

THE UNIVERSITY OF MICHIGAN

Department of Pathology

ANNUAL REPORT



From the library of

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



July 1, 1982 - June 30, 1983

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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	The University of Michigan
Annesley, Thomas M.	Assistant Professor	The University of Michigan
Appelman, Henry D.	Professor and 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
Bloch, Daniel M.	Assistant Professor	The University of Michigan
Burkholder, Peter M.	Professor and Chief of Staff	The University of Michigan 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
Dorovini-Zis, Katerina	Instructor	The University of Michigan
Duque, Ricardo	Adjunct Research Investigator	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
Forbes, Betty Ann	Research Associate	The University of Michigan
French, A. James	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
Goldman, Robert T.**	Assistant Professor	Wayne County General Hospital
Gronvall, John A.	Professor	The University of Michigan
Hanks, Carl T.*	Associate Professor	The University of Michigan
Hartsuff, Florence	Assistant Professor Emeritus	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
Hyder, Dan M.	Instructor	Veterans Administration Medical Center
Johnson, Kent J.	Assistant Professor	The University of Michigan
Judd, W. John	Associate Professor	The University of Michigan
Keren, David F.	Associate Professor	The University of Michigan
Ko, Vincent C.Y.	Assistant Professor	Wayne County General Hospital
Kumar, Neelam B.	Assistant Professor	The University of Michigan
Kunkel, Steven L.	Assistant Professor	The University of Michigan
Landefeld, Thomas D.	Assistant Professor	The University of Michigan
Lloyd, Ricardo V.	Assistant Professor	The University of Michigan

<u>Name</u>	<u>Rank</u>	<u>Institutional Affiliation</u>
Lovett, Edmund J., III	Assistant Professor	The University of Michigan
Marasco, Wayne	Research Investigator	The University of Michigan
McClatchey, Kenneth D.	Associate Professor	The University of Michigan
McCoy, J. Philip	Research Investigator	The University of Michigan
Midgley, A. Rees	Professor	The University of Michigan
Naylor, Bernard	Professor	The University of Michigan
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 Research Scientist	The University of Michigan
Silverman, Eugene M.	Associate Professor	Wayne County General Hospital
Smolen, James E.	Associate Research Investigator	The University of Michigan
Solomon, Alvin R.	Instructor	The University of Michigan
Till, Gerd O.	Associate Professor	The University of Michigan
Varani, James	Assistant Professor	The University of Michigan

<u>Name</u>	<u>Rank</u>	<u>Institutional Affiliation</u>
Ward, Peter A.	Professor and Chairman	The University of Michigan
Weatherbee, Lee	Associate Professor	The University of Michigan
Wilson, Barry S.	Assistant Professor	The University of Michigan
Wolter, J. Reimer***	Professor	The University of Michigan

* Joint Appointment, Dental School

** Clinical Appointment

*** Joint Appointment, Department of Ophthalmology

General Statement

GENERAL STATEMENT

The Department of Pathology continues to undergo change. We are still in the process of developing a strong Immunopathology Research Program which is having a broad impact in virtually every aspect of the Department. At the end of this academic year (Summer, 1983), three long-time faculty members begin their Retirement Furloughs or their last year of service to the Department. Drs. Dorin L. Hinerman, Samuel P. Hicks, and Robert C. Hendrix join the ranks of their distinguished predecessors in having provided long years of faithful service to the Department, the Medical School, the University, and the University Hospitals. These events are coupled to the process of renewal as the younger faculty members settle in and we go about recruitment efforts to bring in a new Chief for the Neuropathology Section. Recruitment efforts to identify a successor for Dr. Hicks are now very actively underway. It should also be pointed out that Dr. Kenneth D. McClatchey has assumed the duties of Associate Chairman of the Department of Pathology. As will be described below, he plays a major role in the Department's developing new strategies that will allow us to respond to the federal and state regulations for cost containment in medical care. Renewal is also evident as physical renovation nears completion on the fifth floor of the Pathology Building where new diagnostic and secretarial support facilities, as well as seven new faculty offices for surgical pathologists, are nearly ready for occupancy. The new facilities will greatly improve the efficiency of the Surgical Pathology Service and will allow close proximity of surgical pathologists and support staff to the consultation activities.

The new federal regulations are forcing us to make major changes in the basis of revenue generation for professional services, since the contract arrangements with the University Hospitals for the past six years will no longer be valid, as of October 1, 1983. Accordingly, because these new regulations carry with them the potential for great harm to the fiscal stability of the Department of Pathology, we are working closely with Hospital officials to develop arrangements that will stabilize our revenue base. In addition, it has become evident that we must embark almost immediately on a billing operation for Part B (professional) services in the Anatomic Pathology area. It will be a costly process to set up a separate billing operation in the Department of Pathology, but we have little choice. We will also have to convince third party reimbursers that, for the first time in our State's history, pathology services (Surgical Pathology) are to be billed separately (apart from billing for Hospital services) and with a specified professional component. To this end, the Department, under Dr. McClatchey's leadership, is (with representatives of the Michigan Society of Pathologists) negotiating with officials of Michigan Blue Cross/Blue Shield to develop a mutually acceptable program for professional billing. I am confident that, with the support of the Medical School and the University Hospitals, we will be able to respond to the regulatory changes that threaten to undermine the Department of Pathology's fiscal foundations. In this context, it is important to point out that we have undergone considerable internal examination. Some of the support that has been available for

legitimate academic pursuits by faculty is being phased out. Approximately six technical support slots have been deleted. Certain "fringe benefits" for the faculty have been reduced or discontinued altogether, such as purchase of books and journals. Availability of certain support services will be curtailed. Finally, five Residency Training slots supported by our Medical Service Plan funds have been deleted. These cutbacks have been selective and should not seriously impair the Department's ability to function in an effective manner.

