phagocytic stimulated with IgA and IgG immune complexes. FASEB, 1986.
6. Rehan, A., Wiggins, R.C., Kunkel, R.G. and Johnson, K.J.: Reduction of glomerular filtration rate (GFR) following intravascular activation of complement. Role of platelets (PT) and polymorphonuclear leukocytes (PMN). FASEB, 1986.
7. Ginsberg, I., Warren, J., Johnson, K.J. and Ward, P.A.: Preferential enhancement of reverse dermal Arthus reaction by polyelectrolytes: In vivo and in vitro evidence for mediation by oxygen derived radicals and their metabolites. FASEB, 1986.
8. Kunkel, R.G., Till, G.O., Johnson, K.J. and Ward, P.A.: Morphometric analysis of the effect of platelet depletion on neutrophil sequestration in a model of acute lung injury. FASEB, 1986.
9. Johnson, K.J., Ward, P.A., Kunkel, R.G. and Wilson, B.S.: Role of macrophages and oxygen radicals in IgA induced lung injury in the rat. FASEB, 1986.
10. Ward, P.A., Till, G.O. and Johnson, K.J.: Role of platelets in neutrophil dependent oxygen radical mediated damage of the microvasculature. FASEB, 1986.
11. McCulloch, K.K., Powell, J.S., Johnson, K.J. and Ward, P.A.: Enhancement by platelets of oxygen radical responses of human neutrophils. FASEB, 1986.
12. Guice, K.S., Oldham, K.T., Johnson, K.J., Ward, P.A., Till, G.O. and Coran, A.G.: Acute lung injury in caerulein-induced pancreatitis. American College of Surgeons, Clinical Forum, 1986.
13. Warren, J.S., Johnson, K.J. and Ward, P.A.: Different  $O_2^-$  responses of neutrophils and alveolar macrophages to IgG and IgA immune complexes. Chicago Thoracic Society, 1986.
14. Guice, K.S., Oldham, K.T., Johnson, K.J., Ward, P.A. and Till, G.O.: Caerulein-induced acute pancreatitis: A possible mechanism. American Pancreatic Association. 1986.
15. Ward, P.A., Johnson, K.J. and Till, G.O.: Tissue injury as a consequence of oxygen radicals produced by phagocytic cells. Proceedings of Symposium by Comparative Respiratory Society, given in Anaheim, California. In Press.



16. Ward, P.A., Johnson, K.J. and Sulavik, M.D.: Lung injury produced by oxygen-derived free radicals from leukocytes. Mechanisms of Lung Injury Symposium, given at the Graduate Hospital, Philadelphia, Pennsylvania. In Press.
17. Till, G.O., Johnson, K.J. and Ward, P.A.: Oxygen free radicals in inflammation. International Symposium on Microcirculation and Inflammation, Heidelberg, June, 1986.

W. JOHN JUDD, F.I.M.L.S., M.I. Biol.  
ASSOCIATE PROFESSOR OF MEDICAL TECHNOLOGY  
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

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

II. TEACHING ACTIVITIES:

- A. Medical Technology 418.
- B. Presentations to Residents in Clinical Pathology.
- C. Trained House-Officers in Immunohematology.
- D. Developed 1986 Core Lecture Series for Residents in Clinical Pathology.
- E. Developed 1986 Core Lecture Series for Residents in Anatomic Pathology.
- F. Coordinated 1985-86 Clinical Pathology Grand Rounds Conferences.
- G. Coordinated 1985-86 Anatomic Pathology Conferences.
- H. Pathology Resident's Teaching Award, 1985-1986.
- I. Program Planning Committee, Current Topics in Blood Banking, Department of Postgraduate Medicine:
  - 1. Workshop Director: Selection of Policies and Procedures.
  - 2. Speaker: Blood Group Biochemistry - So What?
- J. Invited Lecturer, Specialist in Blood Banking Program, Wayne State University.
- K. Workshop Director, Blood Banking in a Changing Environment. American Association of Blood Banks Annual Meeting, Miami.
- L. Workshop Director, Serological Methods in Forensic Science. American Association of Blood Banks Annual Meeting, Miami.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

- A. Butch, S.H., Oberman, H.A. and Judd, W.J.: Should hospitals draw donors? A cost appraisal. Submitted abstract.
- B. Steiner, E.A. and Judd, W.J.: Anti-IgG, dosage and the detection of Kidd-system antibodies. Submitted abstract.
- C. Judd, W.J., Annesley, T.M. and Giacherio, D.: LISS, clorox and their admixture: Potential hazards. Submitted abstract.
- D. Solid-phase serology.

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:
  - 1. Chairman, Subcommittee on Lectins.
- B. American Association of Blood Banks:
  - 1. Committee on Technical Workshops.
  - 2. Subcommittee on Regional Workshops.
  - 3. Committee on Technical Manual.
  - 4. Vice-Chairman, Scientific Section Coordinating Committee.
- C. Michigan Association of Blood Banks:
  - 1. President.
  - 2. Chairman, Annual Meeting Program Committee.
  - 3. Interim Scientific Program Committee.
- D. Referee of articles submitted to Transfusion, Vox Sanguinis and Laboratory Medicine.

## V. OTHER RELEVANT ACTIVITIES:

### INVITED LECTURES:

- 1. Solving Problem Cases. American Red Cross National Reference Laboratory, Bethesda. August, 1985.
- 2. Cost-Containment Issues in Blood Banking. Bay Area Antibody Club, San Francisco, September, 1985.
- 3. Lectins and Polyagglutination. Fanshawe College, London, Ontario, September, 1985.
- 4. Cost-Containment Issues in Blood Banking. Syva Corporation, Palo Alto, September, 1985.
- 5. Eliminating Unnecessary Serological Testing. Annual Meeting of the American Association of Blood Banks, Miami, October, 1985.
- 6. Biochemistry of the MN Blood Groups. Joint Annual Meeting of the Indiana and Ohio Associations of Blood Banks, Cincinnati, April, 1986.
- 7. Cost-Containment in Blood Banking. Pennsylvania Association of Blood Banks Annual Meeting, Pittsburgh, April, 1986.
- 8. Cost-Containment in Blood Banking. South Texas Regional Blood Center, San Antonio, April, 1986.
- 9. Resolution of the Positive DAT and Other Serological Problems. South Texas Regional Blood Center, San Antonio, April, 1986.
- 10. How Much Testing is Enough? 9th Annual Marion F. Beard Scientific Symposium, American Red Cross Blood Services, Louisville, June, 1986.
- 11. The Appropriateness of Elution Tests. Annual Meeting of the Canadian Society of Laboratory Technology, St. John's, Newfoundland, June, 1986.

## VI. PUBLICATIONS:

### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

- 1. Kimmel, K.A., Carey, T.E., Judd, W.J. and McClatchey, K.D.: Monoclonal antibody (G10) to a common antigen of human squamous cell carcinoma binds to the H type 2 blood group determinant. J. Natl. Cancer Inst. 1986;76:9-19.
- 2. Rosenblum, B.B., Judd, W.J. and Carey, T.E.: Biochemical characterization of a monoclonal antibody to the H type 2 antigen: Comparison to other ABH antibodies. Hybridoma 1986;5:117-127.

3. Judd, W.J., Barnes, B.A., Steiner, E.A., Oberman, H.A., Averill, D.B. and Butch, S.H.: The evaluation of a positive direct antiglobulin test (auto-control) in pretransfusion testing revisited. *Transfusion* 1986;26:220-224.
4. Judd, W.J., Wilkinson, S.L., Issitt, P.D., Johnson, T.L., Keren, D.F. and Steiner, E.A.: Immune hemolysis associated with an anti-Pr biphasic hemolysin. *Transfusion*. In Press.
5. Judd, W.J.: On the recognition of N-deficient red blood cells and the selection of blood for transfusion to patients with anti-N (editorial). *Immunohematology*. In Press.

BOOKS AND CHAPTERS IN BOOKS:

1. Oberman, H.A. and Judd, W.J.: Cost-containment in transfusion medicine, in, *Progress in Transfusion Medicine*, Vol. III. Submitted.
2. Rolih, S.D., Judd, W.J. (Editors): *Serological Methods in Forensic Science*, Arlington, Virginia, American Association of Blood Banks, 1985.
3. Judd, W.J. and Vengelen-Tyler, V. (Editors): *Blood Group Biochemistry Update*, Arlington, Virginia, American Association of Blood Banks. In Press.

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

1. Judd, W.J.: Polyagglutination: Etiology and clinical significance. *Labmedica* 1985;2(6):23-28.
2. Judd, W.J.: Polyagglutination: Recognition and serological management. *Labmedica* 1986;3:25-30.
3. Judd, W.J.: The human blood groups (review). Salmon C.H., et. al., eds. *Laboratory Medicine* 1985;16:441.
4. Judd, W.J. and Oberman, H.A.: The human blood groups (review). Salmon, C.H., et al., eds. *Archives of Pathology and Laboratory Medicine*. In Press.
5. Averill, D.B., Butch, S.H. and Judd, W.J.: Eliminating duplicate "type and screen" testing. *Transfusion* 1985;25:487.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Head, Biochemistry Section.
- B. Director, Clinical Immunopathology Laboratory.
- C. Surgical Pathology, Consultant on Immunopathology and Gastrointestinal Pathology, MDS signout, 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.
- B. House Officers:
  - 1. Coordinator, Weekly Clinical Pathology Rounds.
  - 2. Coordinator, Clinical Pathology Grand Rounds.
  - 3. Clinical Immunopathology, Daily sign-out.
  - 4. Immunology Journal Club, Weekly.
  - 5. Clinical Chemistry Conference, Weekly.

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. Clinical Immunopathology of gastrointestinal allergies.
- D. Grant Support - Principal Investigator:
  - 1. United States Army Research and Development Command. "An Investigation of the Memory Response of the Local Immune System to Shigella Antigens". \$290,628. December 1, 1984 - June 30, 1987.
  - 2. Smokeless Tobacco Research Council, Inc. "Significance of Immune Responses to Mucosal Carcinogens". \$162,946. January 1, 1984 - December 31, 1986.
- E. Grant Support - Co-Investigator:
  - 1. National Institutes of Health. "Cell Differentiation Within the Liver Acinus". Jorge Gumucio, Principal Investigator. David F. Keren, Co-Investigator. \$316,820. April 1, 1984 - March 31, 1987.
- F. Training Grant:
  - 1. National Institutes of Health. "Lung Immunopathology", Project Director - P.A. Ward. Dr. Keren is a trainer with one fellow at present.

- G. Student and Fellow Research Projects.
1. Scott Kern - "In vitro culture of Paneth cells from isolated ileal loops".
  2. John Carey - "The cellular basis for enhanced mucosal IgA memory responses".
  3. Larry Silbart - "The detection of AAF adducts in rat hepatocytes by RIA".

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Clinical Pathology Committee.
- B. Biochemistry Section Committee
- C. Resident Counselor.

MEDICAL SCHOOL/HOSPITAL/NATIONAL:

- A. Immunopathology Council (ASCP), (Chairman, 1985-1987).
- B. Editorial Board - Infection and Immunity (ASM).
- C. National Institutes of Health, Special Review Committee.
- D. Council on Continuing Education, (ASCP).
- E. Chairman, Gastrointestinal Pathology Session (IAP).
- F. Chairman, Antibacterial Immunity Session (ASM).

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. "Autoantibody Testing", Creighton University, October, 1985.
2. "High Resolution Electrophoresis", Nebraska Association of Pathologists, October, 1985.
3. "B Cell Ontogeny", American Society of Clinical Pathology, Las Vegas, October, 1985.
4. "Flow Cytometry Techniques and Applications", Ohio State Pathology Society, January, 1985.
5. "Laboratory Diagnosis of Monoclonal Gammopathies", Ohio State Pathology Society, January, 1986.
6. "Mucosal Memory Responses", The Walter Reed Army Institute of Pathology, Washington, D.C., April, 1986.
7. "T and B Cell Markers", American Society of Clinical Pathologists, Washington, D.C., April, 1986.
8. "Surface Marker Assays in Immunodeficiency", Michigan Society of Medical Technologist, April, 1986.
9. "Whipple's Disease: Scourge of the Western World", Baylor University, May, 1986.
10. "A Model for Mucosal Immunity", Baylor University, May, 1986.
11. "AIDS--Laboratory Update", American Society of Clinical Pathologists, San Antonio, May, 1986.
12. "Nonisotopic Immunoassays", American Society of Clinical Pathologists, San Antonio, May, 1986.

13. "Phagocyte Foundation Studies", American Society of Clinical Pathologists, San Antonio, May, 1986.
14. NIH Site Visit, Massachusetts General Hospital Primate Center, July, 1985.

#### VI. PUBLICATIONS:

##### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Weller, F.E., Mutchnik, M.G., Keren, D.F., Goldstein, A.G. and Naylor, P.H.: Microelisa method for measurement of human serum thymosin alpha-1. J. Immunology Methods. 1985;80:45-53.
2. Keren, D.F., DiSante, A.C., Mervak, T. and Bordine, S.L.: Problems with transporting serum to the laboratory for cryoglobulin assay: A solution. Clinical Chemistry. 1985;31:1766-1767.
3. Francis, I.R., Agha, F.P., Thompson, N.C. and Keren, D.F.: Fibrolamellar hepatocarcinoma: Clinical, radiologic and pathologic features. Gastroent. Radiol. 1986;11:67-72.
4. Keren, D.F.: Gastrointestinal lymphomas correlation of histopathology with immunohistology: Introduction. Am. J. Surg. Pathology. 1985;9:51-59.
5. Agha, F.P. and Keren, D.F.: Spindle cell squamous carcinoma of the esophagus: A tumor with biphasic morphology. Am. J. Radiol. 1985;145:541-545.
6. Keren, D.F., DiSante, A.C. and Bordine, S.L.: Densitometric scanning of high resolution electrophoresis of serum: Methodology and clinical applications. Am. J. Clin. Pathol. 1986;85:348-352.
7. Agha, F.P., Nostrandt, J. and Keren, D.F.: Leukocytoclastic vasculitis of the small bowel presenting with severe gastrointestinal hemorrhage: A diagnostic challenge. Am. J. Gastroenterol. 1986;81:195-198.
8. Judd, W.J., Wilkinson, S.L., Issitt, P.D., Johnson, T.L., Keren, D.F. and Steiner, E.A.: Donath-Landsteiner hemolytic anemia due to anti-Pr. Transfusion. In Press.
9. Donofrio, P.D., Greenberg, H.S., Latov, N., Albers, J.W., Keren, D.F., Freddo, L. and Hays, A.P.: Lower motor neuron disease and IgM monoclonal gammopathy: Clinical, electrophysiological and morphological studies. Neurology. In Press.
10. Ringler, D.H., Peter, G.K., Chrisp, C.E. and Keren, D.F.: Protection of rabbits against experimental pasteurellosis by vaccination with a potassium thiocyanate extract of Pasteurella multocida. Infection and Immunity. 1985;45:498-504.
11. Agha, F.P. and Keren, D.F.: Barrett esophagus complicating achalasia: a clinical, radiologic, and pathologic study of 70 patients with achalasia. Radiology. In Press.
12. Freddo, L., Yu, R.K., Latov, N., Donofrio, P.D., Albers, J.W., Alessi, A.G., Leavitt, A., Davar, G. and Keren, D.F.: Gangliosides GM1 and GD1b are antigens for IgM m-protein in a patient with motor neuron disease. Neurology 1986;36:454-458.
13. Hirata, I., Berrebi, G., Austin, L.L., Keren, D.F. and Dobbins III, W.O.: Immunohistological characterization of intraepithelial and lamina propria lymphocytes in control ileum and colon and in inflammatory bowel disease. Digestive Disease Science. In Press.

BOOKS AND CHAPTERS IN BOOKS:

1. Keren, D.F.: High resolution electrophoresis and immunofixation: Technique and interpretation. Butterworth's, Boston. In Press.
2. Keren, D.F. and Lovett, E.J. (Editors): Diagnostic Use of Cell Surface Macker and DNA Analysis. American Society of Clinical Pathologists, Chicago. In Preparation.

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

1. Johnson, T.L. and Keren, D.F.: Indirect immunofluorescence technique to detect a monoclonal (IgMK) antinuclear antibody. Amer. J. Clin. Path.
2. Keren, D.F., McDonald, R.A., Strubel, E. and Rosner, A.M.: Adjuvants and the enhancement of the mucosal IgA response to enteric pathogens. Twenty-first Joint Conference on Cholera. U.S. Department of Health and Human Service Publication. 1985;34-35.
3. Donofrio, P.D., Greenberg, H.S., Albers, J.W., Alessi, A.G., Leavitt, A., Davar, G., Keren, D.F., Latov, N. and Freddo, L.: IgM monoclonal protein binding to spinal cord and peripheral nerve glycolipids in a patient with motor neuron disease. Ann. Neurol. 1985;16:161-162.
4. Braunstein, A.J. and Keren, D.F.: Cell surface and serum monoclonal immunoglobulins in Burkitt's lymphoma: In Reply (letter). Arch. Pathol. Lab Med. 1985;109:389.
5. Carey, J., Marino, C. and Keren, D.F.: Type I and type III immunopathology in food allergy. Lab. Invest. 1986;54:9A.
6. Silbart, L.K., Lincoln, P.M., Annesley, T.M. and Keren, D.F.: Selective immune response to parenteral immunization with different preparation of carrier proteins conjugated to 2-acetylaminofluorene. Fed. Proc. 1986;45:698.
7. Keren, D.F., McDonald, R.A. and Formal, S.B.: Secretory IgA response following oral priming with Shigella flexneri lacking the virulence plasmid. ASM abstracts. 1986;97.
8. Lilley, G. and Keren, D.F.: Alpha 1-antitrypsin Deficiency. Tech. Sample, American Society of Clinical Pathologists. In Press.



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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES: None.

II. TEACHING ACTIVITIES:

- A. Inflammation/Immunopathology Series ICS-600.
- B. Biochemistry 522B.
- C. Pathology 630.
- D. Core lectures in Immunopathology.
- E. Lecturer for Medical Technology Program.
- F. Teaching/Research Seminars in various departments.
- G. Supervised the following medical students, residents, and fellows:  
Lori Quinlan, Guim Kwon, Denise Ellul, Drs. John Rediske, Daniel Remick  
and Peter Bachwich.
- H. Doctoral Committee member for the following graduate students: Wendy  
Scales, Mohammad Hata, Bruce Riser, Marjorie Minkoff.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. NIH - Macrophage Function in Pulmonary Inflammation HL31237 - Principal Investigator.
- B. NIH - Inflammatory Cells and Lung Injury HL-31963 Principal Investigator for Section II and Core II.
- C. American Heart Association Established Investigator - Regulation of Pulmonary Granuloma Formation by Macrophages - Principal Investigator.
- D. NIH - Modulation of Immune Complex Lung Injury by Prostaglandins - Co-Investigator.

PROJECTS UNDER STUDY:

- A. Regulation of macrophage signals that dictate immune responsiveness
  - 1. Ia antigen expression.
  - 2. Synthesis of arachidonic acid metabolites.
  - 3. Interleukin-1 production.
  - 4. Tumor necrosis factor production.
- B. Role of macrophage-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. High pressure liquid chromatography.
  - 2. Spectrophotometry.
  - 3. Immunofluorescence.

4. Image analysis.
  5. Proliferation assays (IL-1 and IL-2 assays).
  6. Cytotoxicity assays.
  7. Molecular probe assays.
- E. Collaborative research outside of pathology:
1. Dr. Darrell Cambell.
  2. Dr. Gene Higashi.
  3. Dr. Ben Lucchesi.
  4. Dr. Joseph Lynch.
  5. Dr. Roger Wiggins.
- F. Articles submitted for publication.
1. Phan, S.H. and Kunkel, S.L.: The effects of inhibitors of arachidonate metabolism on bleomycin-induced pulmonary fibrosis. *J. Clin. Invest.*
  2. Bachwich, P.R., Lynch, J.P., III and Kunkel, S.L.: Arachidonic acid metabolism is altered in sarcoid alveolar macrophages. *Clin. Immunol. Immunopathol.*
  3. Bachwich, P.R., Lynch, J.P., III, Larrick, J., Spengler, M. and Kunkel, S.L.: Tumor necrosis factor production by human sarcoid alveolar macrophages. *J. Clin. Invest.*
  4. Phan, S.H. and Kunkel, S.L.: Binding of LTC<sub>4</sub> to rat lung fibroblasts and stimulation of collagen synthesis in vitro. *J. Biol. Chem.*
  5. Port, F.K., VanDeKerkhove, K.M., Kunkel, S.L. and Kluger, M.J.: The role of dialysate in the stimulation of IL-1 production during clinical hemodialysis. *Amer. J. Kidney. Dis.*
  6. 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. Leukocyte Biology.*

#### IV. ADMINISTRATIVE ACTIVITIES:

##### DEPARTMENTAL:

- A. Conduct Research Seminar Series.
- B. Interview Candidates for Residency Program.

##### MEDICAL SCHOOL/HOSPITAL:

- A. Committee on Medical Student Research.
- B. Committee on Use and Care of Animals.
- C. Reviewer for Biomedical Research Council grants.
- D. Reviewer for Dental Research Institute grants.
- E. Reviewer for Diabetes Research and Training Center grants.

##### REGIONAL AND NATIONAL:

- A. 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, Journal of Immunology, Laboratory Investigation, Science.

- B. Research Peer Review Committee of the American Heart Association (Michigan).
- C. Consultant/Grant Reviewer for Veteran's Administration.
- D. National Institute of Health ad hoc Study Section Member - Mycology and Microbiology.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. Searle Research Symposium, Skokie, Illinois, 1985.
2. Department of Pharmacology/Toxicology, Michigan State University, East Lansing, Michigan, 1985.
3. Department of Pulmonary Medicine, Washington University, St. Louis, Missouri, 1985.
4. Cetus Immune Corporation, Palo Alto, California, 1986.
5. Smith Kline French and Beckman Seminar, Philadelphia, Pennsylvania, 1986.
6. Mario Negri Research Institute, Bergamo, Italy, 1986.
7. Pfizer Research Seminar, Groton, Connecticut, 1986.
8. Department of Biochemistry, University of Illinois College of Medicine, Chicago, Illinois, 1986.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Chensue, S.W., Ellul, D.A., Spengler, M., Higashi, G.I. and Kunkel, S.L.: Dynamics of arachidonic acid metabolism in macrophages from hypersensitivity (*Schistosoma mansoni* egg) and foreign body-type granulomas. *J. Leukocyte Biol.* 1985;38:671-686.
2. Bachwich, P., Lynch, J.P., Quinlan, L.A. and Kunkel, S.L.: Down-regulation of arachidonic acid metabolism in sarcoid alveolar macrophage. *Chest* 1986;89:182-185.
3. Kunkel, S.L., Chensue, S.W. and Phan, S.H.: Prostaglandins as endogenous mediators of interleukin-1 production. *J. Immunol.* 1986;136:186-192.
4. Kunkel, S.L., Campbell, D.A., Chensue, S.W. and Higashi, G.I.: Species dependent regulation of monocyte/macrophage Ia antigen expression and antigen presentation by prostaglandin E. *Cell. Immunol.*, 1986;97:140-145.
5. Kunkel, S.L. and Chensue, S.W.: The role of arachidonic acid metabolites in mononuclear phagocytic cell interactions. *International Dermatol.* 1986;83-89.
6. Jackson, C.V., Schumacher, W.A., Kunkel, S.L., Driscoll, E.M. and Lucchesi, B.R.: Platelet activating factor and the release of a platelet-derived coronary artery vasodilator substance in the canine. *Circulation Res.* 1986;58:218-229.
7. Chensue, S.W., Davey, M.P., Remick, D.G. and Kunkel, S.L.: Release of interleukin-1 by peripheral blood mononuclear cells in patients with tuberculosis and active inflammation. *Infect. Immun.* 1986;52:341-343.
8. Bachwich, P.R., Chensue, S.W., Larrick, J.W. and Kunkel, S.L.: Tumor necrosis factor stimulates interleukin-1 and prostaglandins E<sub>2</sub> production in resting macrophages. *Biochem. Biophys. Res. Comm.* 1986;136:94-101.

9. Kunkel, S.L., Wiggins, R.C., Chensue, S.W. and Larrick, J.: Regulation of macrophage tumor necrosis factor production by prostaglandin E<sub>2</sub>. *Biochem. Biophys. Res. Commun.* 1986;404-410.
10. Mitsos, W.S., Askew, T., Fantone, J.C., Kunkel, S.L., Abrams, G.D. and Schork, M.: Protective effects of N-2-mercaptopyrionyl glycine against myocardial referfusion injury after neutrophil depletion in the dog: evidence for the role of intracellular derived free radicals. *Circulation* 1986;73:1077-1086.
11. Larrick, J.W. and Kunkel, S.L.: Hypothesis: Is Reye's syndrome caused by augmented release of tumor necrosis factor? *Lancet* In Press.
12. Chensue, S.W., Remick, D.G., Higashi, G.I., Boros, D.L. and Kunkel, S.L.: Modulations of murine Schistosomiasis mansoni by exogenously administered prostaglandins. *Am. J. Pathol.* In Press.
13. Phan, S.H. and Kunkel, S.L.: Inhibition of bleomycin-induced pulmonary fibrosis by nordihydroguaiaretic acid. *Am. J. Pathol.* In Press.
14. Nagata, S., Glovsky, M.M. and Kunkel, S.L.: Anaphylatoxin induced neutrophil chemotaxis and aggregation. *J. Allergy Clin. Immunol.* In Press.
15. Kunkel, S.L., Remick, D.G., Spengler, M. and Chensue, S.W.: Modulation of macrophage-derived interleukin (IL-1) and tumor necrosis factor (TNF) by prostaglandin E<sub>2</sub>. *Adv. Prostaglandin, Thromboxane and Leukotriene Research* In Press.

#### BOOKS AND CHAPTERS IN BOOKS:

1. Kunkel, S.L., Chensue, S.W., Spengler, M. and Geer, J.: Effects of arachidonic acid and their metabolic inhibitors on interleukin-1 production, in, Kluger, M.J., Oppenheim, J.J. and Powanda, M.C. (Editors), *The Physiologic, Metabolic, and Immunologic Actions of Interleukin-1*, Alan R. Liss, Inc.. pp. 297-307, 1985.
2. Kunkel, S.L., Spengler, M.A., Hirata, A.A. and Ward, P.A.: Complement C5a antigen, in, Bergmeyer, H.U. (Editor), *Methods of Enzymatic Analysis*, VCH, Inc. 1986;9:265-273.

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

1. Port, F.C., VanDeKerthove, K.M., Kunkel, S.L. and Kluger, M.J.: Release of interleukin-1 (IL-1) during hemodialysis: Effect of dialysate. *American Society of Nephrology*, 1986.
2. Bachwich, P.R., Chensue, S.W., Larrick J.W., and Kunkel, S.L.: Tumor necrosis factor (TNF) stimulates interleukin-1 (IL-1) and PGE<sub>2</sub> release from murine peritoneal macrophages. *FASEB*, 1986.
3. Fitting, K., Weiss, S., Regiani, S., Kunkel, S. and Wiggins, R.: Apparent neutrophil-induced enhancement of LPS-stimulated endothelial cell tissue factor production is due to interleukin-1 from contaminating monocytes. *FASEB*, 1986.
4. Kunkel, S.L., Chensue, S.W., Larrick, J., Spengler, M., Geer, J., Glatfelter, A. and Wiggins, R.: Regulation of macrophage tumor necrosis factor (TNF) and interleukin-1 (IL-1) production by prostaglandins. *FASEB*, 1986.

5. Remick, D.G., Chensue, S.W., Higashi, G., Boros, D. and Kunkel, S.L.: Immunomodulation of Schistosomiasis mansoni by exogenous prostaglandins. FASEB, 1986.
6. Phan, S.H. and Kunkel, S.L.: Regulation of macrophage derived fibroblast factor (MDGF) release by arachidonate metabolites. FASEB, 1986.
7. Kunkel, S.L., Chensue, S.W., Spengler, J., Geer, J. and Higashi, G.I.: Dynamics of interleukin-1 (IL-1) and tumor necrosis factor (TNF) production by granuloma macrophages isolated from synchronous pulmonary lesions. American Thoracic Society, 1986.
8. Bachwich, P.R., Lynch III, J.P., Wiggins, R. and Kunkel, S.L.: Tumor necrosis factor-like activity in normal and sarcoid alveolar macrophages. American Thoracic Society, 1986.
9. Kunkel, S.L. and Chensue, S.W.: Arachidonate metabolites regulate the production of macrophage-derived tumor necrosis factor and interleukin-1. 6th International Conference on Prostaglandins and Related Compounds, 1986.
10. Phan, S.H., McGarry, B.M., Loeffler, K.M. and Kunkel, S.L.: Leukotriene C<sub>4</sub> binds to rat lung fibroblasts and stimulates collagen synthesis. 6th International Conference on Prostaglandins and Related Compounds, 1986.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

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

II. TEACHING ACTIVITIES:

- A. Lectures and Laboratory Section for sophomore medical students - Pathology 600 Course.
- B. Fourth year medical student rotation in Pathology - one month.
- C. Lectures in basic histology and pathology for histotechnologists - five lectures.
- D. Lectures to Pathology House Officers.
- E. Resident elective in endocrine and soft tissue pathology - two months.
- F. Thesis Committee for Graduate Students in Dental School.
- G. Immunoperoxidase Rounds - twice monthly - 9 months.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Regulation of Rat Pituitary Hyperplasia and Neoplasia, NIH Grant 1R23 CA 37238, March, 1984 - February, 1987, Principal Investigator.
- B. Analysis of Rat Pituitary Neoplasms With Monoclonal Antibodies, CTR Grant 1850, January 1, 1986 - December 31, 1986, Principal Investigator.
- C. Studies of Normal and Neoplastic Human Pituitary Tissues, NIH Grant, CA 42951, July, 1986 - June, 1990, Principal Investigator.
- D. Member of Immunochimistry Core in the Gastrointestinal Hormone Research Core Center Grant (T. Yamada, Principal Investigator) NIH - NIADDKD October, 1984 - September, 1989.

PROJECTS UNDER STUDY:

- A. Dopamine and estrogen receptor analyses in rat and human pituitary tissues.
- B. In situ and dot blot hybridization with T. Landefeld.
- C. Development of monoclonal antibodies as fiagnostic aids in surgical pathology.
- D. Immunocytochemical techniques For light and electron microscopy.
- E. Development of a reverse hemolytic plaque assay to study hormone secretion.

ARTICLES SUBMITTED FOR PUBLICATION:

- A. Lloyd, R.V., Coleman, K. and Nath, V.: Analysis of prolactin and growth hormone production in hyperplastic and neoplastic rat pituitary tissues by the hemolytic plaque assay. Cancer Research.
- B. Baugh, R.F., Wolf, G.T., Lloyd R.V., McClatchey, K.D. and Evans, D.A.: Carcinoid (neuroendocrine carcinomas) of the larynx. Annals Otology, Rhinology and Laryngology.
- C. Dafoe, D.C., Riser, B.C. and Lloyd, R.V.: Differences in susceptibility to EMC virus induced diabetes in two Balb/c mice colonies. Diabetologia.
- D. Beierwaltes, W.H., Sisson, J.C., Shapiro, B., Lloyd, V., Thompson, N.W., Rabbini, R., Mallette, S., Eyre, P., Dmuchowski, C., Rabbani, R. and Munger, T.J.: Malignant potential of pheochromocytomas: Implications for follow-up. J. Clin. Endocrinol. Metab.
- E. Jackson, J.A., Raju, V.B., Janakiraman, N., Faichner, J.D., Mellinger, R.C., Lloyd, R.V. and Vinik, A.I.: Metastatic pulmonary somatostatinoma presenting with diabetic ketoacidosis. J. Clin. Endocrinol. Metab.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Director of Immunoperoxidase Service.
- B. Coordinator of Anatomic Pathology Journal Club.
- C. Residency Selection Committee.

MEDICAL SCHOOL/HOSPITAL:

- A. Thyroid Therapy Conference, weekly.
- B. Pituitary Study Group, monthly.

REGIONAL AND NATIONAL:

- A. Presentations at the International Academy of Pathology in March, 1986.
- B. Presentation at the Endocrine Society 68th Annual Meetin, Anaheim, California, June 25-27, 1986.
- 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.

V. OTHER RELEVANT ACTIVITIES:

- A. Medical School Admissions Committee, August 1983 to Present.

INVITED LECTURES/SEMINARS:

1. Invited Lecturer, "Thyroid Diseases", Michigan Society of Histotechnology, April, 1986.
2. Research Seminar to Reproductive Endocrinology Program, The University of Michigan, 1986.

## VI. PUBLICATIONS:

### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Lloyd, R.V. and Fields, K: Regulation of dopamine receptor in the MtT/W15 transplantable pituitary tumor by estrogen. *Molecular and Cellular Endocrinology*, 1986;44:133-139.
2. Lloyd, R.V., Schmidt, L., Coleman, K. and Wilson, B.S: Prolactin and growth hormone synthesis and thymidine incorporation in dissociated rat pituitary tumor cells. *Proc. Soc. Expt. Biol. Med.* 1986;181:18-23.
3. Lloyd, R.V., Schmidt, K. and Nath, V.: Effects of peridolide on diethylstilbestrol-induced rat pituitary hyperplasia. *Am. J. Pathol.* 1985;121:486-495.
4. Varndell, I.M., Lloyd, R.V., Wilson, B.S. and Polak, J.M.: Ultrastructural localization of chromogranin: a potential marker for the electron microscopical recognition of endocrine cell secretory granules. *Histochemistry* 1985;17:981-992.
5. Lloyd, R.V. and Landefeld, T.D.: Detection of prolactin messenger RNA in rat anterior pituitary by in situ hybridization. *Am. J. Pathol.* In Press.
6. Lloyd, R.V., Chandler, W.F., Kovacs, K. and Ryan, N.: Ectopic pituitary adenomas with normal anterior pituitary glands. *Am. J. Surg. Pathol.* In Press.
7. Lloyd, R.V., Chandler, W.F., McKeever, P. and Schteingart, D.B.: The spectrum of ACTH-producing pituitary lesions. *Am. J. Surg. Path.* In Press.
8. Shenkar, Y., Lloyd, R.V., Weatherbee, L., Port, F.K., Grekin, R.J. and Barkan, A.L.: Ectopic prolactinomas in a patient with hyperparathyroidism and abnormal sellar radiography. *J. Clin. Endocrinol. Metab.* 1986;62:1965-1969.
9. Khachaturian, H., Sherman, G., Lloyd, R.V., Civelli, O., Douglas, J., Herbert, E.D., Akil, H. and Watson, S.J.: Pro-dynorphin is endogenous to the anterior pituitary and is co-localized with LH and FSH in the gonadotroph. *Endocrinology*. In Press.
10. Barkan, A.L., Shenkar, Y., Grekin, R.J., Vale, W.W., Lloyd, R.V. and Beals, T.F.: Dynamic studies of growth hormone and ectopic growth hormone releasing factor secretion: evidence of a hypothalamic etiology of acromegaly. *J. Clin. Endocrinol. Metab.* In Press.
11. Borgstrom, A., Wider, M., Marks, W., Lloyd, R.V., Herman, G. and Vinik, A.I.: Immunohistochemical localization of a specific ileal peptide in the pig. *Histochem. J.* In Press.
12. Frances, I.R., Dorovini-Zis, K., Glazer, G.M., Lloyd, R.V., Amendola, M.A. and Martel, W.: The fibromatoses: CT - pathological correlation. *Am J. Roentgenology*. In Press.
13. Flint, A., Lloyd, R.V., Colby, R.V. and Wilson, B.S.: Pulmonary histiocytosis X: Immunoperoxidase staining for HLA-DR antigen and S-100 protein. *Arch. Pathol. Lab. Med.* In Press.
14. Pietroletti, R., Bishop, A.E., Carlei, F., Bonanico, M., Lloyd, R.V., Wilson, B.S., Ceccamea, A., Lezoche, Speranza, V. and Polak, J.M.: Gut endocrine cell population in coeliac disease estimated by immunocytochemistry using a monoclonal antibody to chromogranin. *Gut* 27:1986. In Press.
15. Zarbo, R.J., Regezi, J.A., Lloyd, R.V. and Batsakis, J.G.: HLA-antigens in normal, inflammatory and neoplastic salivary glands. *Cancer*. In Press.



16. Eckhauser, F.E., Cheung, P.S., Vinik, A.I., Strodel, W.E., Lloyd, R.V. and Thompson, N.W.: Nonfunctioning malignant neuroendocrine tumors of the pancreas. Surgery. In Press.
17. Ranst, L.V., O'Connor, D., Lloyd, R.V. and Lauweryns, J.M.: Lung neuroendocrine cells and neuroepithelial bodies contain chromogranin: Its detection in human monkey and pig respiratory mucosa using immunochemistry. J. Histochem. Cytochem. In Press.
18. VonMoll, L., McEvan, A.J., Shapiro, B., Sisson, J.C., Gross, M.D., Lloyd, R., Beals, E., Beierwaltes and W.H., Thompson, N.W.: <sup>131</sup>I-meta-iodobenzylguanidine scintigraphy of neuroendocrine tumors other than pheochromocytoma and neuroblastoma. J. Nuclear. Med. In Press.
19. Duque, E., Lloyd, R.V., Headington, J.T. and Schnitzer, B.: Site dependent phenotypic heterogeneity in peripheral T-cell lymphomas. Human Pathol. In Press.
20. Stewart, J.C.B., Regezi, J.A., Lloyd, R.V. and McClatchey, K.D.: Immunohistochemical study of idiopathic histiocytosis of the mandible and maxilla. Oral Surg., Oral Med., Oral Path. 1986;61:48-53.
21. Chandler, W.F., Schteingart, D.E., Lloyd, R.V., McKeever, P.E. and Ibarra, G.: Surgical treatment of Cushing's disease. J. Neurosurg. In Press.
22. Schnitzer, B., Smid, D. and Lloyd, R.V.: Primary T-cell lymphomas of the adrenal glands with adrenal insufficiency. Human Path. 1986;17:634-636.
23. Shenkar, Y., Gross, M.D., Greken, R.J., Rosen S.G., Sanfield, J.A., Shapiro, B., Samuels, B., Strodel, W., Thompson, N.W., Beals, T.F. and Lloyd, R.V.: The scintigraphic localization of mineralocorticoid-producing adenocortical carcinoma. J. Clin. Endocrinol. Metab. In Press.
24. Cline Noble, S., Chandler, W.F. and Lloyd, R.V.: Intracranial extension of orbital pseudotumors: A case report. Neurosurgery In Press.
25. McClatchey, K.D., Lloyd, R.V. and Schaldenbrand, J.D.: Metastatic carcinoma to the sphenoid sinus: Case report and review of the literature. Arch. Otorhinolaryngol. 1985;241:219-224.
26. Wilson, B.S., Phan, S.H. and Lloyd, R.V.: Chromogranin from normal human adrenal glands: purification by monoclonal antibody, affinity chromatography and partial N-terminal amino acid sequence. Regulatory Peptide 1986;13:207-223.
27. Lloyd, R.V., Sisson, J.C., Shapiro, B. and Verhofstad, J.: Immunohistochemical localization of epinephrine and norepinephrine in normal and neoplastic endocrine tissues. Am. J. Pathol. In Press).

#### BOOKS AND CHAPTERS IN BOOKS:

1. Lloyd, R.V.: Tumors of the pituitary, in, Stinson, S.F., Schuller, H.M. and Reznik, G. (Editors), "Atlas of Tumor Pathology of the Fischer Rat", CRC Press, Boca Raton, Florida, 1986. In Press.
2. Lloyd, R.V.: Immunohistochemical localization of chromogranin and neuron specific enolase in gastroenteropancreatic tumors, in, Sommers, S.S. and Wolfe, M. (Editoris), Pathology of the Gastrointestinal Tract, 1986, In Press.

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

1. Lloyd, R.V. and Landefeld, T.D.: Changes in rat prolactin mRNA with chronic estrogen treatment: analysis by in situ hybridization histochemistry. Lab. Invest. 1986;54:38A #222.

2. Lloyd, R.V., Fairbank, R., Mailloux, J., Wilson, B.S. and Verhofstad, A.A.J.: Immunohistochemical localization of epinephrine and norepinephrine in normal and neoplastic endocrine tissues. *Lab. Invest.* 1986;54:38A #221.
3. Johnson, T.L., Lloyd, R.V., Sisson, J.C., Beierwaltes, W.A., Thompson, N.W., Thor, A. and Schlom, J: Expression of ras oncogene p21 antigen in normal and proliferative thyroid tissues. *Lab. Invest.* 1986;54:29A #169.
4. Pike, A., Appelman, H. and Lloyd, R.: Differentiation of gut stromal tumors: an immunohistochemical study. *Lab. Invest.* 1986;54:50A #294.
5. Mervak, T., Lloyd, R.V., Nishiyama, R. and Thompson, N.W.: Bilateral primary pigmented nodular adrenocortical disease: An immunohistochemical study. *Lab. Invest.* 1986;54:43A #252.
6. Balsera, E., Lloyd, R.V., Livingston, Lavallo, M. and Azar, H.A.: Immunohistochemistry and electron microscopy of neuroendocrine neoplasms. *Lab. Invest.* 1986;54:4A #21.
7. Lloyd, R.V., Coleman, K.K., Fields, K., and Nath: Analysis of mammosomatotroph cells in rat anterior pituitary by the reverse hemolytic plaque assay. *Lab. Invest.* 1986;54:38A #223.
8. Barkan, A., Lloyd, R., Chandler, W., Kelch, R., Beitins, I. and Hopwood, N.: Growth hormone secretion in acromegaly: effects of somatostatin analog SMS 201-995. International Congress of Neuroendocrinology, San Francisco, California, July 9-11, 1986.
9. Eckhauser, F.E., Cheung, P.S., Vinik, A.I., Strodel, W.E., Lloyd, R.V. and Thompson, N.W.: Nonfunctioning malignant neuroendocrine tumors of the pancreas. Seventh Annual Meeting of the Am. Assoc. Endocrine Surgeons, Rochester, Minnesota, April 14, 1986.
10. Beierwaltes, W.H., Sisson, J.C., Shapiro, B., Lloyd, R.V. and Thompson, N.W.: Pheochromocytoma is often a malignancy. Central Society for Clinical Research, Chicago, Illinois, November 6-8, 1985.
11. Regezi, J.A., Zarbo, R.J., Lloyd, R.V. and Batsakis, J.G.: HLA-DR immunoreactivity in salivary gland lesions. American Academy of Oral Pathology, Toronto, Canada, May 11-16, 1986.
12. Regezi, J.A., Zarbo, R.J. and Lloyd, R.V.: Muramidase,  $\alpha$ -1 antitrypsin,  $\alpha$ -1 antichymotrypsin and S-100 protein immunoreactivity in giant cell tumors. American Academy of Oral Pathology, Toronto, Canada, May, 11-16, 1986.
13. Jackson, J.A., Raju, U.B., Janakiraman, N., Faichney, J.P., Mellinger, R.C., Lloyd, R.V. and Vinik, A.I.: Metastatic pulmonary somatostatimnomas presenting with diabetic ketoacidosis. Society for clinical Research, New Orleans, Louisiana, February 12-15, 1986.
14. McKeever, P.E., Lloyd, R.V. and Chandler, W.F.: Pituitary adenocorticotropin (ACTH) - secreting adenoma. ASCP Check Sample, 1986.
15. Lloyd, R.V., Coleman, K.K., Fields, K. and Nath, V.: Analysis of MtT/W15 and MtT/F4 transplantable rat pituitary tumor cells by the reverse hemolytic plaque assay. The Endocrine Society 68th Annual Meeting, Anaheim, California, June 25-27, 1986, Abs. 579.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

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. Associate 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. Coordinator of Cytometry Program; The University of Michigan, Department of Pathology.
- H. MDS Laboratories, Inc., Ann Arbor, Michigan, Pathologist-in-Chief.
- I. Medical Advisory Board, MDS Laboratories, Toronto, Canada.
- J. Director, M-Labs, Department of Pathology, The University of 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. Pathology 856 ; Otorhinolaryngology Pathology.
- C. Oral Diagnosis 664 ;Participant.
- D. Pathology 600, Lecturer, Head and Neck Pathology.
- E. Coordinator of resident teaching with Dr. Carl Pierson in the clinical laboratory under my direction (Microbiology).

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Consultant, Principal Investigator, Thomas E. Carey, Ph.D., Department of Otorhinolaryngology, The University of Michigan. Human Squamous Cell Carcinoma: Culture and Serology, NIH ROI-CA 2856405, 1980-1985.
- B. Consultant, Principal Investigator, Richard L. Wahl, M.D., Department of Internal Medicine, The University of Michigan. Radioimmundiagnosis of Squamous Cell Carcinoma, Department of Health and Human Services; \$608,579, 7/1/85 - 6/30/88.
- C. Consultant, Principal Investigator, Thomas E. Carey, Ph.D., Department of Otorhingolaryngology, The University of Michigan.

Monoclonal Antibodies to Human Squamous Cell Carcinomas: Culture and Serology, NIH ROI-CA 35929, 1984-1987.

- D. Consultant, Principal Investigator, Thomas E. Carey, Ph.D., Department of Otorhinolaryngology, The University of Michigan. Human Squamous Cell Carcinoma: Culture and Serology, NIH ROI-CA 2856406, 1985-1992.

PROJECTS UNDER STUDY:

- A. Veterans Administration Cooperative Studies Program. 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, The University of Michigan, 1979-present.
- B. Director, Residency Program, Department of Pathology, The University of Michigan, 1982-present.

MEDICAL SCHOOL/HOSPITAL:

- A. Infection Control Committee, The University of Michigan Hospitals, 1978-present.
- B. Laboratories Committee, The University of Michigan Hospitals, 1978-present.
- C. Ambulatory Care Committee, The University of Michigan Hospitals, 1980-present.
- D. Advisory Committee on Appointments, Promotions, and Titles (ACAPT), The University of Michigan Medical School, 1983-present.
- E. Multi-Organ Transplant Program: Planning Group, Alternate, 1985-present.

REGIONAL AND NATIONAL:

- A. College of American Pathologists, Fellow, 1975-.
  - 1. Commission on Scientific Resources, 1982-present.
  - 2. Chairman, Standards Committee, 1982-present.
  - 3. Council on Quality Assurance, 1982-84, 1986.
  - 4. Coordinator, Roger K. Gilbert Fellowship Program at the National Bureau of Standards, 1985-present.
  - 5. Coordinator, Reference Materials Program, 1985-present.
  - 6. Secretariat for the Commission on World Standards of the World
  - 7. Association of Societies of Pathology, 1986-.
- B. National Committee for Clinical Laboratory Standards - Member
  - 1. Council of the National Reference System for the Clinical Laboratory, 1983, 1984-1985, 1986-1987.

2. Subcommittee on Cost Accounting, 1986-.
  3. Area Committee on General Laboratory Practice, 1986-1987.
  4. Subcommittee on Cost-Effective Quality Control, 1986-.
- C. Southwestern Oncology Group (SWOG), 1982-present.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES, SEMINARS AND PRESENTATIONS:

1. "Tumors of the Mandible", Head and Neck Oncology Course, Department of Otolaryngology, Ninth Annual Spring Workshop, Towsley Center, Ann Arbor, Michigan, April 7-11, 1986.
2. "Common Diseases of the Oral Cavity", Speaker, Ear, Nose and Throat Practicum, Towsley Center, Ann Arbor, Michigan, November, 1985.
3. "Otorhinolaryngologic Pathology: The Oral Cavity, Oropharynx and Nasopharynx", Guest Speaker, Free University, Amsterdam, The Netherlands, July, 1985.
4. "A Potpourri of Histopathology from Harrison Hospital Cases", Guest Speaker, Harrison Hospital, Mt. Clemens, Michigan, December, 1985.

ARTICLES SUBMITTED FOR PUBLICATION:

1. McClatchey, K.D., Jenkins, B.T., Bogdasarian, R.S. and Merrell, D.M.: "Hairy polyp": A cause of neonatal upper airway obstruction. J. Oral Med. 1986.
2. Oneal, R.M., Dodenhoff, R.J. and McClatchey, K.D.: The role of perichondrium in modifying curved cartilage: An experimental study. Annals Plast. Surg. 1986.
3. Baugh, R.F., Wolf, G.T., Lloyd, R.V., McClatchey, K.D. and Evans, D.A.: Carcinoid (neuroendocrine carcinoma) of the larynx. Head & Neck Surg. 1986.
4. Baugh, R.F., McClatchey, K.D., Sprik, S.A. and Jones, B.S.: Laryngeal paraganglioma. J. Otolaryng. 1986.
5. Stewart, J. and McClatchey, K.D.: Nasopharyngeal angiofibroma. J. Otolaryng. 1986.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Amendola, B.E., Amendola, M.A. and McClatchey, K.D.: Radiation induced cancer of the larynx. J. Surg. Gyn. & Obstet. 1985;161:30-32.
2. Flint, A., Lovett, E.J., Stoolman, L.M., McMillan, K., Schnitzer, B., McClatchey, K.D. and Hudson, J.L.: Flow cytometric evaluation of nuclear DNA content: Application to diagnostic cytology. Am. J. Clin. Pathol., 1985;84-3:278
3. Myers, S.F., Ross, M.D., Jokelainen, P., Graham, M.D. and McClatchey, K.D.: Morphological evidence of vestibular pathology in long-term experimental diabetes mellitus. Acta Otolaryngol. (Stockh) 1985;100:351-364.
4. Kimmel, K.A., Carey, T.E., Judd, W.J. and McClatchey, K.D.: Monoclonal antibody (G10) to a common antigen of human squamous cell carcinoma: Binding

- to the H type 2 blood group determinant. *J. Nat'l. Cancer Inst.* 1986;70:9-19.
5. Amendola, B.E., Amendola, M.A. and McClatchey, K.D.: Radiation-induced malignant fibrous histiocytoma: a report of five cases including two occurring post whole brain irradiation. *Cancer Invest.* 1985;3:507-513.
  6. Amendola, B.E., Amendola, M.A., Oliver, E. and McClatchey, K.D.: Chordoma: Role of radiation therapy. *Radiology* 1986;158:839-843.
  7. Wolf, G.T., Carey, T.E., Veltri, R., Renkin, R., Maxim, P. and McClatchey, K.D.: Cell biology and immunology in head and neck squamous carcinoma: Research workshop summary. *Head & Neck Surg.* 1986;301-308, Mar/Apr.
  8. Maceri, D.R., Sullivan, M.J. and McClatchey, K.D.: Autoimmune thyroiditis: Pathophysiology and relationship to thyroid cancer. *Laryngoscope*, 1986;96:82-86.
  9. Baugh, R., Wolf, G.T. and McClatchey, K.D.: Small cell carcinoma of the head and neck. *Head and Neck Surg.* 1986;8:343-354.
  10. Stewart, J.C.B., Regezi, J.A., Lloyd, R.V. and McClatchey, K.D.: Immunohistochemical study of idiopathic histiocytosis of the mandible and maxilla. *Oral Surg., Oral Med., Oral Pathol.* 1986;61:48-53.
  11. Baugh, R.F. and McClatchey, K.D.: Papillary cystadenoma lymphomatosum syndrome. *J. Otolaryng.* 1986;15:166-168.

#### ARTICLES ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Sullivan, M.J., McClatchey, K.D. and Passamani, P.P.: Airway growth following cricotracheal resection in puppies. *Head & Neck Surg.* 1985.
2. Schweitzer, V.G., Thompson, N.W. and McClatchey, K.D.: Sphenoid sinus Brown tumor, hypercalcemia and blindness: an unusual presentation of primary hyperparathyroidism. *Annals of Otology* 1986.
3. Amendola, B.E., McClatchey, K.D., Amendola, M.A. and Gerbarski, S.S.: Primary large cell lymphoma of the central nervous system. *Am. J. Clin. Oncol.* 1986 In Press.
4. Wolf, G.T., Hudson, J.L., Peterson, K.A., Miller, H.L. and McClatchey, K.D.: Lymphocyte subpopulations infiltrating head and neck squamous carcinomas: correlations with tumor extent and prognosis. *J. Otolaryng. Head and Neck Surg.* 1985 In Press.

#### 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*, 1st Edition, 1985.

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

1. Carey, T.E., Wolf, G.T., Hsu, S. and McClatchey, K.D.: Increased expression of an orientation-restricted epithelial antigen (A9) in head and neck squamous cell carcinoma (HNSCC): correlations with clinical and histologic characteristics. (Abstract), submitted to the American Society of Head and Neck Surgeons, October, 1985.
2. Green, T.C., McClatchey, K.D. and Olson, M.A.: Cast acrylic gross pathology specimens. *J. Dent. Ed.* 1986;50:67.

3. Carey, T.E., Wolf, G.T., Hsu, S. and McClatchey, K.D.: Patterns of expression of an orientation-restricted epithelial antigen (A9) in head and neck squamous cell carcinoma (HNSCC): correlations with clinical and histologic characteristics. American Academy of Otolaryngology-Head & Neck Surgeons Foundation., Inc. and the Association for Research in Otolaryngology. Submitted April, 1986.

PUBLICATIONS IN UNREFEREED JOURNALS

1. Skendzel, L.P., Nakamura, R.M., McClatchey, K.D. and Tholen, D.: College of American Pathologists' Reference Preparation for Rubella Serology: Results of a Collaborative Study. Submitted to Pathologist (CAP). In Press.

J. PHILIP MCCOY JR, PH.D.  
ASSISTANT PROFESSOR  
DEPARTMENT OF PATHOLOGY

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Laboratory Director, Clinical Flow Cytometry Laboratory.
- B. Administrative Director, Immunohistochemistry Laboratory.

II. TEACHING ACTIVITIES:

- A. Serving on a dissertation committee in the Neuroscience Program.

III. RESEARCH ACTIVITIES:

- A. During the previous year research projects have been conducted in conjunction with other members of the Department of Pathology and with members in the Departments of Anatomy and Cell Biology, Biochemistry, Dermatology, Internal Medicine, and the Mental Health Research Institute.

SPONSORED SUPPORT:

- A. DNA Ploidy in Basal Cell Carcinoma, UM Cancer Research Institute, Principal Investigator, \$5,000, May 1, 1985 - August 30, 1986.
- B. Endogenous Laminin Expression and Metastasis, NIH - National Cancer Institute, Co-investigator, \$215,500, July 1, 1984 - June 30, 1987.

PROJECTS UNDER STUDY:

- A. Investigation of the mechanisms of metastasis.
- B. Study of immune responses induced in patients by intradermal injections of bovine collagen.
- C. Study of the role of laminin in the regeneration of crushed optic nerves.
- D. Determination of the specificity and diagnostic utility of a monoclonal antibody to cervical carcinoma antigen.
- E. Development of functionally monovalent lectins for use in flow cytometry.
- F. Examination of the relationship of DNA ploidy to tumor aggressiveness and/or metastatic potential.
- G. Investigation of the reactivity of lectins with alveolar macrophages.

IV. ARTICLES SUBMITTED FOR PUBLICATION:

- 1. Michaelson, J.H., McCoy, J.P., Hirszel, P. and Bigazzi, P.E.: Immune effects of metals: Mercury-induced renal autoimmunity in BN and Maxx rats.



2. McCoy, J.P., Waldinger, T.P., Cohen, K.A., Schade, W., Siegle, R.J., Hamilton, T.A., Milgraum, S.S. and Swanson, N.A.: Connective tissue diseases and bovine collagen implants.
3. Flint, A., McCoy, J.P., Esch, T.R., Beckwith, A.L. and Morley, G.W.: Simultaneous measurement of DNA content and detection of surface antigens of cervical vaginal cells by flow cytometry.
4. McCoy, J.P., Schade, W., Siegle, R.J., Vanderveen, E.E., Zachery, C., Waldinger, T.P. and Swanson, N.A.: Immune responses to bovine collagen implants: Significance of pretreatment serology.

V. SERVICE ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

- A. Participation in the effort to establish a Comprehensive Cancer Center at The University of Michigan and Director of the Flow Cytometry Core Facility.

VI. OTHER RELEVANT ACTIVITIES: None.

VII. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. McCoy, J.P., Schade, W., Siegle, R.J., Waldinger, T.P., Vanderveen, E.E. and Swanson, N.A.: Characterization of the humoral immune response to bovine collagen implants. Arch. Dermatol. 1985;121:990-994.
2. Varani, J., Knibbs, R.N., Grimstad, I.A. and McCoy, J.P.: Differential Attachment, spreading and growth of high and low malignant cells on collagen. Clin. Exp. Metast. 1985;3:45-59.
3. McCoy, J.P., Goldstein, I.J. and Varani, J.: A review of studies in our laboratory regarding ELLA methodology for the study of cell surface carbohydrates from tumors of varying metastatic potential. Tumor Biol. 1985;5:99-114.
4. Fligiel, S.E.G., Rodriguez, A.F., Knibbs, R.N., McCoy, J.P. and Varani, J.: Characterization of laminin-stimulated adherence and motility in tumor cells. Oncology 1985;42:265-271.
5. Hopkins, J.M., Ford-Holevinski, T.S., McCoy, J.P. and Agranoff, B.W.: Laminin and optic nerve regeneration in the goldfish. J. Neurosci. 1985;5:3030-3038.
6. McCoy, J.P., Schade, W., Merz, G.E., Esch, T.R., Varani, J. and Hudson, J.L.: DNA content of murine fibrosarcoma cell lines with varying metastatic potential. Cancer Res. 1985;45:5757-5761.
7. Simon, R.H., McCoy, J.P., Chu, A.E., DeHart, P.D. and Goldstein, I.J.: Pulmonary type II alveolar epithelial cell isolation procedure using Griffonia simplicifolia I lectin. Biochem Biophys Acta 1986;885:34-42.
8. McCoy, J.P., Shibuya, N., Riedy, M.C. and Goldstein, I.J.: Griffonia simplicifolia I isolectin as a functionally monovalent probe for use in flow cytometry. Cytometry 1986;7:142-146.

9. Vanderveen, E.E., McCoy, J.P., Schade, W., Kapur, J., Hamilton, T., Ragsdale, C., Grekin R.C. and Swanson, N.A.: The association of HLA and immune responses to bovine collagen implants. Arch. Dermatol. 1986;122:650-654.
10. McKeever, P.E., Fligiell, S.E.G., Varani, J., Hudson, J.L., Smith, D., Castle, R.L. and McCoy, J.P.: Products of cells cultured from gliomas: IV. Extracellular matrix proteins of gliomas. Int. J. Cancer 1986;37:867-874.
11. McCoy, J.P.: Contemporary laboratory applications of lectins. biotechniques 1986;4:252-262.
12. Ford-Holevinski, T.S., Hopkins, J.M., McCoy, J.P. and Agranoff, B.W.: Laminin supports neurite outgrowth from axotomized rat retinal explants. Dev Brain Res 1986;28:121-126.

#### BOOKS AND CHAPTERS IN BOOKS:

1. Varani, J. and McCoy, J.P.: Chemotaxis in tumor cells: Possible mechanisms and implications for therapy, in, Honn, K.V., Powers, W.E. and Sloane, B.F. (Editors), Mechanisms of Metastasis: Potential Therapeutic Implications, Chapter 17, Martinus Nijhoff Publishers, Inc., Boston, Massachusetts, pp. 259-274, 1986.
2. McCoy, J.P. and Varani, J.: Immunobiology of corneal graft rejection: Historical perspectives, in, Bahn, C. (Editor). Stocker's Endothelium of the Cornea: Clinical Implications. In Press.
3. Varani, J., McCoy, J.P. and Ward, P.A.: The attraction of wandering metastatic cells, in, Kaiser, H. (Editor), Progressive Stages of Neoplastic Growth. In Press.

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

1. McCoy, J.P., Shibuya, N., Riedy, M.C. and Goldstein, I.J.: A functionally monomeric lectin probe for use in flow cytometry. J. Cell. Biol. 1985;101:86A.
2. Ford-Holevinski, T.S., Hopkins, J.M., McCoy, J.P. and Agranoff, B.W.: Laminin stimulates neurite outgrowth from rat retinal explants. Soc. Neurosci. Abst. 1985;11:964.
3. McCoy, J.P., Flint, A., Schade, W.J., Grekin, R.C., Zachery, C.B. and Swanson, N.A.: DNA content of human epidermal carcinomas. J. Invest. Dermatol. 1986;86:493.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

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, electron microscopic neuropathology, nerve and muscle biopsy. Responsible for final report and diagnosis in each category.
- C. Necropsy Service gross and microscopic (two weeks on staff).
- D. Consultations on diagnostic neuropathology, muscle and nerve biopsies from other hospitals and medical centers.
- E. Ceroid Service, buffy coat division.

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 another faculty member.
  2. Weekly brain cutting with pathology house officers.
  3. Reviews all neurosurgically removed material in this hospital in CME-approved conference for Pathology 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. Monthly conference for Neurology and Pathology House Officers and Staff (review of muscle and nerve biopsies).
  7. Ran monthly Brain Conference for Pathology, Neurology and Neurosurgery house officers and staff.
  8. Directs teaching of Neurology house officers who take elective in Neuropathology. One month or longer rotation with teaching shared with other Pathology faculty and with neurohistologists. Five house officers.