As indicated above, in spite of the strong winds of change, the Department is continuing to show progress toward the five-year objectives that we have previously described. Perhaps the area most slow to reflect the changes occurring in the Department is the Residency Training Program. The limited progress in this program is quite understandable given the long lag time in recruitment of residents. However, as of July 1, 1983, we will have two M.D./Ph.D. graduates in our Residency Training Program, both of whom are committed to academic careers in Pathology. The recruitment of residents with career interests in academic pathology indicates that we are now achieving the desired balance in the mix of our residents. It should be emphasized that the Department is embarked on a process of reduction in the size of the Pathology Training Program. This is designed to respond to field demands for pathologists but, more importantly, to enhance the quality of the Residency Training Program.

Young investigators in the Department of Pathology are perhaps the best barometer of success in achieving our research goals. It is especially pleasing to point out that currently there are four young faculty members who hold five-year salary awards from the National Institutes of Health. Drs. Joseph C. Fantone and Kent J. Johnson are recipients of Clinical Investigator Awards from the National Heart, Lung and Blood Institute; Dr. Barry S. Wilson holds a Research Career Development Award from the National Cancer Institute; Dr. Katerina Dorovini-Zis is the recipient of a Teacher-Investigator Award from the National Institutes of Neurological Diseases. In addition, Dr. Sem H. Phan holds a Research Associate Career Development Award from the Veterans Administration. We are also proud to point out that one of our postdoctoral fellows, Dr. Ricardo Duque, was one of two national recipients of the Young Pathologist in Training Award, presented at the Federation Meetings in April by the American Association of Pathologists. The Department's pre-eminence in Immunopathology has led to its heavy involvement in postdoctoral training, as evidenced by the presence of five physicians (Drs. Ricardo Duque, Ahmed Regan, Si Tui Rui, Steven Park, and Suzanne Fliegel), two Ph.D. recipients (Drs. Susan Brown and J. Philip McCoy), and one veterinarian (Dr. H. Tveden). The Department of Pathology is now regarded as a national resource in the area of immunopathology as evidenced by attraction of research grant support and the recruitment of postdoctoral fellows and Residents committed to an academic career in investigative immunopathology.

Another previously stated goal for the Department was the development of the Flow Cytometry Facility. With considerable investment of Departmental resources and generous support from Coulter Electronics, Inc., we

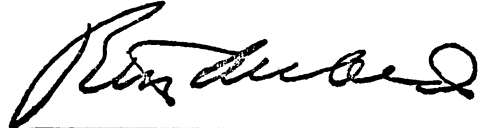
now have a facility with three flow cytometers and commitment of two faculty full-time (Drs. E.J. Lovett and J.L. Hudson), and four faculty part-time (Drs. David F. Keren, Bertram Schnitzer, Kenneth D. McClatchey, and Gerd O. Till). The operation is now essential in the evaluation and diagnosis of patients with hematological and lymphatic disorders, and for patients on immunosuppressive drugs, to name only a

Another previously stated goal for the Department was the development of the Flow Cytometry Facility. With considerable investment of Departmental resources and generous support from Coulter Electronics, Inc., we now have a facility with three flow cytometers and commitment of two faculty full-time (Drs. E.J. Lovett and J.L. Hudson), and four faculty part-time (Drs. David F. Keren, Bertram Schnitzer, Kenneth D. McClatchey, and Gerd O. Till). The operation is now essential in the evaluation and diagnosis of patients with hematological and lymphatic disorders, and for patients on immunosuppressive drugs, to name only a few applications. It is essential that these developments continue and that the facility now also be developed for direct research applications. In order to facilitate its continued development, the Flow Cytometry Facility will be relocated to the Second Level of the Pathology Building where space has been vacated due to the relocation of Dr. Midgley and his Reproductive Endocrinology Program to the North Ingalls Building. Access to space in the second level will allow a four-fold expansion for the Flow Cytometry Facility. In conjunction with the development and expansion of the Flow Cytometry Facility has been the development of a Cell Identification Center which is designed to use flow cytometry, immunoperoxidase, and other techniques for cell analysis of needle aspiration specimens, etc. These activities have necessitated a significant expansion of the Departmental computer operation because of the large volume of data generated by these new diagnostic techniques.