9. Weekly Brain Tumor Conference. 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.
- C. Teach laboratory techniques to our laboratory technologists.

### III. RESEARCH ACTIVITIES:

#### SPONSORED SUPPORT:

- A. Consultant on USPHS grant, #NS 19825 application, "Recovery or Malformation After Fetal Injury", Dr. Samuel Hicks, Principal Investigator 7/1/84-6/30/87.
- B. Grant #1R01 CA33768-01A3, "Intra-arterial BUdR Radiosensitization of Malignant Gliomas", Co-investigator 5/1/86-4/30/89.
- C. Rackham School of Graduate Studies Faculty Research Grant "Explantation Model of Glioma Antigen Instability", 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 upon explanation 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. 4/1/85 - 6/30/86.
- D. Michigan Memorial-Phoenix Project #656, "Explantation Model of Glioma Antigen Instability", Principal Investigator. 4/1/85 - 6/30/86.
- E. American Cancer Society, Grant #PDT-44699, "Antigenic Instabilities and Clonal Heterogeneity in Human Gliomas", Principal Investigator. Action pending.
- F. National Institutes of Health, "Brain Tumor Imaging with Benzodiazepine Analogs", Co-investigator. Action pending.
- G. Infuse-Aid Corporation, "Treatment of an MPTP Primate Model of parkinson's Disease with Intraventricular Infused Dopamine", Co-investigator.
- H. National Institutes of Health "Alzheimer's Disease Patient Registry", Co-Principal Investigator. Action pending.

### III. RESEARCH ACTIVITIES:

#### PROJECTS UNDER STUDY:

- A. Growth, spread and antigenicity of ENU-induced gliomas in rats, with Ms. Constance D'Amato.
- B. Quantitative analysis of DNA in fresh and cultured cells of brain tumors, with Dr. Philip McCoy.
- C. Production of monoclonal antibodies to human brain tumors for diagnosis and therapy, with Drs. James A. Taren, Julian T. Hoff, William H. Beierwaltes and Richard L. Wahl.
- D. Davenport, R.D. and McKeever, P.E.: Ploidy of endothelium in high grade astrocytomas. Presented at AFIP International Conference on Advances in Morphometry and Ploidy Determination. Submitted to Analytical and Quantitative Cytology.

- E. Extracellular matrix products of gliomas with Drs. James Varani and Suzanne Fligiel.
- F. Schroeder, K., McKeever, P.E., Schaberg, D. and Hoff, J.T.: Dexamethasone in experimental brain abscess. Submitted.
- G. Black, K.L., McKeever, P.E., Corbett, J. and Radin, N.: Leukotrienes and cerebral edema surrounding intracranial tumors in humans.
- H. Levine, S.A., McKeever, P.E. and Greenberg, H.S.: Primary cerebellar glioblastoma multiforme. Submitted to J. Neurooncology.
- I. Chandler, W.F., Schteingart, D.E., Lloyd, R.V., McKeever, P.E. and Ibarra, G.: Surgical treatment of Cushing's Disease. Submitted to J. Neurosurgery.
- J. Lloyd, R.V., McKeever, P.E. and Chandler, W.F.: Silent corticotropic adenomas. Submitted.
- K. Feldenzer, J.A. and McKeever, P.E.: Specific localization of  $\alpha$ -enolase in stromal cells of cerebellar hemangioblastomas.

#### 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 complete 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 appointed staff of other clinical services, particularly Neurosurgery, Neurology, Nuclear Medicine and Neuro-radiology.
- E. Quality control of ultrastructural neuropathology.

##### REGIONAL AND NATIONAL:

- A. Reviewer for Pathology, Neuropathology, Oncology and Neurooncology journals or texts.
- B. Invited Contributor to ASCP Anatomic Pathology II Series: Rapid Lectin-DNA Staining of Pituitary Biopsies, scheduled for publication in August, 1986.
- C. M-Lab Neuropathology services.

#### 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 REFERRED JOURNALS:

1. Bates, S., McKeever, P.E., Masur, H., Levens, D., Macher, A., Armstrong, G. and Magrath, I.T.: Myelopathy following intrathecal chemotherapy in a patient with extensive Burkitt's lymphoma and altered immune status. *Am. J. Med.* 1985;78:697-702.
2. Clark, G.B., Henry, J.M. and McKeever, P.E.: Cerebral pilocytic astrocytoma. *Cancer* 1985;56:1128-1133.
3. Oldfield, E.J., Chrousos, G.P., Schulte, H.L., Schaff, M., McKeever, P.E., Krudy, A.G., Cutler, G.B., Loriaux, D.L. and Doppman, J.L.: Preoperative lateralization of ACTH-secreting pituitary microadenomas by bilateral and simultaneous inferior petrosal venous sinus sampling: Correlation with operative findings and clinical outcome. *New Engl. J. Med.* 1985;312:100-103.
4. Bates, S.E., Raphaelson, M.I., Price, R.A., McKeever, P.E., Cohen, S. and Poplack, D.G.: Ascending myelopathy after chemotherapy for central nervous system. Acute lymphoblastic leukemia: Correlation with cerebrospinal fluid myelin basic protein. *Med. Ped. Oncology* 1985;13:4-8.
5. Baldwin, J.R., McKeever, P.E. and Booker, T.R.: Products of cultured neuroglial cells: II. The production of fibronectin by C6 glioma cells. *Neurochem. Res.* 1985;10:525-534.
6. Taasan, V., Shapiro, B., Taren, J.A., Beierwaltes, W.H., McKeever, P.E., Wahl, R.L., Carey, J.E., Petry, N. and Mallette, S.: Phosphorus-32 therapy of cystic Grade IV astrocytomas: technique and preliminary application. *J. Nucl. Med.* 1985;26:1335-1338.
7. McKeever, P.E., Laverson, S., Oldfield, E.H., Smith, B.H., Gadille, D. and Chandler, W.F.: Stromal and nuclear markers for rapid identification of pituitary adenomas at biopsy. *Arch. Pathol. Lab. Med.* 1985;109:509-514.
8. Lloyd, R.V., Chandler, W.F., McKeever, P.E. and Schteingart, D.E.: The spectrum of ACTH-producing pituitary lesions. *Am. J. Surg. Path.* In Press.
9. 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* In Press.
10. Bucci, M.N., Chandler, W.F., Gebarski, S.S. and McKeever, P.E.: Multiple progressive familial thrombosed arteriovenous malformations. *Neurosurgery* In Press.
11. Varani, J., Dixit, V.M., Fligiel, S.E.G., McKeever, P.E. and Carey, T.: Thrombospondin-induced attachment and spreading of human squamous cells. *Exp. Cell Res.* In Press.
12. McKeever, P.E., Fligiel, S.E.G., Varani, J., Hudson, J.L. Smith, D., Castle, R.L. and McCoy, J.P.: Products of cell cultured rom gliomas. IV. Extracellular matrix proteins of gliomas. *Int. J. Cancer.* 1986;37:867-874.
13. 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.* In Press.

BOOKS AND CHAPTERS IN BOOKS:

1. McKeever, P.E. and Spicer, S.S.: Pituitary histochemistry, in, Spicer, S.S., Garvin, A.J. and Hennigar, G.R. (Editors), "Application of Histochemistry to Pathologic Diagnosis", Marcel-Dekker, New York, New York. In Press.
2. McKeever, P.E. and Balentine, J.D.: Histochemistry of the nervous system, in, Spicer, S.S., Garvin, A.J. and Hennigar, G.R. (Editors), "Application of Histochemistry to Pathologic Diagnosis, Marcel-Dekker, New York, New York. In Press.
3. McKeever, P.E., Lloyd, R.V. and Chandler, W.F.: ACTH-secreting pituitary adenoma. American Society of Clinical Pathologists, Check Sample # AP II 86-6 (AP II-114). ASCP, Chicago, pp 1-4.

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

1. Junck, L., McKeever, P.E. and Greenberg, H.S.: Leukoencephalopathy following intracarotid chemotherapy: Neuropathology and positron emission tomography (PET). Annual Meeting of The American Neurological Association, 1985.
2. Taasan, V., Shapiro, B., Taren, J.A., Wahl, R.L., McKeever, P.E. and Beierwaltes, W.H.: Treatment of cystic grade IV astrocytoma and cranio-pharyngioma with radioactive phosphorus - A preliminary report. 32nd Annual Meeting of Society of Nuclear Medicine, Houston, Texas, 1985.
3. McKeever, P.E. and Chronwall, B.M.: Early switch in glial protein and fibronectin markers on cells during the culture of human gliomas. Annals of the New York Academy of Sciences. First Colloquium in Biological Sciences, vol. 435, pp. 457-459.
4. Liebert, M., Biesman, B.S., McKeever, P.E., Taren, J.A., Wahl, R.L.: Monoclonal antibodies to brain tumors. Departments of Surgery and Internal Medicine, The University of Michigan, Ann Arbor, Michigan. A.A.C.R., 1986.
5. Stafford-Schuck, K., Mountz, J., McKeever, P. and Taren, J.: Thallium-201 localization for estimation of residual brain tumor. Society of Nuclear Medicine 33rd Annual Meeting Washington, D.C., 1986.
6. Taasan, V.C., Taren, J.A., Beierwaltes, W.H., McKeever, P., Hood, T.W., Shapiro, B., Wahl, R.C., Dmuchowski, C. and Rabbani, R.: Response to stereotactic treatment of 14 patients with brain tumors with Na Cr PO-4 - P-32. Society of Nuclear Medicine 33rd Annual Meeting Washington, D.C., 1986.
7. Feldenzer, J.A., McKeever, P.E., Schaberg, D.R. and Hoff, J.T.: The pathogenesis of spinal epidural abscess. Congress of Neurological Surgeons, New Orleans, Louisiana, September, 1986.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES: None.

II. TEACHING ACTIVITIES:

- A. Taught major portion of Physiology 581, "Mammalian Reproductive Endocrinology", plus occasional other lectures.
- B. Supervision of one visiting professor: Fumihisa Miyauchi.
- C. Supervision of one postdoctoral fellow: Eleanor Sims.
- D. Primary supervision of eight graduate students:
  - 1. Robert Milius, CMB. (Ph.D., 1985)
  - 2. Emilie Bell, CMB.
  - 3. Jane Wiesen, CMB.
  - 4. Hal Cantor, Bioengineering.
  - 5. Craig Halberstadt, Bioengineering.
  - 6. Rhonda Brand, Bioengineering.
  - 7. Mahmoud Ghazzi, Bioengineering.
  - 8. P. Bagavandoss, Anatomy.
  - 9. (also serving on several other dissertation committees).
- E. Supervision of two undergraduate students.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. NIH-P30-HD 18258-01, "Center for the Study of Reproduction", \$1,822,419 (direct), Principal Investigator.
- B. Mellon Foundation Grant, 1985-1988, \$300,000 (total).
- C. NIH-HD-18018-01, "Gonadotropin control of the ovary", 1985-1988, \$331,663 (direct), Principal Investigator.
- D. NIH-T32-HD-07048-10, "Training Program in Reproductive Endocrinology" (six predoctoral students; 4 postdoctoral student), 1985-1990, \$972,975 (direct), Principal Investigator.
- E. Burroughs Corporation, contract to develop a "Scientific Data System", \$515,000, 1984-1986, (total), Principal Investigator.
- F. NIH-R44-GM34169-02, Phase II SBIR via KMS Fusion, Inc., John Widman, Principal Investigator, Subcontract to UM, "Pulse signals to Cells Using a Unique Perifusion System", 1986-1988, \$81,453 (total to UM, 1986-1987).
- G. NSF-BNS-8419007, "Early Adolescence: A Biomedical and Psychosocial Approach", A multidepartmental, interdisciplinary project, J. Eccles (Psychology), Principal Investigator, 1986-1987, \$146,949 (total), Co-Investigator.



- H. Submitted: HD-22675-01, "Early Adolescence: A Biomedical and Psychosocial Approach", W. Holmes (Psychology), Principal Investigator, (Co-Investigator).
- I. Submitted: HD-21936-01, "Metabolic Assessment of Conditions of Embryo Culture", D. Chase, Principal Investigator, (Co-Investigator).
- J. Submitted: National Science Foundation, "Cluster Research Proposal for Molecular Biosensing", H. Wang, Principal Investigator, (Co-Investigator).
- K. Submitted: P30-HD18258-03, "Molecular Biology Core Facility: Supplement to Center for the Study of Reproduction".

PROJECTS UNDER STUDY:

- A. Development of a computer-controlled perfusion system for on-line analysis of cellular responses to pulsatile and other controlled signalling.
- B. Analysis of dynamic control of ovarian function by gonadotropins.
- C. Non-invasive assessment of the normality and development of single, pre-gastrula mouse embryos.
- D. Development of a computer-based system for collection and analysis of data from scientific instruments.
- E. Localization and regulation of mRNAs in rat granulosa cells and unfertilized Drosophila eggs.
- F. Articles submitted:
  - 1. Bagavandoss, P. and Midgley, A.R. Jr.: Retinoic acid can substitute for vitamin A in rat ovarian cells in vitro.
  - 2. 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.

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

- A. Director, Consortium for Research in Developmental and Reproductive Biology.
- B. Director, Reproductive Endocrinology Program.
- C. Member, Review and Search Committee for Department of Anatomy and Cell Biology.
- D. Member, Ad Hoc Committee on Classified Research.

REGIONAL AND NATIONAL:

- A. Past President, Society for the Study of Reproduction.
- B. Member, NICHD Population Research Committee, 1986--.
- C. Ad Hoc Member, NIDDK Endocrinology Research Program Advisory Committee, 1986--.
- D. Ad Hoc Member, NIDDK Hormone Distribution Program Subcommittee, 1986--.

V. OTHER RELEVANT ACTIVITIES:

- 1. July 22-25, 1985, Annual Meeting, Society for the Study of Reproduction.

2. October 2-4, 1985, Site Visit, UCLA.
3. November 6-7, 1985, Population Research Committee meeting, Bethesda.
4. January 8, 1986, Site Visit, Northwestern University.
5. February 19, 1986, Consultant to Department of Obstetrics and Gynecology, Columbia University.
6. March 6-7, 1986, Population Research Committee meeting, Bethesda.
7. April 24-25, 1986, University of Nebraska, Lincoln, Three seminars: "Intercellular communication", "Ovarian follicular selection", and "Chaos and survival".
8. May 12, 1986, Special Review Committee, Baltimore.
9. May 13-14, 1986, Site Visit, Johns Hopkins.
10. May 19-21, 1986, Site Visit, University of Texas, Dallas.
11. June 19-20, 1986, Population Research Committee meeting, Bethesda.
12. June 23-24, 1986, NICHD Director's Meeting and Workshop on Molecular Genetics in Reproductive Biology, San Diego.
13. June 25-27, 1986, Endocrine Society annual meeting, Anaheim.
14. June 28, 1986, Meeting of NIDDK Endocrinology Research Program Advisory Committee, Anaheim.
15. June 28, 1986, Meeting of NIDDK Hormone Distribution Program Subcommittee, Anaheim.

#### VI. PUBLICATIONS:

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

1. Miyauchi, F. and Midgley, A.R., Jr.: Progesterone may inhibit its own production in an all-or-none fashion at the level of individual luteal cells. 68th Annual Meeting, The Endocrine Society, 1986.
2. Miyauchi, F. and Midgley, A.R., Jr.: Morphologically and functionally distinct subpopulations of rat luteal cells on day 15 of pregnancy. 19th Annual Meeting, Society for the Study of Reproduction, 1986.
3. Rolfes-Curl, A., Valiquett, T.R. and Midgley, A.R., Jr.: Progesterone release by ovarian cells in novel perfusion-assay system. 19th Annual Meeting, Society for the Study of Reproduction, 1986.
4. Bagavandoss, P.: Effect of Retinoids on luteinizing hormone (LH) receptor induction in rat granulosa cells. 19th Annual Meeting of the Society of the Study of Reproduction, 1986.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Cytopathology, 26 weeks.
- B. Director, Cytopathology Laboratory, full time.
- C. Cytopathology, pulmonary pathology, and gynecologic pathology consultation service, 12 months.
- D. Surgical Pathology - backup coverage.

II. TEACHING ACTIVITIES:

- A. Pathology 600, Sophomore medical students, class lectures - five contact hours.
- B. Pathology residents, supervision and teaching during cytopathology and surgical pathology rotations and when covering necropsies.
- C. Pathology residents, biweekly cytopathology conferences.
- D. Gynecology-Pathology-Radiation Therapy Conference, backup coverage.

III. RESEARCH ACTIVITIES:

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

SPONSORED SUPPORT: None.

PROJECTS UNDER STUDY:

- A. Aspiration cytology with particular reference to pulmonary, mammary and adrenal lesions.
- B. Cross contamination in the cytologic staining circuit.
- C. Curschmann's spirals in serous fluids.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Pathologist in charge of Cytopathology Laboratory.
- B. Department of Pathology Medical Service Plan Executive Committee.

MEDICAL SCHOOL/HOSPITAL: None.

REGIONAL AND NATIONAL:

- A. Secretary-Treasurer, American Society of Cytology.

## V. OTHER RELEVANT ACTIVITIES:

- A. Editorial Advisory and American Review Board, *Acta Cytologica*.
- B. Editorial Board, *The Cytotechnologist's Bulletin*.
- C. Editorial and Publications Committee, International Academy of Cytology.
- D. Membership Committee, International Academy of Cytology.
- E. Naylor, B., Kumar, N.B. and Beals, T.F.: Transthoracic fine needle aspiration cytology: Light microscopic and ultrastructural appearances. Workshop, Annual Scientific Meeting of the American Society of Cytology, New York, New York, November, 1984.
- F. Naylor, B.: Cytopathology of transthoracic fine needle aspirates. Workshop, Interim Scientific Meeting of American Society of Cytology, San Juan, Puerto Rico, April, 1985. B. Naylor, B.: The mesothelium mesothelial reactive changes and mesothelioma. Panel moderator, Scientific Meeting of the International Academy of Cytology, Brussels, Belgium, May, 1986.

## VI. PUBLICATIONS:

### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Naylor, B. and Novak, P.M.: Charcot-Leyden crystals in pleural fluids. *Acta Cytol.* 1985;29,781-784.
2. Bartziota, E.V. and Naylor, B.: Megakaryocytes in a hemorrhagic pleural effusion caused by anticoagulant overdose. *Acta Cytol.* 1986;30,163-165.
3. Flint, A., Beckwith, A.L. and Naylor, B.: *Pneumocystis carinii* pneumonia: Cytologic manifestations and rapid diagnosis in routinely prepared Papanicolaou-stained preparations. *Am. J. Med.* In Press.
4. Kim, K., Naylor, B. and Han, I.H.: Fine needle aspiration cytology of sarcomas metastatic to lung. *Acta Cytol.* In Press.
5. Naylor, B., Bartziota, E.V., Gross, B.H. and Glazer, G.M.: Rapid on-site evaluation of percutaneous fine needle aspirations: Successful collaboration between pathologists and radiologists. *Acta Cytol.* In Press.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Director, Clinical Laboratories, University Hospitals.
- B. Director, Blood Bank, University Hospitals.
- C. Diagnosis of surgical specimens from University Hospitals patients.
- D. Diagnosis of surgical specimens from MDS Laboratories.
- E. Diagnosis of consultation cases on surgical pathology of breast.
- F. Medical coverage of Transfusion Service.
- G. Medical coverage of Necropsy Service (one month).
- H. Consultation visits to Chelsea Medical Laboratories.
- I. Member, University of Michigan Breast Care Center.
- J. Task Force on Expansion of University Hospital Blood Donor Program.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITALS:

- A. Lectures on breast pathology (two), transfusion medicine (four), and clinical laboratory diagnosis (one) to sophomore class.
- B. Presentation on breast cancer to Interphase Program.
- C. Presentation of monthly Conference on Surgical Pathology to Section of General Surgery.
- D. Postgraduate course, "Current Topics in Blood Banking", Planning Committee.
- E. Course on Transfusion Medicine presented to Pathology and Hematology/Oncology House Officers.
- F. Seminars on Pathology of Breast to Pathology House Officers.
- G. Lecture on breast cancer to Department of Surgery.
- H. Two lectures on blood component therapy to Department of Obstetrics and Gynecology.
- I. Lecture on blood component therapy to Department of Surgery.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

- A. Treatment of acute Guillain-Barre Syndrome with plasma exchange (in cooperation with Department of Neurology - Dr. J. Albers).
- B. The pathology of metaplastic carcinoma of breast.
- C. The pathology of mammary hamartomas.

#### IV. ADMINISTRATIVE ACTIVITIES:

##### DEPARTMENTAL:

- A. Head, Section of Clinical Pathology.
- B. Executive Committee, Departmental Medical Service Plan.
- C. Resident Selection Committee.
- D. Medical Director, Medical Technology Program.
- E. Limited Special Function Laboratories Consolidation Task Force.
- F. Departmental Task Force on Activation of Replacement Hospital Project.

##### MEDICAL SCHOOL/HOSPITAL:

- A. Executive Committee, Medical School.
- B. Executive Committee on Clinical Affairs, University Hospitals.
- C. University Hospitals Executive Committee.
- D. New Hospital Planning Committee.
- E. Medical Center Clinical Priorities Committee.
- F. Laboratories Committee, Chairman.
- G. Transfusion Committee, Chairman.
- H. Joint Conference Committee.
- I. Breast Care Center.
- J. Multi-Organ Transplantation Committee (liver homotransplantation).
- K. Ad Hoc Committee on HTLV-III Testing in University Hospitals.

##### REGIONAL AND NATIONAL:

- A. American Association of Blood Banks:
  - 1. Transfusion Transmitted Diseases (AIDS) Task Force.
  - 2. Nominations Committee.
  - 3. Liaison Committee on Circular of Information for Use With Human Blood and Components.
  - 4. Awards Committee.
- B. American National Red Cross:
  - 1. National Blood Operations Committee.
- C. American Society of Clinical Pathologists:
  - 1. Council on Anatomical Pathology.
  - 2. Director, Check Sample Program, Anatomical Pathology.
  - 3. Prelector, 1987 Annual Slide Seminar.
  - 4. Nominating Committee.
- D. Michigan Society of Pathologists:
  - 1. Medical Care Insurance Committee.
  - 2. Medical Legislation Committee.
- E. American Medical Association:
  - 1. Advisory Panel on AIDS.
- F. Arthur Purdy Stout Society of Surgical Pathologists:
  - 1. Program Chairman.
- G. American Cancer Society:
  - 1. Task Force on Fibrocystic Disease of Breast.
- H. Detroit Red Cross:
  - 1. Medical Advisory Committee.
  - 2. Blood Operations Committee.
- I. Consultant, Veterans Administration Hospital, Ann Arbor.
- J. Test Committee on Blood Banking, American Board of Pathology.

## V. OTHER RELEVANT ACTIVITIES:

### EDITORIAL ACTIVITIES:

- A. Associate Editor, Transfusion.
- B. Editorial Board, American Journal of Surgical Pathology.
- C. Associate Editor, Critical Reviews in Clinical Laboratory Sciences.
- D. Editor, General Principles of Blood Transfusion (AMA).
- E. Editorial Board, Archives of Pathology (AMA).
- F. Editor, Arthur Purdy Stout Society of Surgical Pathologists Annual Symposium.
- G. Editor, Anatomical Pathology Check Sample Program, American Society of Clinical Pathologists.

### INVITED LECTURES/SEMINARS:

- 1. Lecture, "Early Manifestations of Breast Cancer", Annual Meeting, Omaha Mid-west Clinical Society, Omaha, Nebraska, October, 1985.
- 2. Workshop, "Management of Breast Cancer", Omaha Mid-West Clinical Society, Omaha, Nebraska, October, 1985.
- 3. Lecture, "Uses and Abuses of Fresh Frozen Plasma", Annual Meeting, American Association of Blood Banks, Miami, Florida, October, 1985.
- 4. Clinic Day Professor, "Clinical Applications of Plasmapheresis", Hurley Hospital, Flint, Michigan, November, 1985.
- 5. Course (three days), "Diagnosis and Management of Breast Cancer", American Society of Clinical Pathologists, Colorado Springs, Colorado, December, 1985.
- 6. Presentation of Seminar, "Pathology of Diseases of the Breast", Michigan Society of Pathologists, December, 1985.
- 7. Lecture, "Appropriate Utilization of Blood and Blood Components", Annual Meeting, Texas Society of Pathologists, Houston, Texas, February, 1986.
- 8. Lecture, "Management of blood Shortage Situations: Emergency and Massive Transfusion", Annual Meeting, Texas Society of Pathologists, Houston, Texas, February, 1986.
- 9. Lecture, "Intraductal Carcinoma of the Breast", Department of Surgery, Henry Ford Hospital, Detroit, Michigan, February, 1986.
- 10. Television presentation, "AIDS and anti-HTLV-III Testing", American Association of Blood Banks, New York, New York, February, 1986.
- 11. Lecture, "Indications and Monitoring of the Use of Fresh Frozen Plasma as a Hemostatic Agent", International Workshop on Albumin and Systemic Circulation, Grindelwald, Switzerland, March, 1986.
- 12. Lecture, "Use of Fresh Frozen Plasma", Milwaukee Blood Society, Milwaukee, Wisconsin, March, 1986.
- 13. Lecture, "Emergency and Massive Transfusions", Department of Pathology, University of Pittsburgh Medical School, Pittsburgh, Pennsylvania, March, 1986.
- 14. Keynote lecture, "Pathology of Breast Cancer Detected by Imaging Techniques", International Symposium: Fundamental Problems in Breast Cancer, Banff, Alberta, Canada, April, 1986.
- 15. Lecture, "History of Blood Transfusion", Chicago Blood Society, Chicago, Illinois, May, 1986.

16. Lecture, "Appropriate Use of Blood Components", Michigan Society of Pathologists Course, May, 1986.
17. Workshop, "Problem Solving in the Blood Bank", Annual Symposium: Current Topics in Blood Banking, University of Michigan Medical School, May, 1986.
18. Lecture, "Current Issues in Prevention of Transfusion-Transmitted Diseases", Annual Symposium: Current Topics in Blood Banking, University of Michigan Medical School, May, 1986.
19. Seminar, "Legal Aspects of Transfusion", Annual Symposium, Current Topics in Blood Banking, University of Michigan Medical School, May, 1986.

## VI. PUBLICATIONS:

### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Panel on acquired immunodeficiency syndrome (H.A. Oberman, member): Status report on acquired immunodeficiency syndrome. Human T-cell lymphotropic virus type III testing. J.A.M.A. 1985;254:1342-1345.
2. Pike, A.M. and Oberman, H.A.: Juvenile (cellular) adenofibromas. Am. J. Surg. Path. 1985;9:730-736.
3. Judd, W.J., Barnes, B.A., Steiner, E.A., Oberman, H.A., et al.: The evaluation of a positive DAT test (autocontrol) in pretransfusion testing re-visited. Transfusion 1986;26:220-224.
4. Oberman, H.A.: Introduction to centennial symposium on neoplasia. Am. J. Surg. Path. 1986;10:1-2.
5. Wolber, R.A., Duque, R.E., Robinson, J.P. and Oberman, H.A.: Oxidative product formation in irradiated neutrophils. Transfusion (in press).

### BOOKS AND CHAPTERS IN BOOKS:

1. Oberman, H.A.: Uses and abuses of fresh frozen plasma, in, Garratty, G. (Editor), Current Concepts in Transfusion Therapy, American Association of Blood Banks, Arlington, Virginia. pp. 109-124, 1985.
2. Oberman, H.A.: The crossmatch: How much is enough?, in, Das, P. and Smit-Sibinga, C. (Editors), Supportive Therapy in Hematology, M. Nijhoff. Boston, Massachusetts. pp. 121-128, 1985.
3. Oberman, H.A.: Transfusion therapy, in, Laros, R. (Editor), Blood Disorders in Pregnancy, Lea and Febiger, Philadelphia, Pennsylvania. pp. 195-214, 1986.
4. Oberman, H.A. and Judd, W.J.: Cost containment in blood banking, in, Cash, J. (Editor), Progress in Transfusion Medicine, Churchill-Livingstone, Edinburgh, Scotland. In press.

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

1. Oberman, H.A.: Inappropriate use of fresh frozen plasma. Mich. Postgrad. Rev. 1985;2:113-116.
2. Consensus Conference Panel (H.A. Oberman, member): Is "fibrocystic disease" of the breast precancerous? Arch. Pathol. Lab. Med. 1986;110:171-3.
3. Book review: The apocrine glands and the breast (J. Craigmyle). Arch. Pathol. Lab. Med. 1985;109:1127.
4. Book review: Atlas of breast pathology (Linell and Ljungberg). Arch. Pathol. Lab. Med. 1985;109:788.



5. Transfusion classics. Historical vignettes in blood banking. Transfusion 1985;25:359,419.
6. Transfusion classics. Historical vignettes in blood banking. Transfusion 1986;26:112,271.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Autopsy Service.
- B. Serum Angiotensin Converting Enzyme Assay.

II. TEACHING ACTIVITIES:

- A. Pathology Residents - Autopsy.
- B. John Feighan - Undergraduate Honor Student.
- C. Gregg Downer, M.D. - Postdoctoral Fellow.
- D. Abdhish Bhavsar - Undergraduate Summer Student.

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, \$93,414 current annual direct cost. (NIH).
- B. Macrophage Function in Lung Injury and Fibrosis. POI-HL31963, Section IV. Principal Investigator, S.H. Phan, Ph.D., M.D., 35% effort, \$71,216 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 Regulatory Factors. 84-1165. Grant-in-Aid (American Heart Association), Principal Investigator, S.H. Phan, Ph.D., M.D., \$30,000 current annual direct cost.

PROJECTS UNDER STUDY:

- A. Lung macrophage/monocyte and T cell/T cell subset kinetics, 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 roles of phospholipase A<sub>2</sub> and serine proteases/esterases in neutrophil activation.
- D. The state of macrophage activation as determined by Ia antigen expression and its relationship to production of arachidonate metabolites active in fibroblast activation.
- E. Fibroblast arachidonate metabolism in response to inflammatory cell and macrophage derived mediators, and their effects on fibroblast collagen synthesis and proliferation.

- F. The effects of selective inhibitors of arachidonate metabolism on murine pulmonary fibrosis.
- G. Regulation of macrophage and T-cell fibroblast growth factor production by arachidonate metabolites in normal and diseased states.
- H. Leukotriene and tumor necrosis factor regulation of fibroblast collagen synthesis, and expression of receptors for these molecules.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: None.

MEDICAL SCHOOL/HOSPITAL:

- A. Reviewer for BMRC research grant application.

REGIONAL AND NATIONAL:

- A. Member, Pathology A Study Section (Reviews research grant applications for National Institutes of Health) Public Health Service, NIH.
- B. 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, and Chest.

V. OTHER RELEVANT ACTIVITIES: None.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Duque, R.E., Phan, S.H., Hudson, J.L., Till, G.O. and Ward, P.A.: Functional defects in phagocytic cells following thermal injury: Application of flow cytometric analysis. Amer. J. Pathol. 1985;118:116-127.
2. Phan, S.H., Varani, J. and Smith, D.: Rat lung fibroblast collagen metabolism in bleomycin-induced pulmonary fibrosis. J. Clin. Invest. 1985;76:241-247.
3. Kunkel, S.L., Chensue, S.W. and Phan, S.H.: Prostaglandins as endogenous modulators of interleukin-1 production. J. Immunol. 1986;126:186-192.
4. Wilson, B.S., Phan, S.H. and Lloyd, R.V.: Chromogranin from normal affinity chromatography and partial N-terminal amino acid sequence. Regulat. Peptides. 1986;13:207-223.
5. Duque, R.E., Fantone, J.C., Kramer, C., Marasco, W.A. and Phan, S.H.: Inhibition of neutrophil activation by p-bromophenacyl bromide and its effects on phospholipase A<sub>2</sub>. Br. J. Pharmacol. 1986;88:463-472.
6. Phan, S.H. and Kunkel, S.L.: Inhibition of bleomycin-induced pulmonary fibrosis by nordihydroguaiaretic acid: The role of alveolar macrophage activation and mediator production. Amer. J. Pathol. In press.

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

1. Werns, S., Shea, M., Gallagher, K., Phan, S., Pitts, B. and Lucchesi, B.: Beneficial effects of superoxide dismutase or allopurinol after canine myocardial ischemia and reperfusion. J. Am. Coll. Cardiol. 1986;7:13A.

2. Robinson, J.P., Phan, S.H. and Fantone, J.C.: Neutrophil membrane fluidity alteration with activation. Fed. Proc. 1986;45:309.
3. Phan, S.H. and Kunkel, S.L.: Regulation of macrophage derived growth factor production by arachidonate metabolites. Fed. Proc. 1986;45:453.
4. Phan, S.H., McGarry, B. and Kunkel, S.L.: Stimulation of lung fibroblast collagen synthesis by products of the lipoxygenase (LO) pathway. Am. Rev. Respir. Dis. 1986;133:A35.
5. Phan, S.H., McGarry, B.M., Loeffler, K.M. and Kunkel, S.L.: Leukotriene C<sub>4</sub> binds to rat lung fibroblasts and stimulates collagen synthesis. Adv. Prostaglandin, Thromboxane, and Leukotriene Research. 1987. In press.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

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

II. TEACHING ACTIVITIES:

- A. Pathology 600, Mucormycosis, case presentation.
- B. Pathology 411, Sexually Transmitted Diseases;  
Antimicrobial Susceptibility Testing.
- C. Microbiology 505, Clinical Microbiology for Graduate students.
- D. Microbiology 620, Clinical Microbiology for Medical students.
- E. Epidemiology 560, Sexually Transmitted Diseases.  
Chemotherapy of Bacterial Infections.
- F. Coordinator, Pathology House Officer rotation in Clinical Microbiology.
- G. Lecturer, "Core Lectures in Clinical Microbiology".
- H. Lecturer, Clinical Pathology Grand Rounds, "Blood Culturing" and  
"Enteric Bacterial Pathogens".

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Amdinocillin-B-Lactam Combination Study II. Hoffmann-La Roche;  
\$11,000/four months.
- B. Antimicrobial Susceptibility of Bacteroides fragilis in the United  
States, Lederle Laboratories; \$3,000/one year.

PROJECTS UNDER STUDY:

- A. Detection of enteric toxins by ELISA.
- B. Clinical significance of coagulase-negative Staphylococcus in blood  
cultures.
- C. Inducible B-lactamase activity in Gram-negative bacteria.
- D. Phagocyte function test by Flow Cytometric analysis.
- E. Gas-liquid chromatography for definitive identification of anaerobes,  
fungi and acid-fast bacilli.
- F. Clinical laboratory evaluation of DNA probes for diagnosis of acid-fast  
bacilli and mycoplasma.

ARTICLES SUBMITTED FOR PUBLICATION:

1. Kern, S., Keren, D. and Pierson, C.: Bacterial overgrowth and mucosal  
changes in isolated ileal loops in rabbits: effects of intraluminal anti-  
biotics.

2. Gupta, A., Pierson, C., Rasmussen, J. and Weiss, S.: The role of infection in psoriatic folliculitis.
3. Pierson, C., Purifoy, J. and Siddiqui, J.: Rapid identification of *Corynebacterium* JK using gas-liquid chromatography.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

- A. Clinical Pathology Laboratory Directors' Committee.
- B. Coordinator, Clinical Microbiology Senior Staff Meeting.
- C. Coordinator, Clinical Microbiology In-service education program.

MEDICAL SCHOOL/HOSPITAL:

- A. Alternate, Hospitals Infection Control Committee.

REGIONAL AND NATIONAL:

- A. Program Committee, Tricounty Clinical Microbiology Meeting.
- B. Reviewer, Journal of Clinical Microbiology.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

1. "Overview of antimicrobial susceptibility testing", Flint Society for Medical Technologists.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Tally, F.P., Cuchural, Jr., G.J., Jacobus, N.V., Gorbach, S.L., Aldridge, K., Cleary, T., Finegold, S.M., Hill, G., Iannini, P., O'Keefe, P. and Pierson, C.: Nationwide study of the susceptibility of the *Bacteriodes fragilis* group in the United States. *Antimicrob. Agents Chemother.* 1985;28:675-677.
2. Wakefield, T., Pierson, C. and Schaberg, D.: Treatment of established prosthetic vascular graft infection by antibiotics preferentially concentrated in leukocytes: *Arch. Surgery*. In press.

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

1. Pierson, C.L., Purifoy, J., Siddiqui, J.: Rapid identification of *Corynebacterium* JK using gas-liquid chromatography. 1986 Abstracts, American Society for Microbiology.
2. Editor of the Month, *The Michigan Drug Letter*, 5(6), 1986.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Oral Pathology Biopsy Service, four months/year (5,000 biopsies/year).
- B. Patient consultations, Oral Pathology/Dermatology Referral Service-- Monday mornings.

II. TEACHING ACTIVITIES:

- A. Course Director and Lecturer in Senior Oral Pathology 816 and 818.
- B. Course Director, Lecturer and Laboratory Instructor in Sophomore Oral Pathology 626 and 627.
- C. Lecturer, Graduate Oral Pathology and Diagnosis 695.
- D. Contributor, Graduate Seminars in Oral Pathology 698 and 699.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

- A. Osteosarcoma and chondrosarcoma of the head and neck - clinical features, microscopic features, immunohistochemical markers.
- B. Immunohistochemical evaluation of benign and malignant fibrous histiocytomas.
- C. Langerhans cells and "aberrant" HLA-DR expression in normal and inflamed gingiva.
- D. Immunohistochemical study of dysplastic, in situ, and invasive squamous cell lesion of oral mucous membranes.

ARTICLES SUBMITTED FOR PUBLICATION:

1. Contos, J., Corcoran, J., Laturno, S., Chiego, D. and Regezi, J.: Langerhans cells in apical periodontal cysts: An Immunohistochemical Study J. Endo.
2. Regezi, J., Zarbo, R. and Lloyd, R.: Muramidase,  $\alpha$ -1 antitrypsin,  $\alpha$ -1 antichymotrypsin, and S-100 Immunoreactivity in Giant Cell Lesions. Cancer.
3. Zarbo, R., Regezi, J., Batsakis, J. and Lloyd, R.: HLA-DR Immunoreactivity in Salivary Gland Lesions. Cancer.
4. Zarbo, R., Regezi, J., Batsakis, J., Crissman, J., Hatfield, J. and Maisel, H.: Normal and neoplastic salivary gland production of glial fibrillary acidic protein. Human Pathol.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Thesis Committee for Dr. J.G. Contos, Department of Endodontics.

DENTAL SCHOOL:

- A. Member of Executive Committee, 1982-1985.

NATIONAL:

- A. Member, Committee to Encourage Scholarly Activity, American Academy of Oral Pathology, 1985-1986.  
B. Member of Editorial Board for Oral Surgery, Oral Medicine, and Oral Pathology, C.V. Mosby, Publisher.

V. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Regezi, J.A., Lloyd, R.V., Zarbo, R.J. and McClatchey, K.D.: Minor salivary gland tumors: A histologic and immunohistochemical study. *Cancer* 1985; 55:108-115.
2. Regezi, J.A., Stewart, J.C.B., Headington, J.T. and Lloyd, R.V.: Immunohistochemical Staining of Langerhans cells and macrophages in oral lichen planus. *Oral Surg., Oral Med., Oral Path.* 1985;60:396-402.
3. Stewart, J.C.B., Regezi, J.A., Lloyd, R.V. and McClatchey, K.D.: Immunohistochemical study of idiopathic histiocytosis of the jaws. *Oral Surg., Oral Med., Oral Path.* 1986;61:48-53.
4. Zarbo, R.J., Regezi, J. and Batsakis, J.G.: S-100 protein in salivary gland tumors: An immunohistochemical study of 129 cases. *Head and Neck Surg.* 1986;8:268-275.
5. Regezi, J.A., Ellis, C., Stewart, J. and Giustina, T: Histologic changes associated with the topical use of isotretinoin on oral lichen planus. *Oral Surg., Oral Med., Oral Path.* 1986;61:479-484.
6. Giustina, T., Stewart, J., Ellis, C., Regezi, J., Annesley, T., Woo, T. and Voorhees, J.: Topical application of isotretinoin improves lichen planus: A double blind clinical study. *Arch. Dermatol.* 1986;122:534-536.
7. Bye, F., Krause, M., Regezi, J.A. and Caffessee, R.: Histologic evaluation of periodontal implants in a biologically "closed" model. *J. Perio.* In press.
8. Regezi, J., Zarbo, R. and Lloyd, R.: HLA-DR immunoreactivity in giant cell lesions. *J. Oral. Pathol.* In press.

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

1. Zarbo, R., Regezi, J. and Batsakis, J.: S-100 protein in salivary gland tumors: An immunohistochemical study of 129 Cases. Abstract #430, International Academy of Pathology, New Orleans, Louisiana, March, 1986.
2. Regezi, J., Zarbo, R. and Lloyd, R.: HLA-DR immunoreactivity in giant cell lesions. Abstract #1068, AADR, Washington, D.C., March, 1986.
3. Contos, J., Corcoran, J., Laturno, S., Chiego, D. and Regezi, J.: Langerhans cells in apical periodontal cysts. American Association of Endodontists, Boston, Massachusetts, April, 1986.



4. Regezi, J., Zarbo, R. and Lloyd, R.: Muramidase,  $\alpha$ -1 antitrypsin,  $\alpha$ -1, antichymotrypsin, and S-100 protein immunoreactivity in giant cell tumors. Abstract #6, AAOP, Toronto, Canada, May, 1986.
5. Regezi, J., Zarbo, R., Lloyd, R. and Batsakis, J.: HLA-DR immunoreactivity in salivary gland lesions. Abstract #1, AAOP, Toronto, Canada, May, 1986.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

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.

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. Pathology Laboratory to Sophomore Dental Students, Course 631.
- D. Oral Pathology to Senior Dental Students, Course 818.
- E. Oral Pathology Seminar to Graduate Students in Restorative Dentistry, Course 691.
- F. Oral Pathology Seminar to Graduate Students in Periodontics, Course 781 (course director).
- G. Survey of Dental Hygiene to Sophomore Dental Hygiene Students, Course 220.
- H. Senior Seminar in Dental Hygiene, Course 313 and Preventive Dentistry, Course 362 to Senior Dental Hygiene Students.

III. RESEARCH ACTIVITIES:

SPONSORED RESEARCH:

- A. Protocol to define the efficacy and tolerance of systemically administered acyclovir versus placebo in patients with herpes labialis. Principal Investigator. Sponsor: Burroughs Wellcome Co.
- B. Tolerance and efficacy study comparing 15% 5-<sup>3</sup>-iodo-2'-deoxyuridine (IDU) in 80% dimethyl sulfoxide (DMSO) and 5% H<sub>2</sub>O to control groups of 80% DMSO and 2% DMSO for the treatment of herpes simplex labialis. Principal Investigator. Sponsor: Research Medical, Inc.

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL/DENTAL SCHOOL:

- A. Associate Director of the Dental Research Institute. Activities include:
  - 1. Chairman, Symposium on Hypersensitive Dentin: Origin and Management, November 20, 1985. 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.
3. Chairman, planning committee for the Symposium on New Insights into Dentofacial Pain: "Diagnosis and Treatment".

REGIONAL AND NATIONAL:

- A. Member, Executive Committee, Michigan Division, American Cancer Society.
- B. Member-at-Large, Board of Directors, Michigan Division, American Cancer Society.
- C. Chairman, Committee on Cancer Control, Hospital and Institutional Dental Service, Michigan Dental Association.
- D. Chairman, Annual Regional Oral Cancer Symposium to be held at Mt. Carmel Hospital, Detroit, Michigan, February 26, 1986.
- E. Member, Board of Appeals, Commission on Accreditation, Graduate Specialty Education Programs, American Dental Association.
- F. Consultant, Committee on Hospital and Institutional Dentistry, American Dental Association.
- G. Consultant, Council on Dental Education, American Dental Association.
- H. Consultant, Council on Dental Therapeutics, American Dental Association.
- I. Consultant, Office of the Surgeon General, United States Army.
- J. Manuscript Consultant and Reviewer:
  1. Journal of the American Medical Association.
  2. Journal of Oral Pathology.
  3. Journal of the American Dental Association.
  4. Cancer.
  5. Journal of the Academy of General Dentistry.

V. OTHER RELEVANT ACTIVITIES:

- A. Lecturer to various groups including:
  1. Testimony, Smokeless Tobacco Hearings in Grand Rapids, Traverse City and Detroit.
  2. Trident Seminar, Madrid, Spain.
  3. Schools of Dentistry and Medicine, University of Louisville, Kentucky.
  4. Great Lakes Cancer Nursing Conference, Lansing.
  5. U.S. Army Dental Corps, Rhodes Clinic, Ft. Sam, Houston, Texas.
  6. Michigan Dental Association, Cancer Symposium and Essays, Detroit.
  7. Veterans Administration Hospital, Ann Arbor.
  8. The University of Michigan Alumni Association.
  9. The University of Michigan School of Medicine, Infectious Diseases Symposium.
  10. American Academy of Oral Medicine, Toronto, Canada.
  11. American Academy of Oral Pathology and the American Academy of Oral Medicine, Viral Diseases Symposium, Toronto, Canada.
  12. Macomb Community College.
  13. Miscellaneous component dental societies, civic clubs and study clubs.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Rowe, N.H., Doelle, P.J., Loos, P.J., and Herschfus, L.: Hospital dentistry -- Survival? J. Mich. Dent. Assoc. 1985;67:507-511.
2. Rowe, N.H.: The best defense against oral cancer. J. Mich. Dent. Assoc. 1986;68:199-201.

BOOKS AND CHAPTERS IN BOOKS:

1. Rowe, N.H., Shipman, Jr., C. and Drach, J.C.: Herpes simplex virus disease: Implications for dental personnel, in, Accepted Dental Therapeutics, 42nd Edition, Chicago, ADA, 1985.
2. Rowe, N.H. (editor): Proceedings of Symposium: Hypertensive Dentin: Origin and Management. The University of Michigan Press, Ann Arbor, 1985.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Fine needle aspiration (zero-four/week), superficial tumors, bedside or in clinic.

II. TEACHING ACTIVITIES:

- A. Gynecologic tumor conference, twice weekly.
- B. Sophomore pathology lectures (five): Diseases of: Cervix, Vagina and Vulva; Uterus and Endometrium; Ovaries; Placenta and Trophoblasts.

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. Carcinosarcoma and malignant mixed mesodermal tumors of the ovary with Keith Terada and Michael Hopkins.
- B. Adenocarcinoma and adenosquamous carcinomas of the uterine cervix with Michael Hopkins.
- C. Coexistent endocervical adenocarcinoma and mucinous adeno-carcinoma of the ovary: A clinicopathologic study of two cases with Michael Hopkins.
- D. Squamous cell carcinoma arising in ovarian endometriosis, with Wesley Beemer, M.D.
- E. Simultaneous primary melanoma of vagina and urinary bladder, with Gary Reed, M.D.
- F. Endometrial adenocarcinoma and endometrioid adenocarcinoma of ovaries in a 27-year-old, with Gary Reed, M.D.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

- A. Surgical diagnostic, three weeks.
- B. Cytology, 25 weeks.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

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 Clinical Flow Cytometry.
- F. Consultant for Hematopathology 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 review of blood smears and body fluids in Hematology Laboratory.
- B. Daily review of in-house and consultation hematopathology cases and correlation with flow cytometry data and immunoperoxidase studies.
- C. House Officer Conferences in Hematopathology.
- D. Pathology Course, Sophomore Medical Students, Pathology 600, January through April.

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. University of Michigan Cancer Research Institute. Lymphoma grading by needle aspiration and flow cytometry, with Dr. R. Wolber.

SERVICE ACTIVITIES:

DEPARTMENTAL:

- A. Diagnostic Surgical Pathology, Hematopathology.
- B. Diagnostic Clinical Flow Cytometry.

MEDICAL SCHOOL/HOSPITALS:

A. Hematology Laboratory.

1. For the three months period of March to May 1986, which followed the consolidation of both the Pediatric and Adult Hematology Laboratories with the Hematology Laboratory of the Department of Pathology, the Laboratory carried out a total of 110,998 tests, which represents an increase of 43% over the same three month period of the previous year. The per cent of labor-intensive tests increased by 28.5% and the number of cases requiring review by the pathologists rose by 22%. The bulk of the work is carried out in the Main Hematology Laboratory, while a satellite laboratory located in the clinic area of the outpatient building services both Pediatric and Adult Clinics as well as other clinics requiring hematology studies. The consolidation of the hematology services and the Arthritis Clinic involved both an increase in the load of procedures already carried out in out laboratory as well as the implementation of new methodologies. Together with the aid of the Phlebotomy Service and the Laboratory Data Center, the turnaround times for the various procedures, which include bone marrow aspirates and cytochemistries, have not increased.
2. Additional tests and technical changes made in the Laboratory include:
  - a. bone marrow aspirates.
  - b. cytochemistries.
  - c. joint fluids: mucin clot; crystal examination.
  - d. osmotic fragility.
  - e. tests for PNH.
  - f. tests for Heinz bodies.

B. University of Michigan Health Service Laboratories.

REGIONAL AND NATIONAL:

- A. Society of Hematopathology, Executive Committee.
- B. Southwest Oncology Group:
  1. Lymphoma Subcommittee.
  2. Leukemia Subcommittee.
- C. Regional Center Review Pathologist, Southwest Oncology Group.
- D. Member, Executive Committee, National Panel for Lymphoma Clinical Studies.
- E. 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.
- C. Hematologic Pathology.

### INVITED LECTURES/SEMINARS:

1. "A Practical Approach to Diagnostic Hematological Problems", ASCP Educational Course, San Antonio, Texas, March, 1986. Course included: a) Non-Hodgkin's Lymphomas; b) Hodgkin's disease; c) A practical approach to the diagnosis and Classification of Lymphomas and Leukemias by Electron Microscopy and Flow Cytometry; d) Extranodal lymphomas; e) Immunologic Classification of Acute Lymphoblastic Leukemias.
2. "Clinical Applications of Flow Cytometry", Hoosier Oncology Group.
3. "Electron Microscopy and Flow Cytometry as an Aid in the Diagnosis of Hematologic Disorders", Tenth Annual Course in Hematopathology, Armed Forces Institute of Pathology, Washington, D.C., May, 1986.

### VI. PUBLICATIONS:

#### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Schnitzer, B. and Hyder, D.M.: Leu M1 monoclonal antibody staining of Reed-Sternberg cells. *Lancet* 1986;1:757.
2. Flint, A., Lovett, E.J., III, Stoolman, L.M., McMillan, K., Schnitzer, B., McClatchey, K.D. and Hudson, J.L.: Flow analysis of DNA in diagnostic cytology. *Am. J. Clin. Pathol.* 1986;84:278-282.
3. Jones, S.E., Grozea, P.N., Miller, T.P., Van Slyck, E.J., Balcerzak, S.P., Costanzi, J.J., Morrison, F.S., Eyre, H.J., Fabian, C.J., Dabich, L., Dixon, D.O., Hartsock, R.J., Grogan, T.M., Kjeldsberg, C. and Schnitzer, B.: Chemotherapy with cyclophosphamide, doxorubicin, vincristine, and prednisone alone or with Levamisole or with Levamisole plus BCG for malignant lymphoma: A Southwest Oncology Group Study. *J. Clin. Oncol.* 1985;3:1318-1324.
4. Palutke, M., Schnitzer, B., Narang, S., Hyder, D.M., Parks, S., Tabuczka, P. and Patch, J.: Storage and transportation of lymphoid tissue for immunophenotyping. *Am. J. Clin. Path.* 1986;85:494-497.
5. Hyder, D.M., Beals, T.F. and Schnitzer, B.: Leu-M1-positive small cell carcinoma. *Hum. Pathol.* 1986;17:314-316.
6. Hyder, D.M. and Schnitzer, B.: Utility of Leu-M1 monoclonal antibody in the differential diagnosis of Hodgkin's disease. *Arch. Path. Lab. Med.* 1986;110:416-419.
7. Schnitzer, B., Lovett, E.J., III, Kahn, L.E. and Hudson, J.L.: American adult T-cell leukemia-lymphoma: A flow cytometric and morphologic study. *Ann. N.Y. Acad. Sci.* 1986;468:256-267.
8. Schnitzer, B., Smid, D. and Lloyd, R.V.: Primary T-cell lymphoma of the adrenal glands with adrenal insufficiency. *Hum. Pathol.* 1986;17:634-636.

#### B. BOOKS AND CHAPTERS IN BOOKS:

1. Schnitzer, B.: Reactive lymphoid hyperplasia, in, Jaffe, E.S. (Editor), *Surgical Pathology of Lymph Nodes and Related Organs*, W.B. Saunders, Co., Philadelphia. pp. 22-55, 1985.
2. McClatchey, K.D. and Schnitzer, B: Lymphoreticular disorders of the head and neck: Comprehensive management of head and neck tumors, Thawley, S.H. and Panje, W.R. (Editor), W.B. Saunders. In press.



C. ABSTRACTS:

1. Schnitzer, B.: Post thymic T-cell leukemias. Flow cytometric analysis. XIIth Symposium for Comparative Research on Leukemia and Related Diseases, Hamburg, West Germany, volume of abstracts. p.98, 1985.
2. Schnitzer, B., Stoolman, L.S., Duque, R. and Hudson, J.L.: Diagnosis and leukemias and lymphomas in body fluids by flow cytometry. Epics Meeting on Flow Cytometry (in Abstracts of Meeting), New Orleans, Louisiana.
3. Palutke, M., Schnitzer, B., Narang, S. et al.: 100 T-cell lymphomas and leukemias in adults in Michigan. Blood 1985;66:190a.
4. Mervak, T., Flint, A., Beckwith, A.L. and Schnitzer, B.: Flow cytometric DNA analysis of paraffin-embedded tissues: Analysis of factors that may affect ploidy determination. Am. J. Clin. Pathol. 1985;84:557.
5. Palutke, M., Schnitzer, B. and Han, L.: T-Cell lymphomas/leukemias. International Society of Hematology. (in Abstracts of Meeting).
6. Mervak, T., Flint, A. and Schnitzer, B.: Flow cytometric DNA analysis of non-Hodgkin's lymphomas: Determination of ploidy of fresh and paraffin-embedded tissues. Lab. Invest. 1986;54:43A.
7. Carey, J. and Schnitzer, B.: Cell surface phenotype and DNA content in neonatal transient myeloproliferative disorder of Down's Syndrome. Lab. Invest. 1986;54:9A.
8. Hyder, D.M., Schnitzer, B., Hiserodt, J. and Davenport, R.: Quantitation of cells with NK phenotype and function in benign and malignant lymphoreticular tissue. Lab. Invest. 1986;54:28A.
9. Wolber, R., Davenport, R., Schnitzer, B. and Hyder, D.: DNA quantitation in Hodgkin's disease by image analysis. Lab. Invest. 1986;54:70A.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Hematopathology Diagnostic Service - interpretation of peripheral smears, body fluid cytologies, bone marrow aspirates and biopsies, cytochemical stains.
- B. 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.

II. TEACHING ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

- A. Daily sign-out of cases in flow cytometry and hematopathology with pathology residents.
- B. Monthly seminars on the clinical applications of flow cytometry for the residents and fellows on the Hematology/Oncology Services.
- C. Lecturer, Hematopathology, medical school.
- D. Lecturer, Clinical Applications of Flow Cytometry, Medical Technologist Training Program.
- E. Pediatric/Adult Leukemia Conferences.
- F. Adult Lymphoma Conferences.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. These projects examine the molecular basis of migration across vessel walls for both normal and malignant lymphoid cells:
  - 1. NIH, NCI Physician Investigator Award (\$170,000; three years; 1 July 1984 through 30 June 1987): Lymphocyte migration and the metastatic process.
  - 2. American Cancer Society Research Award (\$109,000; two years; 1 July 1984 through 30 June 1986): Lymphocyte migration and the metastatic process.
  - 3. Michigan Leukemia Society Research Award (\$50,000; two years; 1 July 1984 through 30 June 1986): The role of extracellular matrix in the migration of lymphoid cells across vessel walls.

PROJECTS UNDER STUDY:

- A. Monoclonal antibodies in the treatment of lymphoproliferative disease - hematopathology consultant; Kenneth Foon, M.D., Principal Investigator.

- B. The role of the endothelium, basement membrane and extracellular matrix in the modulation of lymphoid cell migration into tissues - Principal Investigator.
- C. The role of lymphocyte migration in establishing and maintaining immune mediated glomerulonephritis (in conjunction with R. Wiggins, M.D., Department of Internal Medicine)
- D. Lymphocyte-endothelial interaction in Rheumatoid Arthritis (D. Fox and G.W. Jourdian, co-investigators)

ARTICLES SUBMITTED FOR PUBLICATION:

- 1. Stoolman, L.M., T.A. Yednock and S.D. Rosen. Homing Receptors on human and rodent lymphocytes-evidence for a conserved carbohydrate-binding specificity. J. Exp. Med.
- 2. Yednock, T.A., L.M. Stoolman and S.D. Rosen. Phosphomannosyl-derivatized beads detect a lymphocyte homing receptor. J. Cell Biol.
- 3. Yednock, T.A., E.C. Butcher, L.M. Stoolman and S.D. Rosen. A lymphocyte homing receptor: Relationship between the Mel-14 antigen and a carbohydrate-binding receptor. J. Cell Biol.
- 4. Stoolman, L.M. The monitoring of lymphocyte subsets in the management of organ-transplant recipients. ASCP monograph.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Medical Director of the Flow Cytometry Laboratory.
- B. Associate Director of the Hematopathology Laboratory.
- C. Member, Microcomputer Steering Committee

MEDICAL SCHOOL/HOSPITAL:

- A. Planned and managed the consolidation of all Hematology Laboratory Services (with the exception of the Coagulation Laboratory) into a single administrative unit under the Department of Pathology.
  - 1. Consolidation resulted in an approximate 15 % reduction in operating expenses (personnel, commodities and instrumentation) when compared to the cost of maintaining independent laboratories.
  - 2. The professional and administrative duties of managing this more complex operation have been assumed by existing pathology faculty and staff thus reducing hospital expenditures further.
  - 3. The advantageous economy of scale which resulted from consolidation enabled the Hematology Laboratory to absorb a 70-100 % increase in manual and stat procedures (the most labor intensive and costly tests performed) with a 50 % increase in personnel and no incremental equipment costs.
  - 4. These cost savings have been realized with minimal impact on the delivery of services. In fact, Stat Service to all clinics has improved with the creation of a Stat Hematology Laboratory in the outpatient facility which services all clinics and the institution of direct, on-line reporting of results to multiple clinic locations.

- B. Designed and implemented computerized procedures for monitoring turn-around time and hourly specimen load according to procedure or location of order.
- C. Pathology Department representative to Cancer Center Implementation Committees.
  - 1. Clinical research programs.
  - 2. Basic research programs.

V. OTHER RELEVANT ACTIVITIES:

INVITED LECTURES/SEMINARS:

- 1. "Laminin Selectively Enhances the Migratory Activity of Rodent Lymphoid Cells". Presented at American Society of Cell Biology Annual Meeting, Minisymposium on Cell-Extracellular Matrix Interactions, November, 1985.
- 2. "The Molecular Basis of Lymphocyte Recirculation". Invited speaker, Johns Hopkins School of Medicine, Department of Pharmacology and Experimental Therapeutics, April, 1986.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

- 1. Dafoe, .DC., Stoolman, L.M., Campbell, Jr., D.A., Lorber, M.I., Waskerwitz, J. and Turcotte, J.G.: T cell subset patterns in cyclosporine-treated renal transplant patients with primary CMV disease. Transplantation In Press, 1986.
- 2. Koller, C.A., Stoolman, L.M. and Miller, D.M.: Differentiation of HL-60 cells induced by mithramycin. Leukemia Research In Press, 1986.

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

- 1. Duque, R.E., Stoolman, L.M., Hudson, J.L. and Ward, P.A.: Multiparameter analysis of immunohematological disorders by flow cytometry. Survey and Synthesis of Pathology Research 1985;4:323-340.
- 2. Stoolman, L.M., Frazzin, A. and Burton, M.: Laminin selectively enhances the migratory activity of rodent lymphoid cells. J. Cell Biol. 1985;101:259a.
- 3. Stoolman, L.M., Yednoch, T.A., Burton, M. and Rosen, S.D.: Human lymphoid cells express a membrane lectin which is functionally equivalent to an adhesive site implicated in the recirculation of rodent lymphoid cells. J. Cell Biol. 1985;101:233a.
- 4. True, D.D., Singer, M.S., Stoolman, L.M. and Rosen, S.D.: Interactions of acidic glycolipids with a lymphocyte homing receptor. J. Cell Biol. 1985;101: 234a.
- 5. Yednoch, T.A., Butcher, E.C., Stoolman, L.M. and Rosen, S.D.: Lymphocyte homing receptor: Relationship between the Mel-14 antigen and a cell surface lectin. J. Cell Biol. 1985;101:233a.

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

~~ANNUAL DEPARTMENTAL REPORT~~  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

A. Clinical Immunopathology Laboratory.

II. TEACHING ACTIVITIES:

A. Resident training in immunology and immunopathology.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Thermal Injury, Complement and Leukocyte Dysfunction (GM-28499).  
Co-investigator with Dr. Peter A. Ward.
- B. Lung Injury Produced by Oxygen Metabolites (GM-29507). Co-investigator  
with Dr. Peter A. Ward.
- C. Immune Responses to Burns. Co-investigator with Dr. F. Whitehouse.