Finally, we return to the rapidly changing scene resulting from new federal regulations for containment of medical care costs. As a result of the final regulations that were published first in the April issue of the Federal Register, it became evident that the Department could be seriously disadvantaged when the Replacement Hospital opens in the Summer of 1985, since the Surgical Pathology Service was scheduled to remain in the current Pathology Building. By early May we decided, given the new regulations, that it would be essential to have Surgical Pathology Consultative Services in close geographic proximity to the other clinical services of the Hospital. In June of this year, the Regents approved a revision in plans for Pathology Services in the new Hospital. Accordingly, most of Surgical Pathology (support staff, histoprocessing facilities, reading rooms, surgical pathology faculty, and the Cytopathology Laboratory) will be relocated to the new Hospital, while certain of the Clinical Laboratory Services (Ligand Assay, Clinical Immunology, Flow Cytometry) will remain in the Pathology Building rather than being relocated, as had been planned earlier. While these changes will result in an undesirable geographic separation of our faculty, the changes should be in the best interests of the Department.

When I assumed leadership in the Department of Pathology in the Summer of 1980, what had to be accomplished in order to change and strengthen the

Department seemed rather straight forward and simple. The new state and federal regulations selectively disadvantage the Department of Pathology. Our Department's progress over the past three years is threatened by the looming fiscal instability. However, given the right decisions made within our Department, support by leaders within our institution, and continued progress on developing immunopathology research programs, the Department of Pathology will flourish and continue to make progress toward our ultimate goals.



Peter A. Ward, M.D.
Professor and Chairman

Faculty Reports

GERALD D. ABRAMS, M.D.
PROFESSOR
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
1 July 1982 - 30 June 1983

I. CLINICAL ACTIVITIES:

- A. August, 1982 - Necropsy Service
- B. January through April, 1983 - Surgical Pathology Service
- C. 1982 - 1983 - Consultant Pathologist, Unit for Laboratory Animal Medicine

II. TEACHING ACTIVITIES:

- A. Freshman Medical Class
 - 1. 20 contact hours - Basic concepts of Disease (I.C.S. 500)
 - 2. 2 contact hours - Clinical correlations (Histology 501)
- B. Sophomore Medical Class
 - 1. 4 contact hours - Pathology 600
 - 2. Course Director - Pathology 600
- C. Senior Medical Class - Coordinator/Mentor for Senior Clerks
- D. Graduate School
 - 1. 45 contact hours - Lectures in General Pathology (Path 859)
 - 2. 30 contact hours - Laboratory in General Pathology (Path 860)
 - 3. Doctoral Dissertation Committee - Duck Hyang Suh (Toxicology)
- E. Postgraduate Education
 - 1. 62nd Collier Penberthy Thirlby Conference July 1982, Traverse City, Michigan.
 - 2. 19th Northern Michigan Summer Conference, June, 1982, Bellaire, Michigan.
- F. Miscellaneous
 - 1. Minority Student Orientation
 - 2. Surgery - GI Pathology Conference - monthly
 - 3. Cardiology - Pathology Conference - monthly
 - 4. Comparative Pathology Conference - weekly
 - 5. Medicine-GI Pathology Conference - weekly (alternate for H.D. Appelman)

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. (5 R01 HL 21707-05) Quantification of Infarct Size by Emission Tomography. J.W. Keyes P.I. (GDA 5%)
- B. (1 R01 HL 27817-01) Pharmacologic Studies on the Coronary Circulation. B.R. Lucchesi P.I. (GDA 5%)
- C. (2 R01 HL 19782-04) Pharmacologic Studies on the Ischemic Heart. B.R. Lucchesi P.I. (GDA 5%)

PROJECTS UNDER STUDY:

- A. Pharmacologic Salvage of Ischemic Myocardium (with B.R. Lucchesi)
- B. Role of Leukocytes in Myocardial Infarction (with B.R. Lucchesi)
- C. Platelet Function in Myocardial Infarction (with B.R. Lucchesi)
- D. Histologic Aspects of Healing Around Percutaneous Access Devices (with A. Kantrowitz)

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Education Coordinator
- B. Chairman, Departmental Advisory Committee on Appointments, Promotions, and Titles

MEDICAL SCHOOL/HOSPITAL:

- A. Medical School Executive Committee
- B. Hospital Executive Committee on Clinical Affairs
- C. Basic Science Phase Committee, Chairman
- D. Ad hoc Committee to Evaluate ICS, Chairman
- E. LSA-Medical School Liaison Committee to Evaluate Pre-Medical-Medical Education
- F. Basic Science Phase Promotion Board
- G. Clinical Phase Promotion Board
- H. Financial Aid Committee
- I. Senior Year Counselor

REGIONAL AND NATIONAL:

- A. IAP Gastrointestinal Pathology Club
Secretary-Treasurer 1980-83
Membership Committee 1983-

V. OTHER RELEVANT ACTIVITIES:

- A. Deputy Medical Examiner, Washtenaw County
- B. Consultant Physician, Ann Arbor VAMC

VI. PUBLICATIONS:

1. Adler, D.D., Silver, T.M., Abrams, G.D.: The Sonographic Appearance of Splenic Plasmacytoma. J. Ultrasound Med., 1:323-324, 1982
2. Kirlin, P.C., Romson, J.L., Pitt, B., Abrams, G.D., Schork, A., Lucchesi, B.R.: Ibuprofen Mediated Infarct Size Reduction: Effects on Regional Myocardial Function in Canine Myocardial Infarction. Am. J. Cardiol., 50:849-856, 1982
3. Maassab, H.F., Kendal, A.P., Abrams, G.D., Monto, A.S.: Evaluation of a Cold-Recombinant Influenza Virus Vaccine in Ferrets. J. Infect. Dis., 146:780-790, 1982