PROJECTS UNDER STUDY:

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

Articles Submitted for Publication:

1. Till, G.O., Morganroth, M.L. and Ward, P.A.: Activation of C5 required in neutrophil-mediated acute lung injury in the rat. *J. Immunol.*
2. Fudman, E.J., Till, G.O. and Fox, I.H.: Deferoxamine-induced decreases of lipid peroxides in rheumatoid arthritis. *Arth. Rheum.*
3. Tsai, E., Till, G.O. and Marak, G.E.: Effects of cyclopentolate on neutrophil migration. *Arch. Ophthalmol.*
4. Eaglstein, N.J., Till, G.O., Diaz, L.A., Labib, R.S., Patel, H.P. and Anhalt, G.J.: Defining the role of complement in experimental pemphigus vulgaris in mice. *J. Immunol.*
5. Winn, W.C., Davis, G.S., Durda, J.P. and Till, G.O.: The effect of neutropenia on experimental Legionella pneumonia. *Infect. Immun.*
6. Gannon, D.E., Varani, J., Till, G.O., Ryan, U.S., Simon, R.H. and Ward, P.A.: Source of iron in neutrophil-mediated killing of endothelial cells.
7. Wakefield, T.W., Till, G.O., Lindblad, B., Saenz, N. and Stanley, J.C.: Heparin-protamine interactions and the complement system: Failure of complement depletion to attenuate adverse hemodynamic and hematologic responses. *J. Vasc. Surg.*

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Associate Director, Immunopathology Laboratory.

MEDICAL SCHOOL/HOSPITAL:

- A. Member External Review and Search Committee, Department of Anatomy, University of Michigan Medical School.  
B. Interviewed candidates for faculty positions.  
C. Interviewed candidates for Medical Scientist Training Program.  
D. Consultant, clinical research programs.

REGIONAL AND NATIONAL:

- A. Organizer, Symposium on "Oxygen Radicals, the Toxic Mediators", at Annual Shock Society Meeting, Scottsdale, June, 1986.  
B. Reviewer for the following journals: American Journal of Pathology, American Review of Respiratory Disease, Toxicology and Applied Pharmacology, The Journal of Investigative Dermatology, Lipids, Journal of Clinical Investigation.  
C. VA Research Advisory Group

V. OTHER RELEVANT ACTIVITIES:

- A. Member Editorial Advisory Board, Immunobiology.  
B. Editor, The Complement System, Springer Verlag, Berlin, 1986.

INVITED LECTURES/SEMINARS:

1. Travenol Laboratories, Round Lake, Illinois, November 15, 1985.
2. International Immunology Symposium, Heidelberg, West Germany, March 31, 1986.
3. Annual Meeting American Burn Association, Chicago, Illinois, April 9-12, 1986.
4. First Vienna Shock Forum, Vienna, Austria, May 30 - June 1, 1986.
5. Annual Meeting, Shock Society, Scottsdale, June 8-11, 1986.
6. International Meeting on Microcirculation and Inflammation, Heidelberg, West Germany, June 22-25, 1986.

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Till, G.O. and Ward, P.A.: Oxygen radicals in complement and neutrophil-mediated lung injury. J. Free Rad. Biol. Med. 1985;1:163-168.
2. Ward, P.A., Till, G.O., Hatherill, J.R., Annesley, T.M. and Kunkel, R.: Systemic complement activation, lung injury and products of lipid peroxidation. J. Clin. Invest. 1985;76:517-527.
3. Baldwin, S.R., Boxer, L.A., Till, G.O. and Simon, R.H.: Attenuation of complement and neutrophil-mediated acute lung injury in the rat using 2,3-dihydroxybenzoic acid. Amer. Rev. Resp. Dis. 1985;132:1288-1293.

4. Ward, P.A., Johnson, K.J. and Till, G.O.: Current concepts regarding acute respiratory distress syndrome. *Ann. Emerg. Med.* 1985;14:724-728.
5. Tvedten, H.W. and Till, G.O.: Effect of povidone, povidone-iodine and iodide on in vitro migration of neutrophils from man, rat, dog and rabbit. *Amer. J. Vet. Med.* 1985;46:1797-1800.
6. Varani, J., Fligiel, S.E.G., Till, G.O., Ryan, U.S. and Ward, P.A.: Hydroxyl radical involvement in endothelial cell killing by human neutrophils. *Lab. Invest.* 1985;53:656-663.
7. Till, G.O. and Ward, P.A.: Complement activation and acute lung injury. *Fed. Proc.* 1986;45:13-18.
8. Ward, P.A., Johnson, K.J. and Till, G.O.: Complement and experimental respiratory failure. *Intens. Care Med.* 1986;12:17-21.
9. Ward, P.A., Johnson, K.J. and Till, G.O.: Oxygen radicals and microvascular injury of lungs and kidney. *Acta Physiol. Scand.* 1986;126:548:79-85, 1986.
10. Rehan, A., Wiggins, R.C., Kunkel, R.G., Till, G.O. and Johnson, K.J.: Glomerular injury and proteinuria in rats after intrarenal injection of cobra venom factor. Evidence for the role of neutrophil-derived oxygen free radicals. *Amer. J. Pathol.* 1986;123:57-66.
11. Morganroth, M.L., Till, G.O., Kunkel, R.G. and Ward, P.A.: Complement and neutrophil-mediated injury of perfused rat lungs. *Lab. Invest.* 1986;54:507-514.
12. Till, G.O. and Ward, P.A.: Immunologic and phagocytic cell defects in thermally injured patients. *J. Crit. Care Med.* In Press.
13. Ward, P.A., Johnson, K.J. and Till, G.O.: Oxygen radicals, neutrophils and acute tissue injury. *Clin. Physiol. Series* In Press.
14. Rao, N.A., Sevanian, A., Faure, J.-P., Kozak, Y., Ward, P.A., Till, G.O. and Marak, G.E.: The participation of reactive oxygen metabolites in the pathogenesis of experimental allergic uveitis. *Invest. Ophthalmol. Vis. Sci.* In Press.
15. Ward, P.A., Johnson, K.J., Till, G.O., and Fligiel, S.E.G.: Animal models of oxidant lung injury. *Eur. J. Resp. Dis.* In Press.
16. Duque, R.E., Robinson, J.P., Hudson, J.L., Till, G.O. and Ward, P.A.: Differences in oxidative metabolism between blood and peritoneal rat neutrophils established by flow cytometry. *J. Leukocyte Biol.* In Press.
17. Ward, P.A., Johnson, K.J. and Till, G.O.: Mechanisms of lung injury. *Prax. Klin. Pneumonol.* In Press.
18. Till, G.O.: Acute lung injury secondary to skin burns. *Klin. Wochenschr.* In Press.
19. Annesley, T.M., Till, G.O. and Ward, P.A.: Cutaneous thermal burn and oxidant-mediated acute lung injury: Appearance in serum of lung-related LDH isoenzyme. *J. Free Radic. Biol. Med.* In Press.
20. Hatherill, J.R., Till, G.O., Bruner, L.H. and Ward, P.A.: Thermal injury, intravascular hemolysis and toxic oxygen products. *J. Clin. Invest.* In Press.
21. Rao, N.A., Kozak, Y., Sevanian, A., Till, G.O., Ward, P.A. and Marak, G.E.: The antiphlogistic effect of catalase in experimental phacoanaphylactic endophthalmitis. *Ophthal. Res.* In Press.
22. Rao, N.A., Kozak, Y., Sevanian, H., Till, G.O., Ward, P.A. and Marak, G.E.: Modulation of lens-induced uveitis by dimethyl sulfoxide. *Ophthal. Res.* In Press.
23. Rao, N.A., Zdravkovich, V., Sevanian, A., Till, G.O., Ward, P.A. and Marak, G.E.: Modulation of experimental phacoanaphylactic endophthalmitis with the antioxidantants sodium benzoate and 2,3-dihydroxybenzoic acid. *Invest. Ophthalmol. Vis. Sci.* In Press.

24. Till, G.O. and Ward, P.A.: Oxygen free radicals, the toxic mediators. Int. Arch. Allergy Appl. Immunol. In Press.

BOOKS AND CHAPTERS IN BOOKS:

1. Till, G.O., Hatherill, J.R. and Ward, P.A.: Lipid peroxidation products in experimental thermal injury, in, Novelli, G.P. and Ursini, F. (Eds), Oxygen Free Radicals in Shock, Karger, Basel, 1986.
2. Ward, P.A., Johnson, K.J. and Till, G.O.: Oxygen radicals, arachidonic acid metabolites, and lung injury. Ann. N.Y. Acad. Sci. 1986;465:26-32.
3. Till, G.O. and Ward, P.A.: The lung and rheumatic disease: Role of complement, in, Butterworth's International Medical Reviews. Rheumatology 3 In Press.
4. Till, G.O.: Chemotactic factors, in, Rother, K.O., Till, G.O. (Eds.), The Complement System, Springer Verlag, Heidelberg, In Press.
5. Till, G.O. and Ward, P.A.: Oxygen radicals and lipid peroxidation in experimental shock, in, Progress in Clinical Biological Research. A.R. Liss, New York, In Press.
6. Till, G.O., Johnson, K.J. and Ward, P.A.: Oxygen free radicals in inflammation, in, Messmer, K. and Hammersen, F. (Eds), Progr. Appl. Microcirc. vol. 9., Karger, Basel, In Press.
7. Till, G.O. and Ward, P.A.: Thermal injury and lung tissue damage, in, Critical Topics in Pulmonary Pharmacology and Toxicology, In Press.
8. Ward, P.A. and Till, G.O.: The autodestructive consequences of thermal injury, in, Ninnemann, J. (Ed.), The Immune Consequences of Thermal and Traumatic Injuries, In Press.
9. Ward, P.A., Johnson, K.J. and Till, G.O.: Tissue injury caused by toxic oxygen products from phagocytic cells, in, Chemical Mediators of Inflammation and Immunity, Academic Press, Tokyo, In Press.
10. 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, Massachusetts, In Press.
11. Marak, G.E., Rao, N.A., Gannon, D.E., Varani, J., Ward, P.A. and Till, G.O.: Antiphlogistic mechanisms of benzoic derivatives in experimental uveitis, in Proceedings of the International Ophthalmology Meeting, Padua, Italy, May, 1986.

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

1. Till, G.O. Inflammatory mediators. International symposium. Heidelberg, March, 1986.
2. Till, G.O., Hatherill, J.R. and Ward, P.A.: Role of neutrophil-derived oxidants in intravascular hemolysis following thermal injury. Annual meeting American Burn Association, Chicago, Illinois, April, 1986.
3. Till, G.O. and Ward, P.A.: Oxygen radicals and lipid peroxidation in experimental shock. First Vienna Shock Forum, May, 1986.
4. Till, G.O. and Ward, P.A.: The use of radical scavengers in experimental shock. First Vienna Shock Forum, May, 1986.
5. Till, G.O. and Ward, P.A.: Complement activation and neutrophil derived oxygen radicals in experimental shock lung. Society for Free Radical Research. Third Biennial Meeting, University of Dusseldorf, July, 1986.



6. Till, G.O., Johnson, K.J. and Ward, P.A.: Oxygen free radicals in inflammation. International Symposium on Microcirculation and Inflammation, Heidelberg, June, 1986.
7. Kunkel, R.G., Till, G.O., Johnson, K.J. and Ward, P.A.: Morphometric analysis of the effect of platelet depletion on neutrophil sequestration in a model of acute lung injury. Fed. Proc. 1986;45:955.
8. Morganroth, J.L., Till, G.O. and Ward, P.A.: C5-derived activity is required for complement neutrophil-mediated lung injury. Fed. Proc. 1986;45:995.
9. Fudman, E.J., Till, G.O. and Fox, I.H.: Deferoxamine-induced changes in lipid peroxidation in rheumatoid arthritis. Arth. Rheum. 1986;29:542.
10. Hatherill, J.R., Till, G.O., Bruner, L.H. and Ward, P.A.: Acute intravascular hemolysis following thermal injury: Evidence of a role for neutrophil-derived oxidant (abstr.) Soc. Toxicol. Annual Meeting In Press.
11. McCulloch, K.K, Powell, J., Johnson, K.J. and Ward, P.A.: Enhancement by platelets of oxygen radical responses of human neutrophils. Fed. Proc. 1986;45:682.
12. Brunner, L.H., Till, G.O. and Ward, P.A.: Adenosine decreases cobra venom factor-induced lung injury. Fed. Proc. 1986;45:215.
13. Ragsdale, R.A., Grum, C.M., Till, G.O., Ward, P.A. and Morganroth, M.L.: Increased purine degradation. Amer. Rev. Resp. Dis. 1986;133:A110.
14. Sullivan, J.C., Till, G.O. and Ward, P.A.: Iron depletion decreases lung injury after systemic complement activation. Fed. Proc. 1986;45:452.
15. Morganroth, M.L., Schoeneich, S., Till, G.O. and Ward, P.A.: Role of eicosanoids in cobra venom factor-induced pulmonary hypertension and acute lung injury. Amer. Rev. Resp. Dis. 1986;133:A277.
16. Gannon, D.E., Varani, J., Till, G.O., Ryan, U.S., Simon, R.H. and Ward, P.A.: Source of iron in neutrophil-mediated killing of endothelial cells. Amer. Rev. Resp. Dis. 1986;133:A262.
17. Ward, P.A., Till, G.O. and Johnson, K.J.: Role of platelets in neutrophil-dependent, oxygen radical-mediated damage of the microvasculature. Fed. Proc. 1986;45:380.
18. Wakefield, T.W., Till, G.O., Lindblad, B., Saenz, N. and Stanley, J.C.: Heparin-protamine interactions and the complement system: Failure of cobra venom factor pretreatment to attenuate adverse hemodynamic and hematologic responses. J. Surg. Res. In Press.
19. Gannon, D.E., Varani, J., Till, G.O., Simon, R.H., Ryan, U.S. and Ward, P.A.: Aspirin protects endothelial cells from neutrophil-mediated cytotoxicity. Chest In Press.
20. Guice, K.S., Oldham, K.T, Johnson, K.J., Ward, P.A., Till, G.O. and Coran, A.G.: Acute lung injury in caerulein-induced pancreatitis. In Press.
21. 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.
22. Tsai, E. and Till, G.O.: Role of hydroxyl radical in neutrophil lipid peroxidation and red cell lysis. Clin. Res. In Press.
23. Hatherill, J.R., Till, G.O., Brunner, L.H. and Ward, P.A.: Acute intravascular hemolysis after experimental skin burns. Evidence of a role for neutrophil-derived oxygen radicals. Fed. Proc. 1986;45:452.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

- A. Clinical Virology Laboratory - isolation of herpes simplex virus from specimens obtained from MDS laboratories.

II. TEACHING ACTIVITIES:

- A. Two postdoctoral scholars, two visiting scientists, one graduate student and several graduate students work in my laboratory.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Endogenous laminin expression and metastasis. CA36132, Principal Investigator, 30% effort, \$70,161 current annual direct costs, NIH.  
B. Growth and biological properties of fibroblasts and epithelial cells on various substrates. CA36656, Principal Investigator, 10% effort, \$90,000 current annual direct costs, NIH.  
C. Inhibition of tumor cell chemotactic responses by prostaglandins. BC-512, Principal Investigator, 40% effort, \$55,512 current annual direct costs, American Cancer Society.  
D. Laminin/laminin receptors in NK/NC cell function IM-432. Principal Investigator, \$72,000 current annual direct costs, American Cancer Society.

PROJECTS UNDER STUDY:

- A. The involvement of laminin and laminin receptors in mediating tumor cell behavior as it relates to metastatic activity.  
B. Regulation of chemotactic responses in tumor cells by prostaglandins produced by the tumor cells and by other cells.  
C. The development of substrates for optimum growth of cells in large-scale culture.  
D. The role of laminin and laminin receptors in mediating NK/NC-tumor cell interactions.

IV. SERVICE ACTIVITIES:

DEPARTMENTAL:

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

#### MEDICAL SCHOOL/HOSPITAL:

- A. Director, Cancer Center Program on Tumor Cell Metastasis and the Extracellular Matrix.
- B. Co-chairman of Katherine A. Laybourn's Doctoral Dissertation Committee.

#### 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.

#### V. OTHER RELEVANT ACTIVITIES:

- A. Invited speaker at conference on, "Biological and Therapeutic Aspects of Cancer Metastasis", Vitoria, Spain, April 14-17, 1986

#### VI. PUBLICATIONS:

##### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFERRED JOURNALS:

1. Varani, J., Fligiel, S.E.G., Till, G.O., Kunkel, R.G., Ryan, U.S. and Ward, P.A.: Pulmonary endothelial cell killing by human neutrophils: Possible involvement of hydroxyl radical. Lab. Invest. 1985;55:656-663.
2. McCoy, J.P., Jr., Goldstein, I.J. and Varani, J.: Tumor cell carbohydrates: Investigation of cells with varying metastatic potential using an enzyme-linked lectin assay (ELLA). Tumor Biology, 1985;6:99-114.
3. Fligiel, S.E.G., Perone, P. and Varani, J.: Arachidonic acid metabolism in murine fibrosarcoma cells with differing in vivo and in vitro characteristics. Int. J. Cancer 1985;36:383-388.
4. Lloyd, R.V., Wilson, B.S., Varani, J., Gaur, P.K., Moline, S. and Makari, J.G.: Immunochemical characterization of a monoclonal antibody that recognizes mitosing cells. Amer. J. Pathol. 1985;121:275-283.
5. Desai, U., Dickie, B., Varani, J. and Kreutzer, D.L.: Complement-cleaving activity in hamster lung lavage fluid. J. Exp. Pathol. 1985;1:201-216.
6. He, X., Fligiel, S.E.G. and Varani, J.: Modulation of tumor cell motility by prostaglandins and inhibitors of prostaglandin synthesis. J. Cell Sci. In Press.
7. Phan, S.H., Varani, J. and Smith, D.: Rat lung fibroblast collagen metabolism in bleomycin-induced pulmonary fibrosis. J. Clin. Invest. 1985;76:241-247.
8. Hiserodt, J.C., Laybourn, K.A. and Varani, J.: Expression of a laminin-like substance on the surface of murine natural killer (NK) lymphocytes and its role in NK recognition of tumor target cells. J. Immunol. 1985;135:1484-1487.

9. Hiserodt, J.C., Laybourn, K.A. and Varani, J.: Laminin inhibits the recognition of tumor target cells by murine natural killer (NK) and natural cytotoxic (NC) lymphocytes. *Amer. J. Pathol.* 1985;121:148-155.
10. McCoy, J.P. Jr., Schade, W., Merz, G.E., Varani, J. and Hudson, J.L.: DNA content of murine fibrosarcoma cell lines with varying metastatic potential. *Cancer Res.* 1985;45:5757-5761.
11. McKeever, P.E., Fligiel, S.E.G., Varani, J., Hudson, J.L., Smith, D., Castle, R.L. and McCoy, J.P.: Products of cells cultured from gliomas: IV. Extracellular matrix proteins of gliomas. *Int. J. Cancer* In Press.
12. Batchev, A.C., Riser, B.L., Hellner, E.G., Fligiel, S.E.G. and Varani, J.: Phorbol ester binding and phorbol ester-induced arachidonic acid metabolism in a highly-responsive variant. *Clin. Exp. Metastasis* 1986;4:51-61.
13. Fligiel, S.E.G., Laybourn, K.A., Peters, B.P., Ruddon, R.W., Hiserodt, J.C., Varani, J.: Laminin production by murine melanoma cells: Possible involvement in cell motility. *Clin. Exp. Metastasis* In Press.
14. Laybourn, K.A., Hiserodt, J.C., Abruzzo, L.V. and Varani, J.: In vitro and in vivo interaction between murine fibrosarcoma cells and natural killer cells. *Cancer Res.* 1986;46:3407-3412.
15. Varani, J., Hasday, J.D., Sitrin, R.G., Brubaker, P.G. and Hillegas, W.A.: Proteolytic enzymes and arachidonic acid metabolites produced by MRC-5 cells on various microcarrier substrates. In vitro In Press.
16. Varani, J., Bendelow, M.J., Chun, J.H. and Hillegas, W.A.: Cell growth on microcarriers: Comparison of proliferation and recovery from various substrates. *J. Biol. Stand.* In Press.
17. Varani, J., Fligiel, S.E.G. and Wilson, B.: Motility of ras<sup>H</sup> oncogene-transformed NIH-3T3 cells. *Invasion and Metastasis* In Press.
18. Varani, J., Dixit, V.M., Fligiel, S.E.G., McKeever, P.E. and Carey, T.: Thrombospondin-induced attachment and spreading of human squamous carcinoma cells. *Exp. Cell Res.* In Press.
19. 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.* In Press.
20. Chakrabarty, S., Jan, Y., Tobon, A., Brattain, M.G. and Varani, J.: N, N-dimethylformamide induced redifferentiation normalizes plasma membrane protein/carbohydrates in malignant AKR-MCA cells. *Cancer Res.* (In press).
21. Chakrabarty, S., Jan Y, Brattain, M.G., Ochs, R.L., Varani, J. N, N-dimethylformamide induced redifferentiation restores plasma membrane/cellular fibronectin and normalizes plasmamembrane/cellular laminin moieties to malignant AKR-MCA fibroblasts. *J. Cell Biol.* In Press).

#### B. BOOKS AND CHAPTERS IN BOOKS:

1. Varani, J. and McCoy, J.P.: Chemotaxis in tumor cells: Possible mechanisms and implications for therapy, in, Hon, K.V., Powers, W.F. and Sloane, B.F. (Editors), *Mechanisms of Cancer Metastasis; Potential Therapeutic Implications*, Martinus Nijhoff Publishing, Boston, Massachusetts, p. 259-274, 1986.
2. Grimstad, I.A. and Varani, J.: Cell surface laminin-like molecules mediate metastasis-promoting functions of murine tumor cells: Involvement of  $\alpha$ -D-galactopyranosyl end groups, in, Galeotti, T. (Editor), *Cell Membranes and Cancer*, Elsevier Scientific, p 137-143, 1985.

3. Hiserodt, J.C., Laybourn, K.A. and Varani, J.: Correlation of malignant potential, laminin receptor expression and sensitivity to natural cell-mediated cytotoxicity of several murine tumors, in, Skamene, E. (Editor), Genetic Control of Host Resistance to Infection and Malignancy, Progress in Leukocyte Biology, Vol. 3, Alan R. Liss, Inc. New York p 773-785, 1985.
4. Hiserodt, J.C., Hyder, D.M., Laybourn, K.A. and Varani, J.: Role of laminin and laminin receptors in natural killer cell recognition of tumor metastases, in, Openheim, J.J. and Jacobs, D.M. (Editors), Progress in Leukocyte Biology, Alan R. Liss, Inc. New York, p 775-781.
5. Varani, J. Tumor cell metastasis: Involvement of basement membranes and basement membrane components, in, RBC In Press.
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, in, Proceedings of the Conference on Gastric Mucosal Epithelial Function In Press.
7. McCoy, J.P. and Varani, J.: Corneal graft rejection: An historical perspective, in, Bahn, C. (Ed), Stocker's Endothelium of the Cornea, In Press.

#### ABSTRACTS

1. Varani, J., He, X. and Fligiell, S.E.G.: Motility by prostaglandins and inhibitors of prostaglandin synthesis. J. Cell Biol. 1985;101:236A.
2. Fligiell, S.E.G., Laybourn, K.A. and Varani, J.: Motility of melanoma cells. Lab. Invest. 1986;54:20A.
3. Laybourn, K.A., Varani, J., Fligiell, S.E.G. and Hiserodt, J.C.: The relationship between binding capacity and laminin expression on tumor cells sensitive or resistant to natural cell-mediated cytotoxicity. Fed. Proc. 1986;45:631.
4. Hiserodt, J.C., Laybourn, K.A., Abruzzo, L.V. and Varani, J.: Anti-idiotypic antibodies generated against affinity purified anti-laminin inhibit NK cell-mediated killing of Yac-1 cells. Fed. Proc. 1986;45:488.
5. Laybourn, K.A., Abruzzo, L.V., Varani, J. and Hiserodt, J.C.: Evidence that activated NK cells regulate metastases of fibrosarcoma tumor cells in vivo. Sixth International Congress of Immunology, p. 530, 1986.
6. Hiserodt, J.C., Abruzzo, L.V., Laybourn, K.A. and Varani, J.: Anti-idiotypic antibodies generated against affinity purified anti-laminin reacts with Yac-1 lymphoma cells and inhibits natural cell mediated killing. Sixth International Congress of Immunology, p. 573, 1986.
7. Abruzzo, L.V., Varani, J., Laybourn, K.A. and Hiserodt, J.C.: Rat natural killer cells express a surface structure immunochemically cross-reactive with murine laminin. Sixth International Congress of Immunology, p. 573, 1986.
8. Fligiell, S.E.G. and Varani, J.: The role of endogenous laminin in the motility of tumor cells. Fed. Proc. 1986;45:945.
9. Fligiell, S.E.G., Wilson, B. and Varani, J.: Motility of ras oncogene-transformed NIH-3T3 cells. Proc. of the 1st. Annual Veterans Administration research seminar May 15, 1986, Dayton, Ohio.
10. Hutchinson, R.J., Fligiell, S., Appleyard, J., Varani, J. and Wicha, M.: Attachment of neuroblastoma cells to extracellular matrix: correlation with metastatic capacity. Clin. Res. In Press.

11. D'Amato, C.J., O'Shea, K.S., Fligiel, S.E.G., Varani, J. and Hicks, S.P.: Oxygen free-radicals in fetal brain macrophages. Soc. Neurosci Abs 12, 1986.
12. Hiserodt, J.C., Laybourn, K.A. and Varani, J.: Expression of a laminin-like substance on the surface of murine natural killer (NK) and natural cytotoxic (NC) lymphocytes and its role in NK/NC recognition of tumor target cells. J. Leuk. Biology 1985;38:159.
13. Lloyd, R.V., Coleman, K.K., Fields, K., Nath, V., Varani, J. and Frawley, L.S.: Analysis of mammosomatotroph cells in rat anterior pituitary by the reverse hemolytic plaque assay. Lab. Invest. In Press.
14. Varani, J., Hasday, J., Sitrin, R. and Hillegas, W.A.: Proteolytic enzymes and arachidonic acid metabolites produced by MRC-5 cells on various substrates. In Vitro 1986;22:21A.
15. Chakrabarty, S., Ochs, R., Varani, J. and Brattain, M.G.,: Normalization of cellular fibronectin and laminin is associated with induction of redifferentiation of malignant murine AKR-MCA fibroblasts. J. Cell Biol. In Press.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

I. CLINICAL ACTIVITIES:

1. These have been limited to occasional involvement in immunopathology specimens.

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.

B. Graduate students:

1. Indirect supervision of six postdoctoral students.
2. Indirect supervision of two 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%), \$102,369/year (\$577,063/five years), 1/1/86-12/31/90
- B. Principal Investigator, "Lung Immunopathology", NHLBI HL-07517 (5%), \$256,068/year (\$1,291,531/five years), 7/1/86-6/30/91
- C. Principal Investigator, "Leukocyte Chemotaxis", NIH HL-28442 (10%), \$84,518/year (\$505,936/five years), 7/1/86-6/30/91
- D. Principal Investigator, "Lung Injury Produced by Oxygen Metabolites", NIH GM-29507 (20%), \$107,552/year (\$507,078/five years), 7/1/82-6/30/87
- E. Principal Investigator, "Inflammatory Cells and Lung Injury", NHLBI HL-31963 (25%), \$502,229/year (\$2,149,597/five years), 3/1/84-2/28/89
- F. Principal Investigator, "Oxygen-Derived Free Radicals, Immune Complexes, and Tissue Injury", Tobacco Research Council Grant #155 (10%), \$70,000/year (\$210,000/three years), 1/1/83-12/31/85

PROJECTS UNDER STUDY:

ARTICLES SUBMITTED FOR PUBLICATION:

1. Becker, K.M., Marasco, W.A., Ward, P.A. and Nairn, R.: Demonstration of a formyl peptide receptor on murine macrophages.
2. Duque, R.E., Stoolman, L.M., Hudson, J.L. and Ward, P.A.: Multiparameter analysis of immunohematological disorders by flow cytometry.
3. Duque, R.E. and Ward, P.A.: Quantitative assessment of neutrophil function by flow cytometry.
4. Gannon, D.E., Varani, J., Till, G.O., Ryan, U.S., Simon, R.H. and Ward, P.A.: Source of iron in neutrophil-mediated killing of endothelial cells.
5. Marasco, W.A., Feltner, D.E., Nairn, R. and Ward, P.A.: Evidence of negative cooperative interactions of formyl peptide chemotaxis receptors on the rat neutrophil.
6. Marasco, W.A., Laybourn, K.A., Ward, P.A. and Niederhuber, J.E.: Genetic control of the immune response in mice to an NH<sub>2</sub>-formylated chemotactic peptide: I. More than one gene in H-2 controls the antibody response.
7. Marasco, W.A., Niederhuber, J.E. and Ward, P.A.: Murine neutrophil formyl peptide receptors: Effects of the major histocompatibility complex on receptor number, affinity and biological response.
8. Marasco, W.A., Ward, P.A. and Nairn, R.: Purification of endogeneously radiolabeled rabbit neutrophil formyl peptide chemotaxis receptors.
9. Park, S., Fantone, J.C., Kunkel, S.L. and Ward, P.A.: Inhibition of phorbol myristate acetate induced lung injury in mice by platelet depletion, Submitted to Lab. Invest.
10. Plewa, M.C., Higashi, G.I., Chensue, S.W., Marasco, W.A., Ward, P.A. and Kunkel, S.L.: Regulation of Ia antigen expression on granulomatous macrophages by prostaglandins.
11. Powell, J.S., Ward, P.A. and Johnson, K.J.: Activation of rat neutrophils and alveolar macrophages with IgA and IgG immune complexes: Differential patterns of enzyme secretion and O<sub>2</sub><sup>-</sup> generation.
12. Rao, N.A., Patchett, R., Kunkel, S.L., Ward, P.A. and Marak, G.E., Jr.: Modulation of granulomatous uveitis by lipoxigenase inhibitors.
13. Till, G.O., Morganroth, M.L., Kunkel, R. and Ward, P.A.: Activation of C5 required in neutrophil-mediated acute lung injury in the rat. Submitted to the Journal of Immunology.
14. Ward, P.A. and Johnson, K.J.: Lung inflammatory mechanisms. Submitted to Human Pathol.
15. Ward, P.A., Powell, J. and Johnson, K.J.: Platelets enhance O<sub>2</sub><sup>-</sup> production in human neutrophils. Submitted to J. Clin. Invest.
16. Ward, P.A., Till, G.O., Kunkel, R.G. and Johnson, K.J.: Protection against neutrophil-mediated injury by platelet depletion. Submitted to Lab. Invest.
17. Warren, J.S., Ward, P.A. and Johnson, K.J.: Activation of rat neutrophils and alveolar macrophages with IgA and IgG immune complexes: Differential patterns of enzyme secretion and O<sub>2</sub><sup>-</sup> generation. Submitted to J. Immunol.



IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Chief, Section of General Pathology.
- B. MSP Executive Committee.
- C. Pathology Associates.

MEDICAL SCHOOL/HOSPITAL:

- A. Clinical Chairmen's Council, 1980-1985
- B. Executive Committee on Clinical Affairs, 1981-82
- C. Dean's Advisory Council, 1980-85
- D. Director's Advisory Council, 1980-85
- E. Dean's Council of Clinical Chairmen, 1985--
- F. Director, Feasibility Study for Multifloor Medical Research Facility Attached to Medical Science II Committee
- G. Chairman, Medical Sciences Research Building (MSRB) Task Force
- H. Michigan Eye Bank Research Review Committee, 1980--
- I. Michigan Diabetes Research and Training Center Policy Committee, 1981
- J. Chairman, Psychiatry Search Committee, 1982-1984
- K. Wayne County General Hospital/University of Michigan Liaison Committee, 1982-85
- L. Chairman, Medical School Executive Committee, 1982-85
- M. Chairman, Joint Staff Committee, 1982-85
- N. Dental Research Institute Policy Committee, 1982-85
- O. Chairman, Henry Ford Hospital Liaison Committee, 1982-85
- P. St. Joseph Mercy Hospital Liaison Committee, 1982-85
- Q. Chairman, Inteflex Policy Committee, 1982-85
- R. Chairman, VA/Dean's Committee, 1982-85
- S. Clinical Laboratory Directors, 1982-85
- T. Joint Conference Committee, 1982-85
- U. Hospital Executive Board, 1982-85
- V. Financial Development Committee, 1982-85
- W. Academic Affairs Advisory Council, 1982-85
- X. Michigan Medical School Council of Deans, 1982-85
- Y. Medical Service Plan Executive Board, 1982-85
- Z. Chairman, Expanded Medical School Task Force, 1982-85
- AA. Clinical Research Council Policy Committee, 1982-85
- AB. Chairman's Advisory Panel on Ambulance Services, 1982-85
- AC. Vice-Provost Advisory Board, 1984-85
- AD. Main Hospitals Operations Committee, 1985--
- AE. University Hospitals Executive Committee, 1985-86
- AF. National Task Force on Organ Transplantation, 1985--
- AG. Professional Fee Policy Committee, 1984--
- AH. Interdepartmental Coordinating Committee, 1984--
- AI. Search Committee for the Chairmanship in Environmental and Industrial Health, April, 1985--
- AJ. Department of Surgery Review and Search Committee, May, 1985--
- AK. Dean's Advisory Council, 1985--
- AL. Dean's Advisory Committee on Clinical Affairs, May, 1985--

- AM. Advisory Committee for the Howard Hughes Medical Institute, 1984--
- AN. Pulmonary and Critical Medicine Division Chief Search, 1984--
- AO. Nuclear Medicine Division Chief Search, 1985--
- AP. Internal Advisory Board Committee of the Michigan Gastrointestinal Peptide Research Center, 1985--

REGIONAL AND NATIONAL:

- A. American Society for Clinical Investigation
- B. American Association of Pathologists
  - 1. Secretary-Treasurer, 1976-78
  - 2. Vice-President, 1978-79
  - 3. President, 1979-80
  - 4. Past President, 1980-81
  - 5. Chairman, Program Committee, 1982-present
  - 6. Member, Nominating Committee, 1985-present
  - 7. Executive Committee, Intersociety Pathology Council and Universities Associated for Research and Education in Pathology, Inc.
- C. American Board of Pathology
  - 1. Immunopathology Test Committee, 1980-85
- 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 American Physicians
- I. Member, Association of Pathology Chairmen
- 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. Scientific Advisory Board of the Armed Forces Institute of Pathology, 1978-1983
- P. Ann Arbor Veterans Administration Medical Center, Consultant, 1980--
- Q. Board of Directors, Universities Associated for Research and Education in Pathology, Inc.
- R. Consultant, Health Effects Institute, Cambridge, Massachusetts, November 8-9, 1984.
- S. Consultant, Evaluate Ph.D. Program in Experimental Pathology at the University of Utah, Salt Lake City, Utah, November 25-27, 1985
- T. Schering Corporation, 1981--
- U. The Upjohn Company, 1981--
- V. Cytogen, 1983--
- W. Mallinckrodt , Inc., Advisory Board, 1984--

V. OTHER RELEVANT ACTIVITIES:

EDITORIAL ACTIVITIES:

- A. American Journal of Pathology, Editorial Board, 1975-1980; 1982--
- B. American Review of Respiratory Diseases, Consulting Editor, 1977--
- C. Annals of Internal Medicine, Consulting Editor, 1976-81
- D. Archives of Pathology and Laboratory Medicine, Reviewer, 1973--
- E. Arthritis and Rheumatism, Consulting Editor, 1975--
- 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. Immunological Communications, 1971-1981
- M. Immunopharmacology, Associate Editor, 1977-82
- N. Infection and Immunity, Editorial Board, 1978--
- P. Inflammation, Editorial Board, 1977-1981
- Q. Journal of Allergy and Clinical Immunology, Consulting Editor, 1974-81
- R. Journal of Clinical Investigation, 1982--
- S. Journal of Experimental Cell Research, Consulting Editor,
- T. Journal of Experimental Lung Research, Consulting Editor,
- U. Journal of Experimental Pathology, 1986-
- V. Journal of the Reticuloendothelial Society, Consulting Editor,
- W. Journal of Clinical Investigation, Consulting Editor,
- X. Journal of Immunology, Editorial Board, 1975-83
- Y. Laboratory Investigation, Editorial Board, 1981--
- Z. Nature, Consulting Editor, 1980
- AA. New England Journal of Medicine, Consulting Editor, 1980--
- AB. Journal of Critical Care, Editorial Board

INVITED LECTURES/SEMINARS:

1. Guest Speaker, "International Symposium on Monitoring and Manipulation in Autoimmune Disease and Organ Transplantation", in conjunction with the meeting of the Council of the Transplant Society, Chateau Laurier Hotel, Ottawa, Canada, July 28-31, 1985.
2. Lecturer, Second year class in Pathology, Medical College of Pennsylvania, August (2 days), 1985
3. Organizer and Moderator, The American Saulgau Meeting, sponsored by the Boehringer Ingelheim, Ltd., at the Lord Jeffrey Inn, Amherst, Massachusetts, August 11-13, 1985.
4. Participant, Conference on Cell/Tissue Culture and Renal Research, sponsored by the National Institute of ARthritis, Diabetes and Digestive and Kidney Diseases, National Institutes of Health, Washington, D.C., September 9-10, 1985.
5. Participant, ARP-AFIP Conference on, "Advances in Morphometry and Ploidy Determination, sponsored by the American Registry of Pathology and the Armed Forces Institute of Pathology, Washington, D.C., September 18-21, 1985.

6. Participant, Stressa Satellite Symposium, "Perspectives of Antioxidant Treatment of Emphysema with N-Acetylcysteine", in Lake Maggiore, Italy, September 25-28, 1985.
7. Participant, CTR Conference on Oxygen Free Radicals, sponsored by the Council for Tobacco Research-U.S.A., Inc., New York, New York, October 1, 1985.
8. Participant, Session II, Oxygen Radical Damage to Lung Tissue, sponsored by American Physiological Society, 36th Annual Fall Meeting, Niagara Falls, New York, October 15, 1985.
9. Wellcome Professor, Department of Pathology, Richardson Laboratory, Queens University, Kingston, Ontario, Canada, October 20-22, 1985.
10. Lecturer, Clinical Immunology Series, University of Minnesota, Duluth, Minnesota, November 5, 1985.
11. Participant, Symposium on Critical Surgical Sepsis, The University of Cincinnati, Department of Surgery, Cincinnati, Ohio, November 13-14, 1985.
12. Participant, The Impact of Biotechnology on Health Care in the 1990's, sponsored by the North Carolina Biotechnology Center, Research Triangle Park, North Carolina, November 17-19, 1985.
13. Visiting Professor, Institute of Pathology, Case Western Reserve University, Cleveland, Ohio, November 25-26, 1985.
14. Participant, "Perspectives in Endothelial Cell Biology", Third Annual Frontiers in Basic Sciences, sponsored by the National Heart, Lung and Blood Institute, National Institutes of Health, Bethesda, Maryland, Washington, D.C., December 1-3, 1985.
15. Visiting Professor, Department of Pathology, Tripler Air Force Base, Honolulu, Hawaii, December 9-13, 1985.
16. Lecturer, "Mechanisms of Oxygen Radical Injury", Residency Program, Department of Emergency Medicine, Henry Ford Hospital, Detroit, Michigan, February 5, 1986.
17. Site Visit Member, National Heart, Lung and Blood Institute, Research Review Committee A, Bethesda, Maryland, March 5-7, 1986.
18. Participant, NHLBI, SCOR Collaborative Study, Policy and Data Monitoring Board, National Institutes of Health, Bethesda, Maryland, March 9-10, 1986.
19. John M. Sheldon Lecturer, American Academy of Allergy and Immunology Meetings, New Orleans, Louisiana, March 21-22, 1986.
20. Visiting Professor, University Lecture Series, University of Texas Health Science Center at Dallas, Dallas, Texas, March 25-27, 1986
21. Consultant, National Cancer Institute, Dallas, Texas, March 27-28, 1986.
22. Visiting Professor, University of Pittsburgh, School of Medicine, Pittsburgh, Pennsylvania, March 31-April 2, 1986.
23. Lecturer, Macey Foundation Lecture, "Oxygen Radicals in the Inflammatory Process", Yale University, Graduate Course on Mechanisms of Diseases, New Haven, Connecticut, April 4-5, 1986.
24. Fifth William A. Altemeier Lecturer, Surgical Infection Society, Chicago, Illinois, April 21, 1986.
25. Review Committee Member, Pathology Site Visit at the University of Massachusetts, Worcester, Massachusetts, April 24-25, 1986.
26. Lecturer, Tenth Annual Hematopathology Course, Armed Forces Institute of Pathology, Chevy Chase, Maryland, April 29, 1986.

27. Lecturer, "Pathology Events Which Take Place, Regardless of Etiology: Humans", Workshop on the Relationship Between Environmental Chemical Exposures and the Integrity of the Immune System, sponsored by the Institute for Health Policy Analysis, held at the Airlie House, Warrenton, Virginia, Virginia, May 1-3, 1986.
28. Site Visit Member, National Heart, Lung and Blood Institute, Special Review, Dr. Ulevitch, Scripps Clinic and Research Foundation, La Jolla, California, May 18-20, 1986.
29. Participant, UA-UC Conference on Infectious Disease, Panorama Resort, Invermere, British Columbia, May 11-15, 1986.
30. Participant, Acute Lung Injury Symposium, Section of Pulmonary and Critical Care Medicine, Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois, May 30-31, 1986.
31. Wellcome Visiting Professor, Canadian Association of Pathologists, "Flow Cytometry - Principles and Diagnostic Applications", Canadian Association of Pathologists annual Meeting, Kingston, Ontario, June 23-24, 1986.
32. Lecturer, "Leukocytic Oxygen Products and Their Diverse Biological Effects", Satellite Symposia in conjunction with the 6th International Congress of Immunology, L'Hotel, Toronto, Ontario, Canada, July 5-6, 1986.
33. Lecturer and Discussion Leader, "Control of Secretion in Neutrophils", Gordon Conference, "Pulmonary Biology: Lung Inflammation", Colby College, New Hampshire, July 27-August 1, 1986.

#### VI. PUBLICATIONS:

##### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFERRED JOURNALS:

1. Fantone, J.C. and Ward, P.A.: Polymorphonuclear leukocyte-mediated cell and tissue injury: Oxygen metabolites and their relationship to human disease. *Human Pathol.* 1985;16:973-978.
2. Marak, G.E., Jr., Rao, N.A., Scott, J.M., Duque, R. and Ward, P.A.: Antioxidant modulation of phagoanaphylactic endophthalmitis. *Ophthalmic Res.* 1985;17:297-301.
3. Marasco, W.A., Ward, P.A., Feltner, D.E. and Varani, J.: Chemotactic factor binding by metastatic tumor cells: Evidence for a formyl-peptide receptor on a non-myelogenous cell. *J. Cell Sci.* 1985;73:121-134.
4. Till, G.O., Hatherill, J.R., Tourtellotte, W.W., Lutz, M.J. and Ward, P.A.: Lipid peroxidation and acute lung injury following thermal trauma to skin: Evidence for role of hydroxyl radical. *Amer. J. Pathol.* 1985;119:376-384.
5. Till, G.O. and Ward, P.A.: Oxygen radicals in complement and neutrophil-mediated acute lung injury. *J. Free Rad. Biol. Med.* 1985;1:163-168.
6. Tvedten, H.W., Till, G.O. and Ward, P.A.: Mediators of lung injury in mice following systemic activation of complement. *Am. J. Pathol.* 1985;119:92-100.
7. Varani, J., Fligiel, S.E.G., Till, G.O., Kunkel, R.G., Ryan, U.S. and Ward, P.A.: Pulmonary endothelial cell killing by human neutrophils: Possible involvement of hydroxyl radical. *Lab. Invest.* 1985;53:656-663.
8. Ward, P.A., Johnson, K.J. and Till, G.O.: Current concepts regarding acute respiratory distress syndrome. *Ann. Emerg. Med.* 1985;14:724-728.

9. Ward, P.A., Sulavik, M.C. and Johnson, K.J.: Activated rat neutrophils: Correlation of arachidonate products with enzyme secretion but not with  $O_2^-$  generation. *Amer. J. Pathol.* 1985;120:112-120.
10. Ward, P.A., Till, G.O., Hatherill, J.R., Annesley, T.M. and Kunkel, R.G.: Systemic complement activation, lung injury and products of lipid peroxidation. *J. Clin. Invest.* 1985;76:517-527
11. Hatherill, J.R., Till, G.O. Bruner, L.H. and Ward, P.A.: Thermal injury, intravascular hemolysis, and toxic oxygen products. *J. Clin. Invest.* 1986;78:629-636.
12. Johnson, K.J., Ward, P.A., Kunkel, R.G. and Wilson, B.S.: Mediation of IgA induced lung injury in the rat: Role of macrophages and reactive oxygen products. *Lab. Invest.* 1986;54:499-506.
13. Morganroth, M.L., Till, G.O., Kunkel, R.G. and Ward, P.A.: Complement and neutrophil-mediated injury of perfused rat lungs. *Lab. Invest.* 1986;54:507-514.
14. Till, G.O. and Ward, P.A.: Systemic complement activation and acute lung injury. *Fed. Proc.* 1986;45:12-18.
15. Ward, P.A.: The Lung Watch (Conference Summary). *Chest* 1986;89:196S-198S.
16. Ward, P.A.: Chaos and the New Order (Editorial). *Human Pathol.* 1986;17:539-542.
17. Ward, P.A., Johnson, K.J. and Till, G.O.: Complement and experimental respiratory failure. *Intensive Care Med.* 1986;12:17-21.
18. Annesley, T.M., Till, G.O. and Ward, P.A.: Cutaneous thermal burn and oxidant-mediated acute lung injury: Appearance in serum of lung-related LDH isoenzyme. *J. Free Rad. Biol. Med.*, In Press.
19. Bernstein, I.L., Boushey, H.O., Cherniak, R.M., Fink, J.N., Fulmer, J.D., Goetzl, E.J., Goldstein, R.A., Hurd, S.S., Ram, J.S., Lichtenstein, L.M., Reynolds, H.Y., Senior, R.M., Simon, R.A., Ward, P.A., and Zavala, D.C.: Summary and recommendations of a workshop on the investigative use of fiberoptic bronchoscopy and bronchialveolar lavage in asthmatics. *Chest, Amer. Rev. Resp. Dis., J. Allerg. Clin. Immunol.*, July, 1985, In Press.
20. Duque, R.E., Robinson, J.P., Hudson, J.L., Till, G.O. and Ward, P.A.: Differences in oxidative metabolism between blood and peritoneal rat neutrophils established by flow cytometry. *J. Leukocyte Biol.*, In Press.
21. Fantone, J.C., Feltner, D.E., Brieland, J.K. and Ward, P.A.: Phagocytic cell-derived inflammatory mediators and lung disease. (State-of-the-Art) *Chest*, In Press.
22. Johnson, K.J., Till, G.O. and Ward, P.A.: Oxygen Radicals and microvascular injury of lungs and kidney. *Acta Physiol. Scand.*, In Press.
23. Morganroth, M.L., Till, G.O., Kunkel, R.G. and Ward, P.A.: Complement and neutrophil-mediated injury of perfused rat lungs. *Lab. Invest.*, In Press.
24. Rao, N.A., Kozak, Y., Sevanian, A., Till, G.O., Ward, P.A. and Marak, G.E.: The antiphlogistic effect of catalase in experimental phacoanaphylactic endophthalmitis. *Ophthal. Res.*, In Press.
25. Rao, N.A., Kozak, Y., Sevanian, H., Till, G.O., Ward, P.A. and Marak, G.E.: Modulation of lens-induced uveitis by dimethyl sulfoxide. *Ophthal. Res.*, In Press.

BOOKS/CHAPTERS IN BOOKS:

1. Johnson, K.J. and Ward, P.A.: Inflammation and active oxygen species, in Oberley, L.W. (Editor), Superoxide Dismutase: Volume III. Pathological Studies, CRC Press, Inc., Boca Raton, Florida, pp. 129-142, 1985.
2. Marak, G.E., Rao, N.A., Scott, J.M., Duque, R. and Ward, P.A.: Free radicals and phacoanaphylaxis, in, O'Connor, G.R. and Chandler, J.W. (Editors), Advances in Immunology and Immunopathology of the Eye, Year Book Medical Publishers, Chicago, Illinois, pp. 144-145, 1985.
3. Kunkel, S.L., Chensue, S.W., Fantone, J.C. and Ward, P.A.: Role of prostaglandins in macrophage cell function, in Bellanti, J.A. and Herscovitz, H.B. (Editors), The Reticuloendothelial System, Vol. 6, Plenum Publishing Co., New York, New York, pp. 289-301, 1985.
4. Till, G.O. and Ward, P.A.: Complement-induced lung injury, in, Said, S.I. (Editor), The Pulmonary Circulation and Acute Lung Injury, Futura Publishing Co., Mount Kisco, New York, pp. 387-402, 1985.
5. Till, G.O., Hatherill, J.R., and Ward, P.A.: Lipid peroxidation products in experimental thermal injury, in, Novelli and Ursini (Editors), Oxygen Free Radicals in Shock, International Workshop, Florence, Italy, S. Karger, Basel, Switzerland, pp. 34-41, 1985.
6. Ward, P.A.: Chairman's Introduction: Development of in vitro techniques to measure the inflammatory response, in, Goldberg, A.M. (Editor), In Vitro Toxicology: A Progress Report From The Johns Hopkins Center for Alternatives to Animal Testing, Volume 3 of the Alternative Methods in Toxicology Series, Mary Ann Liebert, Inc., New York, New York, pp. 23-27, 1985.
7. Kunkel, S.L., Spengler, M.A., Hirata, A.A. and Ward, P.A.: Complement C5a antigen, in, Bergmeyer, H.U. (Editor), Methods of Enzymatic Analysis, 3rd Ed., Volume IX. Proteins and Peptides, VCH, Fed. Republic of Germany, 9:265-273, 1986.
8. Ward, P.A., Johnson, K.J. and Sulavik, M.C.: Lung injury produced by oxygen-derived free radicals from leukocytes, in, Stein, T.P. and Weinbaum, G. (Editors), Mechanisms of Lung Injury, George F. Stickley Company, Philadelphia, Pennsylvania, pp. 58-80, 1986.
9. Ward, P.A., Johnson, K.J., Till, G.O.: Oxygen radicals, arachidonic acid metabolites and lung injury, in, Kazemi, H., Hyman, A.L. and Kadowitz, P.J. (Editors), Tenth International Conference on Sarcoidosis and Other Granulomatous Disorders. Ann.N.Y.Acad.Sci. 4465:26-32, 1986.
10. 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. (Editors), Acute Lung Injury: Pathogenesis of Adult Respiratory Distress Syndrome, PSG Publishing Co., Littleton, Massachusetts, pp. 107-114, 1986.
11. Ward, P.A., Johnson, K.J. and Till, G.O.: Oxygen radicals, neutrophils, and acute tissue injury, in, Taylor, A.E., Matalon, S. and Ward, P.A. (Editors), Physiology of Oxygen Radicals, Neutrophils, and Tissue Injury, Waverly Press, Inc., Baltimore, Maryland, pp. 145-150, 1986.
12. Fantone, J.C. and Ward, P.A.: Mechanisms of inflammation, in, Cohen, A.S. (Editor), Rheumatology and Immunology, Grune and Stratton, 1986, In Press.
13. Fantone, J.C. and Ward, P.A.: Inflammation, in Rubin, E. and Farber, J.L. (Editors.), Textbook of Inflammation, Lippincott, Inc., New York, In Press.
14. 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. (Editors) The Complement System, Springer-Verlag, Berlin, publishers. In Press.

15. Johnson, K.J. and Ward, P.A.: Mechanisms of acute and chronic immune inflammatory response in the lung, Chapt. 10, in, Daniele, R.P. (Editor), Pulmonary Immunology and Immunologic Diseases of the Lung, Blackwell Scientific Publications, Inc., Boston, Massachusetts, In Press.
16. Johnson, K.J., Chensue, S.W., Kunkel, S.L. and Ward, P.A.: Immunopathology, in, Rubin, E. and Farber, J.L. (Editors, Textbook of Pathology, Lippincott Publishers, In Press.
17. Kunkel, S.L. and Ward, P.A.: The complement system, in, Bellanti, J.A. (Editor) Immunology, 3rd Edition, In Press.
18. Maderazo, E.G. and Ward, P.A.: Leukocyte chemotaxis, in, Manual of Clinical Laboratory Immunology, 3rd Edition, American Society for Microbiology, Washington, DC, In Press.
19. Maderazo, E.G., Woronick, C.L. and Ward, P.A. Inhibitors of chemotaxis, in, Methods in Enzymology, Academic Press, Orlando, Florida, In Press.
20. Marak, G.E., Rao, N.A., Gannon, D.E., Varani, J., Ward, P.A. and Till, G.O.: Antiphlogistic mechanisms of benzoic derivatives in experimental uveitis, in, Proceedings of the International Ophthalmology Meeting, Padua, Italy, In Press.
21. Simon, R.H. and Ward, P.A.: Adult respiratory distress syndrome, in, Gallin, J.I., Goldstein, I.M. and Snyderman, R. (Editors), Inflammation: Basic Principles and Clinical Correlates, Raven Press, New York, New York, In Press.

#### ABSTRACTS AND MISCELLANEOUS PUBLICATIONS IN UNREFEREED JOURNALS:

1. Till, G.O., Hatherill, J.R., Ward, P.A.: Role of neutrophil-derived oxidants in intravascular hemolysis following thermal injury. Annual meeting American Burn Association, Chicago, April, 1986.
2. Till, G.O. and Ward, P.A.: Oxygen radicals and lipid peroxidation in experimental shock. 1st Vienna Shock Forum, May 1986.
3. Till, G.O. and Ward, P.A.: The use of radical scavengers in experimental shock. 1st Vienna Shock Forum, May, 1986.
4. Till, G.O. and Ward, P.A.: Complement activation and neutrophil-derived oxygen radicals in experimental shock lung. Society for Free Radical Research. Third Biennial Meeting. University of Dusseldorf, July 1986.
5. Till, G.O., Johnson, K.J. and Ward, P.A.: Oxygen free radicals in inflammation. International Symposium on Microcirculation and Inflammation, Heidelberg, June, 1986.
6. Kunkel, R.G., Till, G.O., Johnson, K.J. and Ward, P.A.: Morphometric analysis of the effect of platelet depletion on neutrophil sequestration in a model of acute lung injury. Fed. Proc. 1986;45:955.
7. Morganroth, J.L., Till, G.O. and Ward, P.A.: C5-derived activity is required for complement neutrophil-mediated lung injury. Fed. Proc. 1986;45:995.
8. Hatherill, J.R., Till, G.O., Bruner, L.H. Ward, P.A.: Acute intravascular hemolysis following thermal injury. Evidence of a role for neutrophil-derived oxidant. Soc. Toxicol. Annual Meeting, In Press.
9. McCulloch, K.K, Powell, J., Johnson, K.J. and Ward, P.A.: Enhancement by platelets of oxygen radical responses of human neutrophils. Fed. Proc. 1986;45:682.
10. Brunner, L.H., Till, G.O. and Ward, P.A.: Adenosine decreases cobra venom factor-induced lung injury. Fed. Proc. 1986;45:215.



11. Ragsdale, R.A., Grum, C.M., Till, G.O., Ward, P.A. and Morganroth, M.L.: Increased purine degradation. *Amer. Rev. Resp. Dis.* 1986;133:A110.
12. Sullivan, J.C., Till, G.O. and Ward, P.A.: Iron depletion decreases lung injury after systemic complement activation. *Fed. Proc.* 1986;45:452.
13. Morganroth, M.L., Schoeneich, S., Till, G.O. and Ward, P.A.: Role of eicosanoids in cobra venom factor-induced pulmonary hypertension and acute lung injury. *Amer. Rev. Resp. Dis.* 1986;133:A277.
14. Gannon, D.E., Varani, J., Till, G.O., Ryan, U.S., Simon, R.H. and Ward, P.A.: Source of iron in neutrophil-mediated killing of endothelial cells. *Amer. Rev. Resp. Dis.* 1986;133:A262.
15. Ward, P.A., Till, G.O. and Johnson, K.J.: Role of platelets in neutrophil-dependent, oxygen radical-mediated damage of the microvasculature. *Fed. Proc.* 1986;45:380.
16. Gannon, D.E., Varani, J., Till, G.O., Simon, R.H., Ryan, U.S. and Ward, P.A.: Aspirin protects endothelial cells from neutrophil-mediated cytotoxicity. *Chest*, In Press.
17. Guice, K.S., Oldham, K.T, Johnson, K.J., Ward, P.A., Till, G.O. and Coran, A.G.: Acute lung injury in caerulein-induced pancreatitis, In Press.
18. Guice, K.S., Oldham, K.T, Johnson, K.J., Ward, P.A., Till, G.O. and Coran, A.G.: Acute lung injury in caerulein-induced pancreatitis, In Press.
19. 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.
20. Hatherill, J.R., Till, G.O., Brunner, L.H. and Ward, P.A.: Acute intravascular hemolysis after experimental skin burns. Evidence of a role for neutrophil-derived oxygen radicals. *Fed. Proc.* 1986;45:452.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

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.

II. TEACHING ACTIVITIES:

- A. Two 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 VAMC.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None.

PROJECTS UNDER STUDY:

- A. Well-differentiated osteosarcoma.

ARTICLES SUBMITTED FOR PUBLICATION:

- 1. Lee, H.H. et al.: Pseudomyxoma peritonei: Clinical and radiologic features. digestive diseases and sciences.
- 2. Shenker, Y. et al.: Ectopic prolactinoma in a patient with hyperparathyroidism and abnormal sellar radiography. Clin. Endocrin.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- 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 Clinical, Toledo, Ohio (FTE 56.025 and 3.0 residents in training).
- B. Executive Faculty, The University of Michigan Medical School.
- C. Professional Standards Board (VAMC). Major decision-making board advising Chief of Staff.
- D. Clinical Executive Board. Review activities consisting of all service chiefs (VAMC).
- E. Transfusion Committee. Chair (VAMC).
- F. Medical Audit Committee (VAMC).
- G. Radiation Safety Committee (VAMC).
- H. Pharmacy and Therapeutics Committee (VAMC).
- I. Library Committee (VAMC).
- J. General responsibility for participation of VA Pathology staff in other medical center committees.
- K. Acting Chief of Staff (VAMC), December, 1985, and January, February, 1986.
- L. Quality Assurance Board, Chair, (VAMC).

REGIONAL AND NATIONAL:

- A. Red Cross Medical Advisory Board, Southeastern Michigan Region.
- B. Special Project VACO, Review Pathology Service, East Orange, New Jersey

V. OTHER RELEVANT ACTIVITIES:

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

VI. PUBLICATIONS:

ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Wilson, K. et al.: Gnotobiotic systems for study of the microbial ecology of *C. difficile* and *E. coli*. *J. Infect. Dis.* 1986;3:547-551.
2. Kang, H. et al: Soft tissue sarcoma and military service in Vietnam: A case comparison group analysis of hospital patients. Accepted by *Journal of Occupational Medicine*.

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

ANNUAL DEPARTMENTAL REPORT  
1 JULY 1985 - 30 JUNE 1986

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. Number of cases examined in the period of this report: 875 cases.

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, N.Y. 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.

#### 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 Ophthalmology and Pathology.
- 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:

##### PRESENTATIONS AT PROFESSIONAL MEETINGS:

1. "Insect Bite Retinopathy," Michigan Ophthalmological Society Meeting, Mackinac Island, Michigan, August 15-18, 1985.
2. Discussion on paper Rosenfeld, "Phacoanaphylactic Uveitis Following Extracapsular Cataract Extraction with Posterior Chamber Lens Implant", American Academy of Ophthalmological Society Meeting, San Francisco, California, September 29-October 3, 1985.
3. "Complications of IOL Surgery", Michigan State Medical Society Meeting, Dearborn, Michigan, November 14, 1985.
4. "Effects of Intraocular Lens Implantation on the Corneal Endothelium", Contact Lens Association and International Society for Refractive Surgery Meeting, Las Vegas, Nevada, January 12-17, 1986.
5. "Insect Bite Retinopathy", Theobald Society Meeting, New Orleans, Louisiana, March 78, 1986.