4. Jolly, S.R., Abrams, G.D., Romson, J.L., Bailie, M.B., Lucchesi, B.R.: Effects of Lodoxamide on Ischemic-Reperfused Myocardium. *J. Cardiovasc. Pharmacol.*, 4:441-448, 1982
5. Romson, J.L., Bruce, G., Hook, B.S., Kunkel, S.L., Abrams, G.D., Schork, M.A., Lucchesi, B.R.: Reduction of the Extent of Ischemic Myocardial Injury by Neutrophil Depletion in the Dog. *Circulation*, 67:1016-1023, 1983
6. Abrams, G.D.: Impact of the Intestinal Microflora on Intestinal Structure and Function. In "Human Intestinal Microflora in Health and Disease" D.J. Hentges, ed. Academic Press. In Press.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. CLINICAL ACTIVITIES:

- A. Associate Director, Clinical Biochemistry Laboratories
(See Laboratory Annual Report).
 - 1. Responsible for quality of routine operation, research and development, house officer training, and clinical consultation for Clinical Biochemistry Laboratories.
- B. Consultant to Veterans Administration Hospital, Ann Arbor, Michigan.
- C. Responsible for successful acquisition and introduction of COBAS centrifugal analyzers into laboratories (See Laboratory Annual Report.)

II. TEACHING ACTIVITIES:

- A. Laboratory
 - 1. Co-Coordinator, Laboratory Continuing Education Program, Section of Clinical Chemistry.
- B. House Officers
 - 1. Participant, Clinical Pathology Rounds
 - 2. Lecturer, Clinical Pathology Didactic Lecture Series.
 - 3. Coordinator, House Officer Chemistry Rotation. Responsible for scheduling and introduction to Pharmacy, Ligand, and VA Laboratories as well.
 - 4. Daily Sign-out and Interpretation of Laboratory Results.
- C. Postgraduate Teaching
 - 1. Co-Director, Towsley Continuing Education Series in Clinical Chemistry and Immunology.
 - 2. Lectures on Instrument Selection.
- D. Medical Technology
 - 1. Lecturer, Medical Technology Program (Pathology 410). Areas include thyroid physiology, general endocrinology, RIA/immunochemical methods.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Co-Investigator, "Secretory IgA Response of the Gastrointestinal Tract to Orally-Administered Carcinogen", with D. F. Keren. Michigan Cancer Research Institute.

- B. Co-Investigator, "Evaluation of the Antimicrobial Removal Device (ARD)", with B. Forbes and K. McClatchey. Marion Scientific Laboratories.

PROJECTS UNDER STUDY:

- A. Mucosal Immune Response to Oral Carcinogens, with D. Giacherio and D. Keren.
- B. Evaluation of ARD for Microbiologic Studies, with B. Forbes and K. McClathcey.
- C. Efficacy Studies on the Dermatologic Agent Etretnate, with C. Ellis and R. Grekin.
- D. CPK Sub-Isoenzymes, with S. Strongwater and T. Schnitzer.
- E. CPK Subisozyme Conversion Factor, with D. Giacherio and G. Till.
- F. Cadmium Toxicity in Industrial Workers, with F. Falk, L. Fine, and K. McClatchey.
- H. Hyper- and Hypomagnesemia in Hospitalized Patients, with K. Lau.
- I. HPLC Determination of Cephalosporins and β -lactam Antibiotics.
- J. Centrifugal Analysis of Enzymes.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Associate Director, Clinical Biochemistry Laboratories
- B. Reference Value Work Group

MEDICAL SCHOOL/HOSPITAL:

- A. Standardization of Procedures Committee.

REGIONAL AND NATIONAL:

- A. Executive Committee, Michigan Section, American Association for Clinical Chemistry.
- B. Education Committee, Michigan Section, American Association for Clinical Chemistry
- C. Program Chairman, American Association for Clinical Chemistry.

V. OTHER RELEVANT ACTIVITIES:

- A. On-Site Coordinator, "Drugs in the 80's", Lansing, Michigan, May 1983.
- B. Awarded Diplomate Status by American Board of Clinical Chemistry (now 1 of only 400 nationally).

VI. PUBLICATIONS:

- 1. Annesley, T.M., Burrirt, M.F., Kyle, R.A.: Artifactual Hypercalcemia in Multiple Myeloma. Mayo Clin. Proc., 57:572, 1982.

2. Cohen, H., Hay, I., Annesley, T., Beastall, M.: Serum Immunoreactive Melatonin in Boys with Delayed Puberty. *Clin. Endocrinol.*, 17:517, 1982.
3. Annesley, T.M., McKenna, B.: Ectopic Creatine Kinase MB Production in Metastatic Cancer. *Am. J. Clin. Path.*, 79:255, 1983.
4. Falck, F., Fine, L., Smith, R., McClatchey, K., Annesley, T., England, B., Schork, A.: Occupational Cadmium Exposure and Renal Status. *Am. J. Ind. Med.*, 4:541, 1983.
5. Strongwater, S., Annesley, T., Schnitzer, T.: Myocardial Involvement in Polymyositis. *J. Rheumatol.*, 10:459, 1983.
6. Annesley, T., O'Brien, J.F.: Laboratory Diagnosis of Lysosomal Storage Disorders. In Press.
7. Annesley, T., Giacherio, D., Wilkerson, K., Grekin, R., Ellis, C.: Analysis of Retinoids by High Performance Liquid Chromatography Using Programmed Gradient Separation. *J. Chromatog.*, In Press.
8. Lau, K., Syuhavivsky, Annesley, T., Davidson, E., Spirnak, J., Eby, B.: Plasma Magnesium on Hospital Admission: The Role of Abnormal Renal Magnesium Handling in the pathogenesis of hypomagnesemia and Hypermagnesemia. *Ann. Int. Med.*, In Press.
9. Falck, F., Annesley, T., Fine, L., McClatchey, K., England, B.: Protein Excretion Patterns in Cadmium Exposed Individuals. *Arch. Environ. Health.*, In Press.

HENRY D. APPELMAN, M.D.
PROFESSOR OF PATHOLOGY AND DIRECTOR OF ANATOMIC PATHOLOGY
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
1 July 1982 - 30 June 1983

I. CLINICAL ACTIVITIES:

- A. General surgical pathology 7½ months.
- B. Gastrointestinal and hepatic pathology consultation services - full time.

II. TEACHING ACTIVITIES:

- A. Medical students
 - 1. Pathology 600: 4 full class lectures, 2 days devoted to gross gastrointestinal pathology in the laboratory for all laboratory sessions.
 - 2. Senior medical student electives: 7½ months instruction in surgical pathology in the reading rooms.
 - 3. Senior medical student elective in pathology rotation supervisor, 1 month.
- B. House Officers
 - 1. Surgical pathology conference, 1 hour per week.
 - 2. Autopsy service tutoring, 5 to 6 weekends and gross autopsy conference, approximately 4½ months, twice a week.
 - 3. Surgical pathology diagnosing room instruction for assigned house officer, 7½ months.
 - 4. Gastrointestinal and hepatic pathology tutoring, full time.
 - 5. Mentor for 4 house officer months in gastrointestinal and liver pathology subspecialty.
- C. Interdepartmental
 - 1. Medical gastrointestinal pathology conference, 1½ hours weekly.
 - 2. Pediatric gastrointestinal pathology conference, 1 hour per month.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None.

PROJECTS UNDER STUDY:

- A. Lymphomas of the gastrointestinal tract, with S. Hirsch, B. Schnitzer, and W. Coon.
- B. Carcinoma of the gastric cardia and Barrett's esophagus with R. Kalish, W. Clancy and M. Orringer.
- C. The significance of granulomas in Crohn's disease, with N.B. Kumar and J.A.P. Wilson.

- D. The biopsy diagnosis of primary biliary cirrhosis, joint project with the Mayo Clinic.
- E. Displasia and carcinoma in chronic inflammatory bowel disease, continuing study with the Inflammatory Bowel Disease Morphology Study Group.
- F. The effects of hyperalimentation on the infantile liver, with K.P. Heidelberger and members of the division of pediatric surgery.
- G. Inflammatory fibroid polyps of the gastrointestinal tract, with David Sadler.
- H. 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.
- I. Stromal tumors of the upper gastrointestinal tract.
- J. Polyps and giant fold diseases of the stomach.
- K. Appendiceal epithelial neoplasia.
- L. The effects of prostaglandins on collagen deposition in livers of rats fed a cirrhogenic diet, with and without ethanol, with K.S. Henley and investigators from the Upjohn Company, Kalamazoo, Michigan.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Director, Division of Anatomic Pathology.
- B. Member, Departmental Advisory Committee on appointments, and titles.
- C. Member, Departmental Medical Service Plan Executive Committee.
- D. Member, Departmental Executive Committee for residency training program.

MEDICAL SCHOOL/HOSPITAL:

- A. Member, Directors Advisory Council, University Hospital.
- B. Member, Quality Assurance Committee, University Hospital.

REGIONAL AND NATIONAL:

- A. Member of Steering Committee, Inflammatory Bowel Disease Dysplasia Morphology group.
- B. Co-editor of newsletter, Gastrointestinal Pathology Club.
- C. Member, Program Committee, Michigan Society of Pathologists.
- D. Reviewer of papers for Archives of Pathology and Laboratory Medicine.
- E. Book reviewer, Gastroenterology.

V. OTHER RELEVANT ACTIVITIES:

Invited lectures and seminars.