6. "The Nutritional Sources and Limits of Intraocular Retinoblastoma Growth", Meeting of International Society of Genetic Eye Disease, Amsterdam, May 1-5, 1986.
7. "The Corneal Endothelium in Eyes with Lens Implants", International Congress of Ophthalmology, Rome, Italy, May 4-10, 1986.
8. "Interrelated Surface Reaction on IOL's and Posterior Corneal Surface", First Moscow International Symposium on Intraocular Lens Implantation and Refractive Surgery, Moscow, May 13-16, 1986.
9. Invited discussion of paper, "The Harderian Gland: Its Tumors and Its Relevance to Humans". by D.M. Albert and W.C. Frayer American Ophthalmological Society Meeting, Hot Springs, May 18-21, 1986.
10. "Pathology of Pseudophakic Cystoid Macular Edema", Canadian Implant Association Meeting, Montreal, June 26-28, 1986.
11. "Effects of Intraocular Lenses on Corneal Endothelium", Canadian Implant Association Meeting, Montreal, June 26-28, 1986.
12. Invited participation in Meeting of Ophthalmic Pathologists taking part in Collaborative Ocular Melanoma Study, Baltimore, Maryland, July 16-18, 1986.
13. "Secondary Glaucomas Following Intraocular Bleeding: A Basic Study of Pathology and Disease Mechanisms", Summer Conference, Michigan Ophthalmological Society, Mackinac Island, Michigan, August 14-17, 1986.

#### VI. PUBLICATIONS:

##### ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN REFEREED JOURNALS:

1. Wolter, J.R.: Interaction between intraocular lenses and surrounding tissues. The CLAO Journal 1985;11:300-306.
2. Wolter, J.R.: Pathologie der Linsenimplantation. Fortschritte der Ophthalmologie 1985;82:334-343.
3. Wolter, J.R. and Kleberger, E.: Surface reaction on a posterior chamber lens implant seven days after implantation. Amer. Intraocular Implant Soc. J. 1985;11:599-602.
4. Wolter, J.R.: Proteinaceous film without macrophages covering implant in acute panophthalmitis. Ophthalmic Surg. 1986;16:556-559.
5. Awan, K.J. and Wolter, J.R.: Caterpillar hair conjunctivitis nodosa. Pakistan J. Ophthalmol. 1985;1:157-160.
6. Wolter, J.R.: Free floating giant cells in the tear sac: associated with obstruction and hemorrhage. Pakistan J. Ophthalmol. 1986;1:212-214.
7. Wolter, J.R.: Reactive membranes on posterior chamber lens implants. Ophthalmic Surg. 1986;16:696-698.
8. Soong, H.K., McKennedy, M.J. and Wolter, J.R.: Adrenochrome staining of senile plaque resembling malignant melanoma. Amer. J. Ophthalmol. 1986;101:380.
9. Wolter, J.R.: Cholesterol granulomas in exit areas for macrophages from the inner eye. Pakistan J. Ophthalmol. In Press.
10. Wolter, J.R.: The corneal endothelium in eyes with lens implants. Transact. Internat. Congr. Ophthalmol. Italy, May, 1986, In Press.
11. Wolter, J.R.: The nutritional sources and limits of intraocular retinoblastoma growth. Ophthalmic Pediatrics and Genetics In Press.
12. Wolter, J.R.: Pathology of corneal endothelium in pseudophakic keratopathy. The CLAO Journal In Press.



## **Program and Section Reports**



## EDUCATIONAL ACTIVITIES\*

### DEPARTMENT OF PATHOLOGY ANNUAL REPORT 1 JULY 1985 - 30 JUNE 1986

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. 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 the continuing Medical Education Programs.

This represents the second 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, slide sets and descriptive syllabi. Formal course evaluation indicated that the revised course format continued to function smoothly and was well accepted by the students. In addition, efforts to closely correlate the Introduction to Clinical Sciences Course (ICS-601) with the Sophomore Pathology Course functioned to enhance the students' educational experience and reinforce "core" material.

Formal courses given within the Department include:

#### COURSES IN THE "STANDARD" MEDICAL CURRICULUM

1. ICS 500:
  - a. Introductory Lectures on General Pathology (20 contact hours)
2. ICS 600/601:
  - a. Immunopathology Sequence (15 contact hours)
  - b. Clinicopathologic Conferences (10 contact hours)
  - c. Selected Topics in Surgical Pathology
3. NBS 600:
  - a. Neuropathology (18 contact hours)

\*House Officer training, postdoctoral research training, and the Medical Technology program are discussed elsewhere.

4. Pathology 600:
  - a. 75 hours of whole-class lecture, 45 hours of laboratory (in each of the four section--120 contact hours)
5. Pathology Clerkships:
  - a. Elected by 40 students at University Hospitals

COURSES IN THE DENTAL CURRICULUM GRADUATE SCHOOL LS&A, ALLIED HEALTH/SCHOOL OF PUBLIC HEALTH

1. Pathology 630:
  - a. General Pathology lectures (45 contact hours)
2. Pathology 631:
  - a. Pathology Laboratory (90 contact hours) each of three sections (assisted by Oral Pathology staff)
3. Pathology 858:
  - a. Neuropathology (23 contact hours)

POSTGRADUATE MEDICINE/CONTINUING MEDICAL EDUCATION

1. Phlebotomy Team, May 8-9
2. Current Topics in Blood Banking, May 29-30
3. Clinical Laboratory Computers, June 12-13

V. Clinical Conferences

The Department of Pathology provides an important educational service to many other clinical departments through regular participation in interdepartmental working/teaching conferences. 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

Neurosurgery

Thoracic Surgery

Urology

Pediatrics

- Cardiology
- Oncology
- Gastroenterology
- General (Death Conference, CPC)

Obestetrics and Gynecology

- Oncology

Oral Surgery

General Surgery(Breast, GI)

Otorhinolaryngology

Joseph C. Fantone, M.D.  
 Director  
 Educational Activities

DIVISION OF ANATOMIC PATHOLOGY

DEPARTMENT OF PATHOLOGY  
ANNUAL REPORT

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The outstanding event for the Division of Anatomic Pathology during the 1985-1986 fiscal year, was, of course, the move to the new University Hospital. For those branches of the Division (Surgical Pathology, Cytopathology, Necropsy), assigned to the new hospital, the move demanded rapid accommodation to entirely new facilities. However, even for those elements remaining in their accustomed places (Neuropathology, Electron Microscopy), the move demanded the development of new patterns of communication and interaction with colleagues in the Pathology Department and on other clinical services.

By all accounts the move went very smoothly despite the magnitude and complexity of the associated tasks. Although only a few months have elapsed since the move, activities within the Division have begun to settle into a comfortable routine.

An immediate, positive consequence of the move has been a most welcome facilitation of the interchange between members of our anatomic diagnostic team and colleagues from the various other clinical services. A similarly welcome by-product of the move has been the juxtaposition of surgical pathology and cytopathology, an event which has greatly enhanced exchange of diagnostic information.

A somewhat negative consequence of the move has been the scattering of departmental colleagues into multiple buildings. Despite the distances involved, the immediate needs of patient service within the Division have been met by appropriate communication and transport devices. (eg. electronic paging, pneumatic tubes). Nonetheless, the collegial interchange which was virtually automatic when we were together geographically must now be consciously nurtured, using formally scheduled meetings, designated times for making "rounds" within the Department and the like.

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

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

## SURGICAL PATHOLOGY SERVICE

### DEPARTMENT OF PATHOLOGY ANNUAL REPORT

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Since the activation of the new University Hospital, the Surgical Pathology Service has come to occupy laboratories in two buildings.

The original laboratory in Medical Sciences Building I is being maintained in a slightly contracted form, for the processing of dermatologic and ophthalmologic specimens from University Hospital, and for all material sent into the Department from outside sources. The Neuropathology tissue laboratory has also been integrated into this area, making maximal use of the space. Immediately adjacent, are diagnostic cubicles for sign-out of specimens processed in the laboratory. Secretarial support in the area is appropriately linked to the hospital-laboratory computer system.

The main locus of the Service has shifted to the second level of University Hospital where processing of all in-house specimens, other than those from Dermatology and Ophthalmology, is accomplished. Specimens from Mott Hospital are also processed in that laboratory. Immediately adjacent are two diagnostic cubicles and appropriate secretarial support. One of the rooms is reserved for pediatric specimens, while the other is devoted to the diagnosis of all in-house biopsies and all outside slides accompanying patients referred to University Hospital. A satellite tissue laboratory has been established in the Operating Room Suite; and within that space all frozen-section specimens (from Mott OR as well) are accessioned, processed, and diagnosed. All surgically resected specimens from the OR are also accessioned, "grossed-in", and subsequently diagnosed in this same cubicle. Access to archival material is via pneumatic tube, as is rapid transport of fresh tissue to Neuropathology, Ligand Assay and Flow Cytometry facilities in Med Sci I.

From the several months of experience since the move, it is clear that patient care has been improved by our "new" proximity to clinical colleagues. Particularly in the OR laboratory, the everyday direct interaction with attending physicians has enhanced our diagnostic service and our teaching program.

The establishment of diagnostic facilities in multiple locations has required the development of specimen-tracking capabilities in the lab computer system. Accordingly, a new scheme of accessioning has been developed, which incorporates a code for the source of the specimen and for its routing within the department. This system, operative since January 1, will readily accommodate the anticipated flow of M-Labs specimens.

During the past fiscal year, the number of accessioned surgical cases has increased approximately 9%, continuing the trend of recent years. This increase in volume (and, by all accounts, complexity) of cases has been handled with no increase in staff, a fact which reflects the dedication of our cadre of surgical pathologists and the efficient use of an internal consultation system developed

over the past five years. This growth, at the same time, has strained the technical personnel of the tissue laboratory, particularly in the face of some inevitable loss of efficiency entailed in having histotechnologists working in three locations instead of one. Thus, staffing of the laboratories will require close monitoring and possible adjustment in the near future to assure continued delivery of timely, high quality services.

The growth of in-house Surgical pathology material has been accompanied by an even greater increment in the volume of slides referred in consultation by pathologists in other institutions. This flow of material enriches the departmental teaching and research programs, and constitutes a gratifying tribute to the recognized expertise of our Surgical Pathology Staff.

Gerald D. Abrams, M.D.  
Director  
Surgical Pathology Service

CYTOPATHOLOGY LABORATORY

DEPARTMENT OF PATHOLOGY  
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The Cytopathology Laboratory continues to show a steady increase in the number of specimens it handles, particularly non-gynecologic specimens. This increase in non-gynecologic specimens is a continuation of a trend, beginning six years ago, in which the number of such specimens has doubled.

Aspiration cytology is now well established in our medical center with the laboratory now receiving about 1,000 fine needle aspirates per year. About 50 percent of the aspirates are sent to the laboratory from the Department of Radiology and consist of aspirates of breast or of deeply situated organs, with specimens from the latter being obtained by special imaging techniques. For the last four years the laboratory has provided rapid on-site interpretation of all aspirates of deeply situated lesions, a service much appreciated by the radiologists.

Aspirations of superficial lesions are being performed by the pathologists, either in the patients' rooms or in the outpatient clinics. Our availability on short notice with immediate interpretation of the aspirates is a great help to the clinicians.

The change over to the new laboratory was not without its stresses, caused not only by the upheaval itself but also by moving into a laboratory much smaller than the previous one and the ensuing physical fragmentation of the laboratory. A noticeable advantage of the move is in having a separate cytopathology sign-out room close to a surgical diagnostic room, which facilitates the correlation of cytopathology with surgical pathology.

Bernard Naylor, M.D.  
Director  
Cytopathology Laboratory

## NECROPSY SERVICE

### DEPARTMENT OF PATHOLOGY ANNUAL REPORT

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During the past year 394 necropsies were performed compared to 328 necropsies during the previous year. Seventy (18%) were performed as Medical Examiner cases. This compares to sixty eight (20%) Medical Examiner cases performed last year. Thirty eight percent of hospital deaths were autopsied. Sixteen Departmental staff members served as attending staff for the Necropsy Service during the past year, either as a regular duty assignment and/or an on-call assignment. The service is staffed by two full time technicians.

In addition to the above mentioned necropsies performed in our Department, there are a significant number of necropsies performed on Teratology Unit cases and stillborn infants by Dr. Mason Barr of the Department of Pediatrics.

Paul W. Gikas, M.D.  
Director  
Necropsy Service

ELECTRON MICROSCOPY SERVICE  
DEPARTMENT OF PATHOLOGY  
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During the twelve month period of July 1, 1985 - June 30, 1986 a total of 722 specimens were processed by the Electron Microscopy Service in the Department of Pathology. This represents a marked increase of 31% over 1984-85 when 496 specimens were processed. Of this total 421 specimens were clinical biopsies and 301 were research samples.

The past year has seen many changes in the personnel of the Electron Microscopy Service. After many years of faithful service to the Department the supervisor of the Electron Microscopy Laboratory Ms. Branca Baic retired. Ms. Baic was a dedicated valuable employee and her expertise and professionalism will be missed. Mr. Phillip Gage one of our electron microscopy technicians also left the service; in this case to pursue graduate studies. With these departures Mr. Joe Mailloux was made supervisor of the electron microscopy service. Joe has worked in the electron microscopy laboratory for several years and was able in a short period of time to familiarize himself with his new duties. Currently the service is performing at the same high standards as occurred under the leadership of Ms. Baic.

The Electron Microscopy Service continues to expand in the area of providing service to researchers. Currently we provide morphologic evaluation of research material not only for members of our Department but also faculty in the Departments of Internal Medicine, Pediatrics, Surgery and Dermatology. It is anticipated that this type of service will continue to increase and we are encouraging the investigators to incorporate the electron microscopy charges into their research grants.

Finally, effects are continuing in the area of morphometric evaluation of electron microscopy specimens. To that end the Department has developed a morphometric facility using a Bioquant image analysis system. Research is continuing on ways to make precise quantitative assessment of ultrastructural abnormalities particularly as applies to renal biopsies.

Kent J. Johnson, M.D.  
Director  
Electron Microscopy Service



NEUROPATHOLOGY SERVICE  
DEPARTMENT OF PATHOLOGY  
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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 not on active status due to illness, but will be again on Active Emeritus status beginning July 1986. Dr. Mila Blaivas joined the Department of Pathology in July, 1985, and spent 40% 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.

1. Four hundred and ninety-nine Neurosurgical cases were examined this year from Main, Mott and outside hospitals in consultation. Fifty-two cases were referrals from other institutions. Twenty additional cases were referred from elsewhere as part of the NIH funded study of BUDR radio-sensitization of gliomas 1R01CA33768-01A2. The increase in cases due in part to new and returning Neurosurgery staff and in part to consultations from clinical colleagues and the Brain Tumor Study Group.
2. Three hundred and thirty brains were examined from this Medical Center, and nine from other institutions and hospitals.
3. Nerve and muscle pathology service has increased over the year. There were 101 muscle biopsies, nearly all with histochemistry, seven with electron microscopy. There were 30 peripheral nerve biopsies. Teased fiber preparations were performed and interpreted on 7 cases, and electron microscopy was performed on 22 nerve biopsies.

Dr. Mila Blaivas went to the Armed Forces Institute of Pathology for one week of intensive instruction on nerve and muscle biopsies. From this she improved our own muscle histochemistry and started morphometry on nerve and muscle. Dr. Blaivas also attended a 1 week course and conference of the Peripheral Neuropathy Association of America. Upon her return, she improved the teased nerve fiber service. This is a new addition to Neuropathology service needed by other departments including Neurology. The combination of nerve teasing and morphometry make the service regionally competitive for diagnostic consultation.

4. Ultrastructural neuropathology examined, interpreted and reported 66 cases in semithin section and electron micrographs of 39 cases.

TEACHING ACTIVITIES:

1. Medical students. This year the faculty taught the regular Neuropathology sequence to our medical students (20 hours) in the Neural and Behavioral Sciences 600 curriculum. NBS Neuropathology consists of microscopic sections, handouts, posters, lectures and laboratories for all second year medical 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 twice monthly conferences where all biopsies are presented and interpreted; a brain cutting conference with all clinicians invited weekly; monthly muscle biopsy conference; 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 and brain conference.

RESEARCH ACTIVITIES:

1. The research of Dr. Hicks and Ms. D'Amato (see their respective personal reports for details) concerns: 1.) the study of the basal lamina and the study of oxygen free radicals produced in phagocytes in the rat fetus cephalic neural tube and their relation to malformation and recovery of the fetus in genetic and radiation induced injury; 2.) development of the capacity of astrocytes to undergo gliosis and the role of astrocytes in development of neurons; and 3.) a collaborative biochemical study of the autopsy brains of patients with Alzheimer's disease and other dementias with Drs. Anne Young and John Penney, in which Dr. Hicks and Ms. D'Amato examine the brains morphologically.
2. Dr. McKeever is interested in 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.
3. The Brain Tumor Study Group, faculty and staff with clinical research interests in brain tumors, met regularly this year with Neurosurgery, Nuclear Medicine, Neuropathology, Neurology and Neuroradiology attending.
4. The Neuropathology faculty have collaborated with Neurology and Epidemiology Departments to generate a proposal to establish a registry for dementias and Alzheimer's disease.

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

## CLINICAL PATHOLOGY LABORATORIES

### DEPARTMENT OF PATHOLOGY ANNUAL REPORT

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The specific activities of the various Clinical Pathology Laboratories are detailed on the following pages. However, two major programmatic innovations were overriding concerns for all Laboratories during the year.

The activation of the Laboratories in the new Adult General Hospital necessitated numerous planning meetings, and culminated in the move to the new facilities in February and March, 1986. Planning for the new Laboratories began in 1979 with conceptual conferences, visits to other laboratories and "gaming" sessions. This was followed by more specific architectural detailing of laboratories, programmatic revisions due to space cut-backs, and the major reorganization necessitated by the need to include the Surgical Pathology Laboratories in the AGH. Coordination of the move with other Hospital departments became a paramount issue so that continuity of patient care could be maintained.

Compounding the efforts of the Laboratories to move to the new facility in an uncomplicated manner, was the previously unforeseen need to consolidate simultaneously the majority of the Limited Special Function Laboratories in University Hospital. All of the LSFL in the Department of Pediatrics, and most of those in the Department of Internal Medicine, were consolidated into the Clinical Pathology Laboratories during the past year. By the time of the move consolidation was completed, with smooth transition of personnel and equipment, and maintenance of patient care support. While all of the Laboratories participated, and medical and technical personnel spent numerous hours in this effort, special recognition should be accorded to Mrs. Anita Liberman-Lamphear, who coordinated both the activation and consolidation programs. Successful implementation of either program over such a short time would have been noteworthy; however, their simultaneous successful implementation is truly remarkable.

Aside from the intense efforts surrounding the Hospital move and consolidation of the LSFL, the Clinical Pathology Laboratories played a major role in providing support for the expansion of the institution's Organ Transplantation Program, especially liver homotransplantation. During the coming year there will be further efforts at cost containment without compromising our commitment to the highest quality of patient care support. We anticipate focusing of efforts on upgrading of equipment in the Laboratory Data Center to provide greater versatility and efficiency of data collection and presentation.

Harold A. Oberman, M.D.  
Head, Section of Clinical Pathology

UNIVERSITY HOSPITALS BLOOD BANK  
DEPARTMENT OF PATHOLOGY  
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PATIENT CARE:

There was a considerable increase in blood utilization during the past year. For example, the number of units of Red Blood Cells issued to University Hospital patients increased by 10 per cent, while the number of platelet concentrates increased by 25 per cent. This reflected the high occupancy of the institution, as well as the complex surgical procedures performed. Similarly, there was considerable growth in the number of patients seen in the Laboratory for therapeutic plasma exchange and for outpatient transfusion.

A major effort of the Blood Bank staff related to the relocation to the new Adult General Hospital. The move was accomplished with continual maintenance of service, and with minimal overlap of blood issuance from old and new facilities.

The Blood Bank was an integral part of the Liver Homotransplantation Program initiated during the second half of 1985. In addition, planning began for the Laboratory's role in the proposed Bone Marrow Homotransplantation Program. Another improvement in patient care initiated during the past year was the installation of a blood irradiator, thereby allowing the Laboratory to provide irradiated blood components on a rapid turn-around time basis. The Laboratory also implemented routine testing of all blood components for anti-HTLV-III and modified the crossmatch procedure to decrease issuance time for blood components.

Finally, the Laboratory completed planning for a Home Transfusion Program. This will allow patients to receive transfusions of blood and components in their home, or in hospice settings. Such off-site transfusions, while representing a distinct convenience to the patient, necessitate detailed planning to ensure patient safety.

TEACHING ACTIVITIES: (University of Michigan)

The medical and technical staff of the Laboratory provided a number of lectures to departments and services in University Hospitals. The annual course in Blood Banking for Pathology and Hematology House Officers was held in July. The Continuing Education Program for nurses was provided on a monthly basis throughout the year. The 13th Annual Postgraduate Course, "Current Topics in Blood Banking", was held on May 28-30, 1986, and over 200 technologists and physicians from throughout the United States attended. Suzanne Butch, Chief Technologist of the Laboratory, was Program Director of the Course, and ten members of the Laboratory's staff participated as Course faculty.

PROFESSIONAL ACTIVITIES:

Blood Bank technologists served as members of a number of Hospital committees; moreover, they participated in a variety of regional and national organizational efforts. These are summarized in the attached Appendix. Especially

noteworthy was the election of Suzanne Butch, Chief Technologist of the Laboratory, to membership on the Board of Directors of the American Association of Blood Banks. John Judd, Associate Professor, is a member of the Scientific Section of the American Association of Blood Banks, and Ronald Salisbury, supervisory technologist, is Chairman of the Medlab Blood User's computer group. Beth Stoner won the Williams Scholarship of the Michigan Association of Blood Banks for 1986, and Louann Trudeau served as Editor of the Michigan Association of Blood Banks newsletter. Publications from the Laboratory are included in the Annual Reports of individual faculty.

RESEARCH ACTIVITIES AND PUBLICATIONS:

The Laboratory initiated studies in use of sterile connecting devices for preparation of blood components, and also evaluated solid phase serologic techniques for red cell typing. During the coming year the Laboratory will implement testing of blood products for anti-Hepatitis core antibody and alanine aminotransferase, measures intended to reduce the incidence of NANB Hepatitis. Evaluation of solid phase techniques for detection of platelet antibodies should be completed during the coming year. Publications of Laboratory staff are listed under their individual reports.

Harold A. Oberman, M.D.  
Director  
Blood Bank

## APPENDIX

### INDIVIDUAL REPORTS

#### SUZANNE BUTCH:

1. University Hospital committees:
  - a. Transfusion Committee
  - b. Quality Assurance Committee
  - c. Disaster Committee
2. American Association of Blood Banks:
  - a. Board of Directors
  - b. Ad hoc committee on Teleconferencing
  - c. Committee on Regional Educational Alternatives
  - d. Committee on Pediatric Hemotherapy
  - e. Inspector, Inspection and Accreditation Program
3. American Society for Medical Technology:
  - a. Elections committee
  - b. Director, ASMT Education and Research Fund, Inc.
4. Michigan Society for Medical Technology:
  - a. Program Committee
  - b. Student Bowl judge
  - c. Editor of newsletter
5. National Certifying Agency for Clinical Laboratory Scientists:
  - a. Question reviewer
6. Planned Parenthood of Mid-Michigan:
  - a. Board of Directors
7. Reviewed papers for:
  - a. Journal of Medical Technology
  - b. TRANSFUSION
  - c. Vox Sanguinis
8. Michigan Association of Blood Banks:
  - a. Program Committee
  - b. Seminar Co-chairman
9. Presentations at state and national meetings:
  - a. "Determining Staff Requirements". Michigan Association of Blood Banks Workshop. Detroit, Michigan, September 18, 1985.
  - b. "Technical Aspects of Transfusion". Workshop on Hemotherapy of the Infant and Premature. Baltimore, Maryland, August 2, 1985. Los Angeles, California, September 12, 1985.
  - c. Chief Technologists' Forum panelist. Annual Meeting, American Association of Blood Banks. Miami, Florida, October 23, 1985.
  - d. "Eliminating Duplicate Type and Screen Testing: A Study for Cost Containment." Poster session. Annual Meeting, American Association of Blood Banks. Miami, Florida, October 21, 1985.
  - e. "Role of the Professional Society in Developing Professionalism." Michigan Society for Medical Technology Future's Conference. Kalamazoo, Michigan, April 23, 1986.
  - f. "Determining Inventory Levels." Michigan Association of Blood Banks, St. Clair, Michigan, May 16, 1986.

DEBORAH WILLIAMS:

1. Steering Committee for Spring Workshop. Michigan Association of Blood Banks.
2. Presentation of Workshop at postgraduate course, "Current Topics in Blood Banking". Ann Arbor, Michigan, May 28-30, 1986.

RON SALISBURY:

1. Chairman, Blood Bank subcommittee, Medlab computers.
2. "Neonatal Transfusion". Lecture to Michigan Society for Medical Technology meeting.
3. Moderator and Workshop participant. Annual Course, "Current Topics in Blood Banking". Ann Arbor, Michigan, May 28-30, 1986.
4. Attended Annual Meeting of AABB and of Medlab User's Group.

JUDITH DOUVILLE and MARY MC IVOR:

1. Presented Workshop on Home and Outpatient Transfusion. Annual Course, "Current Topics in Blood Banking". May 28-30, 1986.

DALLAS FORSHEW:

1. "Vascular Access in Therapeutic Apheresis". Presentation at Annual Meeting, Society of Hemopheresis. Orlando, Florida, March 20, 1986.
2. "Vascular Access in Therapeutic Apheresis". Presented at Annual Meeting, American Society for Apheresis. Chicago, Illinois, October 4, 1985.
3. Chairman of Certification Committee. Society of Hemopheresis Specialists.

DEBBIE ROSS-STEELE:

1. Presentation of seven lectures on Blood Bank Policies to newly-hired nurses in University Hospital.
2. Presentation of seven lectures on Adverse Reactions to Blood Transfusion. Continuing Education of Nurses Program. University Hospitals.
3. Lecture on Blood Transfusion Policies and Procedures to nurse externs in University Hospitals (May 29, 1986).
4. "Blood Transfusion Therapy for Hematology/Oncology Patients". Hematology/Oncology newsletter, The Beacon. (in press).

ANN STEINER:

1. Inspector for I&A Program of the American Association of Blood Banks.
2. Presented Workshop at Annual Meeting of Michigan Society of Medical Technologists. (April, 1986).
3. Publication (see report of W.J. Judd).

## CLINICAL BIOCHEMISTRY SECTION

### DEPARTMENT OF PATHOLOGY ANNUAL DEPARTMENTAL REPORT 1 JULY 1985 - 30 JUNE 1986

#### SECTION OVERVIEW:

During the past year, the Clinical Biochemistry Section has been largely affected by two major processes; the move to the new hospital and the incorporation of many limited function laboratories.

The careful planning, especially by the chief technologists, supervisors and administrative staff, allowed the move to the new hospital facility to be accomplished with minimal disturbance of turn-around-time for patient samples. In addition, during the move itself, the cooperation of the laboratory staff in moving the delicate instruments and sorting the materials during periods of low test volume was key to the success of the laboratory move.

To improve the overall laboratory efficiency of the hospital, numerous limited special function laboratories have been incorporated into the Biochemistry Section during the past year. These have been accomplished with no increase in turn-around-time for testing, improved logistics of test availability, and, in general, with the good cooperation of the clinical staff. The incorporation has been accomplished with minimal incremental personnel resulting in a net saving of personnel for the institution.

Lastly, the Biochemistry Section is planning to improve the utilization of its available tests by evaluating current ordering patterns and information use by the clinical staff. With this information as a base, we will make recommendations next year for future instrumentation tailored to meet the legitimate clinical needs and programs. This will result in a decrease in redundant or excessive laboratory testing which is not needed for diagnosis or management.

GENERAL CHEMISTRY LABORATORY: -- Donald Giacherio, Ph.D., Laboratory Director.

Since the move into the new hospital facility, the General Chemistry Laboratory has experienced a 15% increase in volume over the previous two pre-move months, and an 18.4% increase over the average of the first four months of 1985. This increase has been handled by the laboratory with no increase in personnel and a minimal increase in commodity budget.

Several clinically relevant new procedures have been added to the General Chemistry Laboratory. During routine working hours, digoxin is performed in the Ligand Assay Laboratory and Acetaminophen is performed in the Toxicology Laboratory. Off-hour coverage, however, resulted in a technologist for those laboratories being called in to perform the test at considerable cost to the institution. Backup procedures have been developed in the General Chemistry Laboratory which allow these tests to be offered without calling in a technologist. This gives better service to the clinician with less overall cost to the hospital.



For patients with cardiovascular disease, the General Chemistry laboratory has developed three relevant procedures previously unavailable at this institution. Recent studies have demonstrated that Apolipoproteins A-1 and B are important predictors for atherosclerosis. These are now performed routinely by this laboratory. In addition, a cholesterol profile has been added.

It is often difficult for the clinician to obtain a complete collection of 24 hour urines for studying renal function. Although we still recommend such collections, when it is not possible to obtain one, we now offer a protein/creatinine ratio which provides useful information to the clinician about glomerular stability.

To aid the Clinical Immunology Laboratory, procedures to perform immunoglobulin and complement quantification have been set up on the RA-1000. The assays are performed by cooperation of the two staffs. This will allow the Clinical Immunology Laboratory to wait until more advanced instrumentation becomes available this Fall rather than renewing a contract with an antiquated instrument which costs more to run both in terms of reagents and technologist time. Also, this laboratory now performs the total protein on serum and urine for the Clinical Immunology Laboratory, thereby removing a redundant procedure.

Lastly, procedures formerly performed in the Hyperlipidemia Laboratory and the Urine Catecholamine Laboratory are now performed in the General Chemistry Laboratory with a net saving to the institution of 2 FTE.

SPECIAL CHEMISTRY/TOXICOLOGY LABORATORY -- Thomas Annesley, Ph.D., Laboratory Director.

The demand on laboratory services for this laboratory continues to increase at a dramatic rate. The total laboratory volume is up 28 per cent during the past year. One major reason is the successful transplantation program which has generated a 44% increase in volume of cyclosporine assays in the past year. Our laboratory has been able to keep pace with this increase by the development of a new HPLC assay that has numerous improvements over previous assays. The reduced cost of this assay will also result in a future significant cost savings for the laboratory. In addition, the unique method will be part of the reviewed literature and will likely serve as a major model for the procedure nationally. Further, we have expanded cyclosporine testing to seven days a week in order to meet the needs of the expanding Transplantation Service. This has been accomplished with no incremental personnel and no increase in instrumentation.

Several new tests and methodologies have been developed by this laboratory in the past year to meet the needs of our clinical staff. These include: Tocainamide, Flecainide, 9-carboxy-THC by GC/MS, Cocaine by GC/MS, Opiates by GC/MS, Tricyclic drugs by EMIT and free drugs by fluorescence polarization. Furthermore, there are several drugs in the final stages of development, including: Diazepam, Nordiazepam, Clonazepam and Amiodarone.

Consolidation of the Pediatric Neurology Laboratory in July, 1985 produced a significant increase in test volume, as well as new pressures related to the need for rapid reporting of test results to outpatient clinics. A net reduction in hospital personnel from 1.5 to 0.5 was to have been achieved. However, the Special Chemistry/Toxicology Laboratory was able to handle this increased demand with no incremental personnel.