- A. Appelman, H.D.: Dysplasia and carcinoma in inflammatory bowel disease.
 - 1. Visiting lecturer, Department of Pathology, Wayne State University, Detroit, MI, May 4, 1983.
 - 2. Royal College Lecturer, course entitled "Update in gastrointestinal pathology", McMaster University Medical Center, Hamilton, Ontario, May 6, 1983.
 - 3. Visiting lecturer, Department of Pathology, University of Louisville, Louisville, KY, June 3, 1983.
- B. Appelman, H.D.: Acquired immunodeficiency syndromes affecting the gastrointestinal tract. Presented at Course "Update in gastrointestinal pathology", McMaster University Medical Center, Hamilton, Ontario, May 6, 1983.
- C. Mayle, J.E., Dean, H.A., Appelman, H.D., Greenbaum, D.S. and Gurwith, M.J.: Hepatitis, an update. Course presented at the annual meeting of the Michigan State Medical Society, Dearborn, MI, November 9, 1982.
- D. Appelman, H.D., Lewin, K.J.: Slide seminar on gastrointestinal pathology, Hamilton Society of Pathologists, Hamilton, Ontario, May 5, 1983.
- E. Appelman, H.D.: Reasonably common problems in gastrointestinal endoscopic biopsy interpretation: Seminar for the Kentucky Society of Pathologists, Pennyrile Forest State Park, KY, June 4, 1983.
- F. Appelman, H.D.: Seminar on neoplastic diseases of the intestine, American Society of Clinical Pathologists, Course on Surgical Pathology of Gastrointestinal Tract, Washington D.C., June 22, 1983.

VI. PUBLICATIONS:

- 1. Kumar, N.B., Nostrant, T.T., Appelman, H.D.: The Histopathologic Spectrum of Acute Self-Limited Colitis (Acute Infectious-Type Colitis). Amer. J. Surg. Path., 6:523-529, 1982.
- 2. Fantone, J.C., Geisinger, K.R., Appelman, H.D.: Papillary Adenoma of the Lung with Lamellar and Electron Dense Granules and Ultrastructural Study. Cancer, 50:2839-2844, 1982.
- 3. Riddell, R.H., Goldman, H., Ransohoff, D.F., Appelman, H.D. et al.: Dysplasia in Inflammatory Bowel Disease: Standardized Classification with Provisional Clinical Applications. Human Pathol., In Press.
- 4. Schaldenbrand, J., Appelman, H.D.: Stromal Gastrointestinal Tumors in Von Recklinghausen's Disease with Minimal Smooth Muscle Differentiation: Two Cases with Ultrastructural Examination. Human Pathol., In Press.

5. Eckhauser, F.E., Appelman, H.D. et al.: Noncirrhotic Portal Hypertension: Differing patterns of disease in childhood and Adulthood. Surgery, In Press.
6. Appelman, H.D.: Neoplastic Diseases of the Appendix, chapter in Pathology of the Colon, Small Intestine and Anus, Norris, H.T., editor, Churchill Livingstone, Inc., New York. In Press.
7. Appelman, H.D.: Book review: Colour Atlas of Liver Pathology, Gastroenterology, In Press.
8. Riddell, R.H., Goldman, H., Ransohoff, D.F., Appelman, H.D. et al.: A Standardized Classification of Dysplasia in Inflammatory Bowel Disease. Lab. Invest., 48:71 A, 1983.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. CLINICAL ACTIVITIES: None.

II. TEACHING ACTIVITIES:

- A. House Officer Program.
 - 1. Lectured in Brief Blood Bank Introductory Lecture Series.
 - 2. Planned and presented three times, a nine session Blood Bank Laboratory and seminar course for house officers.
- B. Medical Technology Program.
 - 1. Restructured and taught Pathology 408, a course consisting of 30 lectures given once and nineteen three hour laboratory sessions taught twice.
 - 2. Restructured and directed Pathology 409. This course, which includes 40 hours of structured class and seventy hours of clinical practicum, was repeated for seven groups of students. With the advice and consent of Blood Bank Medical Directors, supervisory and administrative technologists, identified staff technologists willing and able to serve as class preceptors, provided objectives and discussed their implementations with the clinical preceptors.
- C. Teaching Activities.
 - 1. Assisted in the planning and presentation of an in-service course for clinical preceptors in all laboratory areas. This four hour long program was presented eight times for over ninety laboratory employees responsible for training of students and new employees in the Clinical Laboratories.

III. RESEARCH ACTIVITIES:

Began design of a computer program to interpret results of blood group antibody identification testing.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Assist in preparing for review of Medical Technology Program. As a member of the Medical Technology Admissions Committee, make and implement policies, interview and evaluate applicants, and make recommendations for acceptance.
- B. As a member of the Medical Technology Steering Committee, prepare program schedules, participate in planning for modification of undergraduate and provision of master's level programs.

MEDICAL SCHOOL/HOSPITAL:

- A. Designed and presented a preconference workshop, "Teaching and Monitoring Laboratory Performance", June 1, 1983. Lectured on Certification in Blood Banking at that Symposium on June 3, 1983. Current Topics in Blood Banking, Towsley Center, June 1, 1983.
- B. Conducted 48 hours of instruction for each of five new technical employees of the hospital Blood Bank.
- C. Participated in various committees responsible for communication and technical advice to the hospital Blood Bank.
- D. Drafted and implemented a weekly schedule of in-service education for Blood Bank staff. Developed computer assisted instruction to supplement these sessions.