Lastly, for the incorporation of the Hypertension Laboratory, the Special Chemistry/Toxicology Laboratory has evaluated several instruments for plasma and urine catecholamine determinations. At this time, two high performance liquid chromatography instruments have been purchased. Introduction of the new urine and plasma catecholamine assays will be late summer 1986. The methodology represents a significant improvement over presently available procedures for this institution.

LIGAND ASSAY LABORATORY: -- Barry England, Ph.D., Laboratory Director.

During the past year, the Ligand Assay Laboratory has assumed the role of reference laboratory for the Ann Arbor Veteran's Administration Hospital and the MDS clinical laboratories. Tests offered include: aldosterone, alpha-fetoprotein, amikacin, androstenedione, anti-DNA antibody, beta2-microglobulin, C-peptide of insulin, calcitonin, carcinoembryonic antigen, cholyglycine, cortisol, cAMP, digitoxin, digoxin, estradiol-17B, ferritin, folate, FSH, free testosterone, gastrin, gentamicin and growth hormone.

As with the above laboratories, the Ligand Assay Laboratory has experienced a significant increase in volume during the past year. Consolidation of tests from two laboratories into Ligand Assay Laboratory was effected during the past year. Anti-DNA antibody testing was transferred from the Arthritis Laboratory and the Nuclear Medicine in vitro laboratory was incorporated as well. The tests for the latter include T3U by RIA, triiodothyronine, (T3U) uptake, reverse T3, free thyroxine and total thyroxine by RIA. Insulin was introduced as well during the past year.

Data on the workload of the new tests is available for the month of March to allow overall comparison. The total number of thyroid tests analyzed was 1,645 with 126 anti-DNA determinations. This compares with the total of 5,015 non-thyroid tests for the same month. The total number of specimens analyzed from July 1, 1985 through March 31, 1986 was 44,606 compared to a volume of 41,823 for the same period of the previous year. These statistics do not include the MDS and VA consultations mentioned above which are about 1,000 per month beginning March, 1986. The ability of the Ligand Assay Laboratory to deal with this increased volume was due to the purchase of a state-of-the-art automated RIA instrument (Kineticount) capable of providing fast throughput for a comparatively large number of samples. The incorporation of all these tests and the above-mentioned laboratories have been accomplished with an increment of 1.3 FTE. A net savings to the institution of 1.7 FTE was achieved.

CLINICAL IMMUNOPATHOLOGY LABORATORY -- David F. Keren, M.D., Laboratory Director.

The Clinical Immunopathology Laboratory has made several major changes in the past year to both improve efficiency of operations and to offer the most up to date, clinically relevant testing. On the first point, we have begun performing quantifications of IgG, IgA, IgM, Kappa, Lambda, C3, C4, alpha-1 antitrypsin, C-reactive protein and properdin factor B on the RA-1000 in the General Chemistry Laboratory. This instrument has a greater throughput than the former ICS system and allows the laboratory to more efficiently handle the workload. In addition, total serum and urine protein assays have been transferred to the General Chemistry Laboratory. These efficiencies have allowed us to deal with the massive increase in the labor-intensive ANA and rheumatoid factor assays described below.

As part of our long range strategy to deal with inappropriate ordering of expensive laboratory tests, we have initiated a screening program for serum immunoelectrophoresis and immunofixation requests. These are requested for patients suspected of having a monoclonal gammopathy. Formerly, such a request would generate a protein electrophoresis, immunoelectrophoresis and quantification of IgG, IgA and IgM. This would take three days to one week to perform. Now we perform high resolution electrophoresis and quantification for IgG, IgA, IgM, K and L the same day. In the vast majority of cases, a diagnosis can be rendered in one day. Our statistics indicated that although there has been a 21 per cent increase in requests for immunoelectrophoretic analysis from one year ago, we now perform 51 per cent fewer assays. This translates into savings of reagents, technologist time, and patient hospital days for inpatients.

The antinuclear antibody and rheumatoid factor testing from the Arthritis Laboratory has been incorporated into the Clinical Immunology Laboratory in the past year. This has resulted in greater than a 400 per cent increase in the volume of ANAs performed (116/month in 1985 vs. 468/month in 1986). At the same time, there has been a 200 per cent increase in the rheumatoid factor assays. Additional tests include expanded extractable nuclear antigen testing. Despite having only one additional FTE, the above-mentioned improvements in overall laboratory efficiency have allowed this incorporation to proceed smoothly with no interruption for patient care. Most ANAs are now completed within 48 working hours.

Presently, the laboratory is evaluating new instrumentation which may permit us to further expand the repertoire of relevant testing while not increasing either technical or commodity budgets.

David F. Keren, M.D.  
Director  
Clinical Biochemistry Section

## CLINICAL HEMATOLOGY LABORATORY

### DEPARTMENT OF PATHOLOGY ANNUAL REPORT

1 JULY 1985 - 30 JUNE 1986

#### LABORATORY ACTIVITIES:

1. For the three months period of March to May 1986 which followed both the consolidation of the Pediatric and Adult Hematology Laboratories with the Hematology Laboratory of the Department of Hematology, the Laboratory carried out a total of 110,998 tests which represents an increase of 43 percent over the same three month period of the previous year. The percent of labor-intensive tests increased by 28.5 percent and the number of cases requiring review by the pathologists rose by 22 percent. The bulk of their work is carried out in the Main Hematology Laboratory, while a satellite Laboratory located in the clinic area of the outpatient building services both Pediatric and Adult clinics as well as other clinics requiring hematology studies. The consolidation of the hematology services and the Arthritis Clinic involved both an increase in the load of procedures already carried out in our laboratory as well as the implementation of new methodologies. Together with the aid of the Phlebotomy Service and the Laboratory Data Center, the turnaround times for the various procedures which include bone marrow aspirates and cytochemistries have not increased.
2. Additional tests and technical changes made in the Laboratory include:
  - a. bone marrow aspirates
  - b. cytochemistries
  - c. joint fluids: mucin clot; crystal examination
  - d. osmotic fragility
  - e. tests for PNH
  - f. tests for Heinz bodies

#### TEACHING ACTIVITIES

1. Pathology House Officers participated in the following activities:
  - a. Daily review of abnormal blood smears, body fluids, bone marrow aspirates, bone marrow biopsies, and lymph node biopsies.
  - b. Review of consultation cases in hematopathology (lymph node biopsies, bone marrow biopsies, fine-needle-aspirates and splenectomy specimens).
  - c. Correlation of morphology with special studies (cytochemistry, flow cytometry, immunoperoxidase and electron microscopy).
  - d. Daily review of cases submitted to the Flow Cytometry Laboratory (hematopathology, transplant immunology, and the evaluation of primary and secondary immune deficiencies).
2. Medical Technology students participated in all laboratory activities during 6-week rotations in their internship year.

#### FY 86/87 GOALS:

1. Creation of a Hematopathology Division within the Department of Pathology.

2. A formal daily sign out of bone marrow biopsies together with bone marrow aspirates and peripheral blood smears.
3. Correlation of bone marrow and peripheral blood morphology with flow cytometry data (immunologic markers and DNA analysis).
4. Set-up biweekly conferences with clinical pediatric and adult hematology/oncology fellows and staff for review of interesting cases on the six headed microscope.
5. Establishing a monthly hematopathology journal club.

Bertram Schnitzer, M.D.

Lloyd M. Stoolman, M.D.  
Directors  
Clinical Hematology Laboratory

## CLINICAL MICROBIOLOGY LABORATORY

DEPARTMENT OF PATHOLOGY  
ANNUAL REPORT  
1 JULY 1985 - 30 JUNE 1986

### LABORATORY ACTIVITIES:

In addition to a most successful move to the new AGH, our work volume increased from 92,897 tests in 1984/85 to 111,882 tests in 1985/86, a 20.4 per cent increase. Significant increases in test volume were seen in blood cultures, antimicrobial susceptibility testing, urine cultures, microbial antigen testing and pediatric blood and cerebrospinal fluid culture.

The pediatric workload and staff are now incorporated into the laboratory.

Other accomplishments in the laboratory include a series of new tests such as:

1. Direct antigen (4 organisms), CSF and urine
2. Direct antigen for group A strep, throat screens
3. Hemophilus screen and typing
4. Strep pneumoniae typing
5. Serum bactericidal test
6. Bordetella fluorescent antibody
7. Corynebacterium diphtheriae screen
8. Beta strep/staph screen
9. Beta strep/gonococcus screen
10. Adult Isolator for mycobacteria from blood
11. Quantitative pediatric Isolator

A major effort in the implementation of valid rapid microbiologic methods into the laboratory resulted in the implementation of the following tests:

1. isolator method for fungi
2. isolator method for pediatric specimens
3. direct pediatric blood antimicrobial susceptibilities
4. direct Chlamydia fluorescent antibody
5. Cytomegalovirus scan
6. rapid Hemophilus test
7. rapid blood pellet method

### RESEARCH AND DEVELOPMENTAL ACTIVITIES:

Significant advances are being made for rapid diagnosis of infectious agents by direct analysis of body fluids and tissues using immunologic and biochemical techniques such as latex agglutination, ELISA, gas-liquid chromatography and DNA probes. The Clinical Microbiology Laboratory has been actively involved in the development and utilization of these techniques during the year. Several commercial kits using antibody-coated latex particles were evaluated for their ability

to accurately detect Streptococcus pyogenes antigens from throat cultures and circulating Candida spp. antigens in serum. ELISA is currently being investigated as a sensitive technique to detect gastro-intestinal toxins. The application of gas-liquid chromatography is being expanded to assist in the identification of non-reactive and slow-growing microorganisms. Corynebacterium group JK is now rapidly being identified using this method developed in this laboratory. The use of this technique is being investigated for its ability to detect metabolic products in patient tissues generated during infection. DNA probes are currently being investigated for the detection of the presence of Mycoplasma. Investigative protocols are now being developed for the testing of DNA probes to detect pulmonary tuberculosis. The laboratory continues to be involved in multicenter evaluations of new antimicrobics. Amdinocillin was tested in vitro singly and in combination with several other beta-lactam and antimicrobics against 750 clinical enteric bacteria. Similar studies are under way using a new floroquinolone, ofloxacin. The laboratory participated in several interdepartmental investigations involving the departments of Surgery, Internal Medicine and Dermatology.

Urology: Antibacterial activity of gentamicin on chronic cystitis when administered by direct bladder instillation. (Drs. Wang and McGuire)

Vascular and Internal Medicine: Treatment of established prosthetic vascular graft infection by antibiotics preferentially concentrated in leukocytes. (Drs. Wakefield and Schaberg)

Dermatology: The role of infection in psoriatic folliculitis. (Drs. Gupta and Rasmussen)

The above efforts have produced four papers and accepted manuscripts (A), and two abstracts (B).

- A. "Nationwide study of the susceptibility of the Bacteroides fragilis group in the United States." Antimicrob Agents Chemother. 28:675-677, 1985.

"Onchocerca volvulus in a returning peace corp volunteer." Clin Microbiol Newsletter 7:21, 1985.

"Treatment of established prosthetic vascular graft infection by antibiotics preferentially concentrated in leukocytes." Arch Surg (in press).

"The risk of environmental contamination during flow cytometric analysis of contaminated specimens." Cytometry (in press).

- B. "Rapid identification of Corynebacterium JK using capillary gas-liquid chromatography." ASM abstracts, 1986.

"Treatment of established prosthetic vascular graft infection by antibiotics preferentially concentrated in leukocytes." Abstracted for the 10th annual meeting of the Association of Veterans Administration Surgeons, May, 1986.

CONTINUING MEDICAL EDUCATION:

MEETINGS AND WORKSHOPS ATTENDED:

1. Midwest Regional Medlab Users Group - R. Kloosterman (7/85).
2. Clinical Lab Managers Assn. - P. Shalis (9/85).
3. National ICAAC - M. O'Connor-Scarlet (9/85).
4. National Medlab Users Group - (1/86).
5. National ASM - P. Shalis, S. Grossman, J. Siddiqui, K. Cullen (3/86).
6. Advanced Anaerobes workshop - S. Grossman (3/86).
7. Spring SCACM - C. Young (4/86).
8. Syva workshop - E. Lee, J. Siddiqui (4/86).
9. Gas Chromatography workshop - J. Siddiqui (5/86).
10. PASCO demonstration - M. O'Connor-Scarlet (5/86).
11. Power Communication and Skills - S. Boone (6/86).

WORKSHOPS PRESENTED:

LOCAL AND NATIONAL:

1. "Computers in Clinical Microbiology" at the national ASM meeting, P. Shalis, March, (3/86).

PRESENTATIONS:

1. Pierson, C.L., Purifoy, G. and J. Siddiqui. "Rapid Identification of Corynebacterium Group JK Using Capillary Gas-Liquid Chromatography." 1986. ASM.
2. Shalis, P. "Data Management and Local Area Networks." 1986. ASM.

Kenneth D. McClatchey, M.D., D.D.S.  
Director, Clinical Microbiology Laboratory



FLOW CYTOMETRY LABORATORY  
CLINICAL SERVICE

DEPARTMENT OF PATHOLOGY  
ANNUAL REPORT  
1 JULY 1985 - 30 JUNE 1986

The second year of operation of the Flow Cytometry Laboratory as a hospital-based laboratory saw several changes in its operation. The overall sample load increased to 1026 from 988 specimens the previous year (an increase of 3.8 per cent). A midyear change in the protocol of the Transplantation Service drastically reduced the number of these specimens for flow cytometry (a reduction from 467 in the previous year to 372 in this year with only 70 specimens arriving in the last six months). This reduction was largely offset by offering tests for anti-platelet and anti-neutrophil antibodies by midyear.

Three new assays have been developed and introduced this year: serum anti-PMN antibodies, serum anti-platelet antibodies and platelet-bound antibodies. These were brought into the Clinical Laboratory with the assistance of Dr. Paul Robinson. A fourth test, the neutrophil oxidative burst assay is currently under development with the assistance of Dr. Robinson.

The shifting pattern of flow cytometry specimens led to renewed cost-containment efforts. Most notably, temporary staffing was substantially reduced by limiting the hours of laboratory operation and assigning on-call schedules to permanent employees.

Coverage and sign-out responsibilities of the laboratory by pathologists have also shifted. Dr. John Carey assumed the responsibility for a significant portion of the medical sign-outs. Dr. Lloyd Stoolman remains as Medical Director of the laboratory and Dr. Bertram Schnitzer shares the sign-out duties.

In summary, this has been a year of change for the Flow Cytometry Laboratory. An effort has been made to accommodate shifting demands upon the clinical service while maintaining fiscal stability. This has resulted in a more streamlined laboratory operation utilizing less temporary employment but retaining the ability to bring new tests on line when confronted with sufficient demand.

Primary and collaborative research activities continue to flourish in the following areas: cellular DNA analysis (J.P. McCoy and A. Flint), immunotoxicology (J.L. Hudson), phagocyte functional analysis (P. Robinson) and study of the cell-surface structures mediating the hematogenous dissemination of lymphoid malignancies (L. Stoolman). The grants and publications resulting from this work are listed under the individual faculty members and in an accompanying report covering the research service division of the Flow Cytometry Laboratory.

J. Philip McCoy, Jr., Ph.D.  
Director,  
Clinical Flow Cytometry Laboratory

LABORATORY DATA CENTER

DEPARTMENT OF PATHOLOGY  
ANNUAL REPORT

1 JULY 1985 - 30 JUNE 1986

- I. Software and hardware enhancements for the Medlab System.
  - A. Installation of an enhanced Blood Bank software module (V.2.2.1).
  - B. Support for an additional Coulter S-Plus-4 interface for out-patient Hematology.
  - C. Power Pack installation on both the Maize and Blue systems to enhance data throughout and allow a greater number of users to simultaneously access the systems.
  - D. Installation of an additional 188 Mb drive on Maize in order to provide additional storage and to configure Maize and Blue identically to facilitate the activation process.
  - E. Provision of an additional 30 ports were added to the two systems to accommodate additional peripheral devices.
  - F. Increase in the number of terminals and printers within the clinical laboratories by 30%.
- II. Activation of the AGH
  - A. PDS personnel spent approximately 12-man months checking and correcting the operation of the communication systems in the new facility prior to the start of activation.
  - B. The move of the computer facilities occurred with less-than-scheduled down time and with minimal disruption of service to the clinical laboratories; continuous laboratory computer support was provided in both the new and old locations during the transition period.
- III. Installation of the VAX-785 with new software applications.
  - A. Ingres (database manager).
    - 1. Inventory control.
    - 2. Anatomic Pathology specimen logging.
    - 3. Analysis of turnaround time for outpatient Hematology specimens.
  - B. Office automation.
    - 1. Electronic mail.
    - 2. Word processing.
  - C. Blood Bank history file.
  - D. Initiation of the transfer of the clinical pathology database to the VAX system.
- IV. Installation of the Local Area Network (LAN) on the broadband cable.
  - A. Conversion of PDS computer systems to the LAN.
  - B. Provision of access by physicians to the clinical laboratory database from the Taubman Health Care Center and the University Hospital physician dictation rooms.
  - C. Provision of access to the LAN for Pathology faculty and staff and thus access to Merit Network services (e.g., BRS Saunders) via the Secondary Communications Processor within Pathology.
  - D. Ongoing management of LAN access and security.

- V. Microcomputers.
  - A. Expansion of the number of microcomputers within Pathology from 60 to 100.
  - B. Provided hardware support for all departmental microcomputers.
  - C. Review and recommendation of software packages for use within the Department.
  - D. Assisted the Office of Clinical Affairs in the procurement of five microcomputers which were placed in University Hospital and allowed access to the laboratory database; developed communication software to run on this equipment.
- VI. Computer support for laboratory consolidation efforts within UM-Hospitals.
- VII. Computer support for offsite clinical laboratories.
  - A. Remote access (dial-in) to the clinical laboratory database.
  - B. Expansion of remote transmission of results to include the Brighton Health Center and VAMC.
- VIII. Implementation of a unified coding system for patient care units in the Taubman Health Care Center.
- IX. Sponsorship of a continuing educational seminar on clinical laboratory computers at the Towsley Center for Continuing Medical Education.
- X. Initial planning and system review to find replacement software packages for the Blood Bank, Microbiology, and Anatomic Pathology.

Bruce A. Friedman, M.D.  
Director  
Laboratory Data Center

PHLEBOTOMY TEAM

DEPARTMENT OF PATHOLOGY

ANNUAL REPORT

1 JULY 1984 - 30 JUNE 1985

Activities of the Phlebotomy Team for the academic year July 1984 - June 1985 consisted primarily of adding to the range of service offered to UMH inpatients and outpatients without any incremental personnel. Listed below is a list of new services offered during the year:

1. Added service for all pediatric patients ages 0-5 years except Hematology-Oncology patients in the Test Panel Blood Drawing Clinic; added service for newly admitted 6th level Mott Sports Medicine patients on Sunday afternoon (August 1984).
2. Added service for 4th level Women's Hospital adult patients for morning sweeps on weekends (October 1984).
3. Added service for all patients on the 4th and 5th levels of CPH on Tuesday and Thursday morning sweeps (February 1985).
4. Added service for newborn outpatients in the Test Panel Blood Drawing Clinic (June 1985).

Bruce A. Friedman, M.D.  
Director  
Phlebotomy Team

ADMINISTRATIVE/FINANCIAL AFFAIRS SECTION

DEPARTMENT OF PATHOLOGY  
ANNUAL REPORT  
1 JULY 1985 - 30 JUNE 1986

The Administrative and Financial Affairs Section, which is under the auspices of the Office of the Chairman and his designee, includes four subsections which are organized as follows:

- A. Clinical and Anatomical Pathology Laboratories:
  - 1. Administrative Support Center:
    - a. Thomas D. Morrow
    - b. Anita Liberman-Lampear
    - c. Nancy A. Coray
  - 2. Surgical Pathology Clerical Section
    - a. Edith M. Gilchrist-Brayton
    - b. June Possley
- B. Clinical Faculty Offices:
  - 1. Laura D. Blythe
- C. Office of Grants and Contract Administration:
  - 1. Maria A. Ceo
- D. Medical Service Plan; Billing Office and Fiscal Affairs:
  - 1. Douglas M. Kennedy
  - 2. Douglas Harris

The Administrative and Financial Affairs Section was reorganized in Fiscal Year 1986, because of the move of the Clinical Pathology and Anatomic Pathology Laboratories to the new University Hospital and relocation of several research laboratories to the new Medical Science Research Building.

CLINICAL AND ANATOMICAL PATHOLOGY LABORATORIES

- 1. Coordinated and directed the move of the Pathology Laboratories into the new hospital beginning in January 1986 with the move of the Laboratory Data Center. On Thursday 13 February 1986 through 23 February 1986 the remaining laboratories were moved.
- 2. Editing fourth edition of the Pathology Laboratories Handbook and the third edition of the Mini Book with expected completion October 1986.
- 3. Revised and updated the Unified Requisitions used in all Hospital Laboratories.
- 4. Completed the M-Labs brochure, and designed two advertisements to appear in the Michigan Medicine magazine and the Washtenaw Medical Society publication. Reorganizing both physician and non-physician staff to provide service to M-Labs Clients. Clients to date include: Central Michigan Community Hospital, Mt. Pleasant, Michigan, and Cherry Hill Medical Center, Albion, Michigan and MDS Laboratories.
- 5. The accession numbering system used for Surgical Pathology specimens was changed, effective 1 January 1986 to allow more accurate routing of the specimens and reports.

6. Currently reviewing software packages for replacement of the Medlabs system currently used in the Laboratories of the Blood Bank, Microbiology and Surgical Pathology.

#### CLINICAL FACULTY OFFICES

1. Assisted with the move of the Faculty into their new offices in University Hospital.
2. Have begun cataloging the AGH Library with the intention of developing a database for use by the AGH and Medical Science I staff.
3. Established MSP sub-account to support faculty requirements.
4. Handled all problems associated with the Clinical Pathology Billing and primarily responsible for extramural billing of Clinical Pathology laboratory tests.

#### OFFICE OF GRANTS AND CONTRACT ADMINISTRATION

1. Completed the implementation of SPONRES management program (a modified program of Lotus 1-2-3) for all research accounts.
2. Processed 52 grant and contract applications to 12 different funding agencies.
3. Established FlowCytometry research recharge rates and billed University and non-University users.
4. Implemented, using Lotus 1-2-3 software, a program to forecast expenditures of General Funds and Teaching and Administration Funds.
5. Coordinated and processed the acquisition of capital equipment for research laboratories in Medical Science I and MSRB I.
6. Coordinated the move of three research laboratories and faculty offices to the Medical Science Research Building I.

#### MEDICAL SERVICE PLAN; BILLING OFFICE AND FISCAL AFFAIRS

1. Initiated and implemented tape to tape claim requests and payment receipt with Blue Cross Blue Shield of Michigan and Medicare effective 1 February 1986.
2. Utilized I.D.S. Computer Billing System to automate and initiate correspondence and special account information.
3. Initiated Professional Fee Billing to Blue Cross Blue Shield of Michigan effective 1 October 1985.
4. Initiated the use of the Medical Service Plan Office Metropolitan Collection Bureau precollection service effective 1 July 1985.

#### GENERAL

1. Established, with the approval of the Office of the Dean and the Office of the Vice Provost, the Godfrey Dorr Stobbe Professorship. in addition to the professorship fund, the Godfrey D. Stobbe Fellowship fund has also been established.

2. The consolidation of the Special Limited Function Laboratories was completed. With the relocation to the new hospital effective 14 February 1986, many of the Special Limited Function Laboratories administered by the Department of Internal Medicine were consolidated into the Pathology Laboratories. Those laboratories that were consolidated were: Pediatric Bacteriology, Hematology, and Neurology; Urinary Catecholamine; Arthritis Clinical; Hematology/Oncology; Hyperlipidemia; Nuclear Medicine In-Vitro; Hypertension (Plasma Catecholamine) Nephrology Clinical; Endocrine Diagnostic. Plasma Catecholamine Laboratory. The consolidation of the Pediatric and Internal Medicine Special Limited Function Laboratories saved approximately \$1,500,000 of direct operating expenses for University Hospital.
3. In preparation for a major renovation project in the Medical Science I Building (referred to as Phase 1) many faculty, staff, and laboratories, were relocated during the months of March through May 1986. The renovation project referred to as Phase IA was completed in May 1985.
4. Converted from the Michigan Bell Telephone System to the Centel Phone System in the new University Hospital and in Medical Science I-Pathology Building. Have experienced a number of minor problems with these new phones.

SUMMARY OF FINANCIAL DATA

A. Medical Service Plan

Average Number of Accounts Fiscal Year 1986	7227
Total Number of Charge Entries	43,738
Gross Billings	\$4,423,440
Net Collections	\$2,269,447

B. Grants and Contracts

40 Active grants and contracts (Government & Non-Government sponsored)	
Direct Cost Expenditures	\$1,952,947
Indirect Cost Expenditures	<u>\$ 513,990</u>
TOTAL	\$2,466,937

C. Pathology Laboratories

Number of Fee Code Procedures	2,383,578
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Number of Laboratory Test Results (Estimated)	7,150,734
Gross Revenue	\$45,488,716
Direct Expenses	\$16,228,277

Details regarding the financial data are available in the Office of the Chairman.

Eugene J. Napolitan  
Departmental Administrator



RESIDENT TRAINING PROGRAM  
THE DEPARTMENT OF PATHOLOGY  
ANNUAL REPORT  
30 JUNE 1985 - 1 JULY 1986

The Residency Training Program, in the last year, recruited four excellent candidates:

1. Lynne V. Abruzzo, M.D., Ph.D., University of Chicago, Pritzker School of Medicine, Chicago, Illinois
2. David M. Graham, M.D., Wayne State University School of Medicine, Detroit, Michigan
3. David M. Grossman, M.D., University of Michigan Medical School, Ann Arbor, Michigan
4. Patricia L. Kandalajt, M.D., University of Missouri, Kansas City School of Medicine, Kansas City, Missouri

In addition, one resident has stayed on for fifth year training in cytology and surgical pathology.

Teaching objectives added last year in the form of "core" lectures in anatomic and clinical pathology continue to be refined. Grand round topics include both anatomic and clinical pathology with speakers from outside the University invited on occasion.

A new joint program with Beaumont Hospital, including experiences in hemato-pathology, cytogenetics, HLA typing, and coagulation is being implemented after a period of planning.

Kenneth D. McClatchey, M.D., D.D.S.  
Director  
Residency Training Program

MEDICAL TECHNOLOGY PROGRAM

DEPARTMENT OF PATHOLOGY  
ANNUAL REPORT

1 JULY 1985 - 30 JUNE 1986

The final year of The University of Michigan Medical Technology Program began on June 16, 1986 with an enthusiastic class of 16 students. At this time all program staff members are still available to maintain the quality of the curriculum.

The Class of 1986, who will take national certification examinations in August, achieved the second highest mean score among all state medical technology programs sending students to participate in the Wayne State Comprehensive Examination given in May. This exam is a "practice" for national certification exams and constitutes part of a course grade for our students.

The Class of 1985 had 14 students who took the ASCP Board of Registry examination in August, 1985. Thirteen students passed, and the mean score (including the failing score) was 3% above the national mean.

One student chose not to take any exam, while two students took the exam given in February, 1986. One of these passed; the other did not report his score to the program.

Program staff members have been preparing for their futures in a variety of ways, including expansion of skills, active job-hunting, and working in other capacities for the Department of Pathology.

Unless any of the program faculty chooses to leave prior to the end of student laboratory courses in October, the program seems assured of continuity and the expected level of quality.

Sandra C. Gluck, M.S., MT(ASCP)CLS  
Director  
Medical Technology Program

VETERANS ADMINISTRATION MEDICAL CENTER  
ANNUAL REPORT TO THE UNIVERSITY OF MICHIGAN

DEPARTMENT OF PATHOLOGY  
1 JULY 1985 - 30 JUNE 1986

INTRODUCTION:

The VA Medical Center Laboratory Service has a strong and close relationship with the University of Michigan Medical Center Department of Pathology. Pathology residents rotate through the VA in surgical and autopsy pathology, and there are frequent mutual consultation activities. Educational conferences and seminars given locally are attended by both staffs.

ANATOMIC PATHOLOGY:

- A. Surgical Pathology: 4,383 cases have been completed and nearly all were processed by a resident closely supervised by a staff pathologist. This is 300 cases more than the previous year. The teaching activities are close and intense. The resident performs the frozen sections supervised by the staff pathologist. Each case is discussed in depth by the resident and one or more staff.
- B. Autopsies: 119 autopsies were done. A rate of approximately 45% has been maintained. The autopsies are generally done by a resident with staff supervision and reviewed at a conference of all staff and assigned residents the following work day. The microscopic slides are reviewed by the resident with the staff.
- C. Cytology: 2,850 cases have been reported. Most of these are sputums, urines and body fluids so the positive rate is high and correlation with surgical pathology is clear. Fine needle aspiration is used with increasing frequency. All of these activities are available for resident teaching on an ad hoc basis.
- D. Electron Microscopy: Dr. Beals directs this section and makes an effort to discuss with the residents the use of electron microscopy in the every day practice of surgical and autopsy pathology. Both transmission and scanning microscopes are used and there is a high degree of correlation with other modalities including cytology. Hands on technical training is part of rotation for the resident.

CLINICAL PATHOLOGY:

Dr. Hyder directed clinical pathology and was very active in teaching residents. He specialized in hematopathology and read out bone marrows with the hematology-oncology fellows as well as pathology residents. Dr. Hyder resigned on May 15, 1986 and recruitment has begun for his replacement.

TEACHING:

Each staff member participates in teaching residents and medical students as needed. During the past year, Dr. Hyder gave a number of lectures on coagulation, Dr. Beals gave bi-weekly conferences at University of Michigan on clinical electron microscopy and Dr. Weatherbee lectured in the second year medical student class. Dr. Weatherbee and Dr. Beals each conducted a Journal Club. Dr. Burkholder taught one of the dental student laboratories.

RESEARCH:

Dr. Beals is involved in sponsored research as noted on his individual activity report. All staff members have participated with other investigators in a number of studies. Dr. Beals has been appointed to the VAMC Research Committee. Dr. Weatherbee will serve on the Human Studies Committee at the VAMC beginning 1 July 1986.

SUMMARY:

The close ties with the University of Michigan are of considerable value to the practice of high quality medicine at VAMC. Every attempt is made to assure that there are mutual benefits in all the areas discussed above. Our goal is to continually improve and strengthen the professional interchange that has been so well-grounded over the years. Recruitment for a staff pathologist is directed toward strengthening the academic and research qualities of the Laboratory as well as continuing the tradition of high level service activities.

Lee Weatherbee, M.D.  
Chief, Laboratory Service  
Ann Arbor VA Medical Center