REGIONAL AND NATIONAL:

- A. As an inspector for the Inspection and Accreditation Program of the American Association of Blood Banks, conducted inspection at Annapolis Hospital, Wayne, Michigan, March 31, 1983.
- B. Presented a lecture, "The Computer as an Instructional Tool in the Clinical Blood Bank", at the Spring Seminar of Laboratory Professionals of Michigan, Flint, Michigan, April 28, 1983.
- C. Planned and implemented a survey of all academic medical technology and medical laboratory technician programs in the state to provide detailed information about content, methods of presentation, and evaluation criteria.
- D. As Chairman of the Education Committee of the Michigan Association of Blood Banks, conducted a needs assessment survey of all licensed laboratories to assist in planning future statewide education offerings and updated information about education and consultation in Michigan related to blood banking provided by professional organizations and area centers.
- E. Served as Board Member of the Michigan Society for Medical Technology.
- F. Served as member of the American Association of Blood Banks District Advisory Group.

V. OTHER RELEVANT ACTIVITIES:

Planned and implemented organizational meeting of laboratory workers in the counties of Hillsdale, Jackson, Lenawee, and Washtenaw. Helped plan and implement two educational meetings and a day long workshop for area laboratorians. Currently serving as secretary for this organization.

VI. PUBLICATIONS: None.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. CLINICAL ACTIVITIES:

- A. Director, Diagnostic Electron Microscopy Unit, Veterans Administration Medical Center.
- B. Cytodiagnosis, VAMC
- C. Fine Needle Aspiration, VAMC: personally performed, supervised or attended
- D. Surgical/autopsy Pathology, VAMC
- E. Lung Tumor Conference: VAMC, weekly working conference on patient management.
- F. Deputy County Medical Examiner
- G. Consultant on diagnostic electron microscopy

II. TEACHING ACTIVITIES:

- A. House Officer, monthly rotation in diagnostic electron microscopy, one/month
- B. Biweekly House Officer Conference: Diagnostic EM Case Reports

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Tissue Graft Rejection Model in Immunologically Defined Mice, Medical Research Service of Veterans Administration, coinvestigator.

PROJECTS UNDER STUDY:

- A. Clinical Relevance of Ultrastructural Characteristics of Small Cells Carcinoma of Lung.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Electron Microscope Committee

MEDICAL SCHOOL/HOSPITAL:

- A. Tissue Committee, chair, VAMC
- B. Electron Microscopy Committee, chair, VAMC

- C. Human and Financial Resources Committee, VAMC
- D. Medical Records Review Committee, VAMC
- E. Quality Assurance Committee

REGIONAL AND NATIONAL:

- A. Local Arrangements and Host: Sixth Diagnostic Electron Microscopy Conference, Ann Arbor, Michigan, May 17-19, 1983.
- B. Veterans Administration Central Office ad hoc Electron Microscopy Review Group.
- C. Practice of Pathology Committee, Michigan Society of Pathologists.

V. OTHER RELEVANT ACTIVITIES: None.

VI. PUBLICATIONS:

1. Beals, T.F.: Cytology and Electron Microscopy. Chapter 4 in Diagnostic Electron Microscopy. Trump and Jones, Editors. Wiley and Sons, 1983. pp. 179-226.
2. Schultz, J.S., DeMott-Friberg, R., Beals, T.F.: Liver Tissue Graft Rejection in Murine Major Histocompatibility Complex Mutants. Immunogenetics, 15:357-364, 1982.
3. Anhalt, G.J., Labib, R.S., Voorhees, J.J., Beals, T.F., Diaz, L.A.: Induction of Pemphigus in Neonatal Mice by Transfer of IgG from Patients with the Disease. N.E.J.M., 306:1189-1196, 1982.
4. Varani, J., Dame, M., Beals, T.F., Wass, J.A.: Growth of Three Established Cell Lines on Glass Microcarriers. Biotech. Bioengin., 25:1359-1372, 1983.
5. Lewis, F.H., Beals, T.F., Carey, T.E., Baker, S.R., Matthews, K.P.: Ultrastructural and Functional Studies of Cilia from Patients with Asthma, Aspirin Intolerance, and Nasal Polyps. Chest, 83:487-490, 1983.
6. Schultz, J.S., DeMott-Friberg, R., Walker, S., Beals, T.F.: Tissue Graft Rejection in Murine Models of Autoimmune Disease. Clin. Exp. Immunol., 51:325-332, 1983.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

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

II. TEACHING ACTIVITIES:

1. Instrumentation Lecture Series, Medical Technology Program.
2. Lecturer, Technicon Seminar, Pittsburgh, Pennsylvania.
3. Lecturer, Conference on Current Topics in Clinical Chemistry and Immunology.

III. RESEARCH ACTIVITIES:

1. Special device for centrifugal preparation of sweat chloride for direct analysis by Beckman ASTRA.
2. Reconfiguration of K⁺ ISE on Technicon SMAC II for improved sensitivity and flow characteristics.
3. Development of an airborne Emergency Analysis System.
4. Mechanization of ELISA techniques with moving film technology.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

1. Assistant Director, Clinical Laboratories

MEDICAL SCHOOL/HOSPITAL:

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

V. OTHER RELEVANT ACTIVITIES:

1. Advisor, Technicon RA1000 System Development.
2. Advisor, Macomb Instrument Development Division.

VI. PUBLICATIONS:

1. Judd, W.J., Steiner, E.A., Capps, R.D.: Autoagglutination with Apparent Anti-P Specificity Reactive Only by LISS Techniques. Transfusion, 22:185-188, 1982.

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 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

1. Oral Pathology Biopsy Service, Dental School
2. Consultant in Oral Pathology for Veterans Administration Hospital
3. Consultant in Dentistry for patients with head and neck malignancies, University of Michigan Hospital

II. TEACHING ACTIVITIES:

GRADUATE DENTISTRY:

1. Oral Pathology 690 - Seminar on current cases stressing clinical - microscopic characteristics (Fall and Winter terms) (one credit hour each term).
2. Oral Pathology 691 - Seminar on diseases which affect the dental pulp and periapical tissues (Fall term - 2 sections) (one hour credit).
3. Oral Pathology 694 - Lectures on head and neck pathology (Fall term) (two hours credit).
4. Oral Pathology 695 - Laboratory course on microscopic head and neck pathology (Winter term) (two hours credit).
5. Oral Pathology 697 - Seminar on diseases which involve the periodontium (Fall term) (one hour credit).
6. Oral Pathology 698 - Advanced seminar for graduate students in oral pathology (Fall and Winter terms) (two hours each term).

D.D.S. PROGRAM:

1. Oral Pathology 625 - Microscopic oral pathology for sophomore dental students (Winter term) (1 hour credit).
2. Pathology 631 - Microscopic general pathology for sophomore dental students (Fall term) (3 hrs credit).
3. Oral Pathology 816 & 818 - Lectures and discussions on oral pathology for senior dental students (Fall and Winter terms) (one hour each term).

MEDICAL SCHOOL:

1. E.N.T. Pathology for residents - session on odontogenic cysts and tumors (Spring term).

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

Evaluation of polymer dental implants in dogs. (Kerr-sybron).

PROJECTS UNDER STUDY:

Odontogenic tumors and oral malignancies.

IV. ADMINISTRATIVE ACTIVITIES:

DENTAL SCHOOL

1. Chairman, Department of Oral Pathology
2. Departmental Chairmen Committee
3. Graduate Studies Committee
4. Member of several Master's degree thesis committees

MEDICAL SCHOOL/HOSPITAL:

1. Hospital Dentistry Department

NATIONAL:

1. Director, American Board of Oral Pathology
2. Past President, American Academy of Oral Pathology
3. Editorial Board, Journal of Dental Research
4. Consultant to the American Dental Association on graduate oral pathology programs
5. Consultant to the American Dental Association on Hospital Dentistry programs

V. OTHER RELEVANT ACTIVITIES:

None

VI. PUBLICATIONS:

1. Courtney, R.M., Regezi, J.A., Batsakis, J.G.: The Pathology of Head and Neck Tumors: Odontogenic Tumors. Head and Neck Surgery, In preparation.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

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. Work in similar way with these people on autopsy brain material sent for consultative study from University-associated hospitals, state hospitals and other hospitals and institutions.
- C. 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.
- D. Continuous review of quality control of diagnostic techniques, autopsy and surgical neuropathology, and search for improved and new methods.
- E. Responsibility for general management and supervision of the Neuropathology Laboratory.

II. TEACHING ACTIVITIES:

- A. Neural and Behavioral Sciences 600 (NBS 600), Neuropathology for second year medical students, 20 hours, lectures and laboratories. Sequence leader for NBS 600 Neuropathology: responsible for implementing general plan of course, selection of much of the teaching material, coordination and intergration of the lectures and laboratories of the course with other instructors.
- B. Neuropathology for Pathology house officers. This exercise is integrated with Clinical Activities A, B, and C, as already noted above.
- 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, 18 hours. One credit offered.
- D. Teach laboratory techniques and basic neuroanatomy and neuropathology to our laboratory technologists.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. USPHS grant NS 10531, concluded July 1, 1983.
- B. U of M Biomedical Research Council Support Grant.....1983

PROJECTS UNDER STUDY:

- A. Experimental work centers on the mechanisms of recovery by regenerative processes in the fetus (rat) after severe destructive injury or other alteration, and why this capacity may fail, as it often does, producing malformation. A center of interest is the basement membrane and other extracellular matrix components associated with interactions between the neuroepithelium of the early forebrain and brainstem and the adjacent mesenchyme. Developmental events are particularly prone to go awry in these regions resulting in cerebral hemisphere disease and aqueduct stenosis with hydrocephalus.
- B. In another area, studies on possible environmental factors in the promotion of presenile and senile Alzheimer's diseases continue.
- C. (See VI, PUBLICATIONS below)

IV. ADMINISTRATIVE ACTIVITIES:

- A. Departmental: inferred from this report.
- B. Medical School, Hospital, University
 - 1. Neural and Behavioral Sciences Curriculum Committee
 - 2. Neural and Behavioral Sciences Examinations Committee
 - 3. Preprofessional Counselor, premedical and health-related students
- C. National Activities
 - 1. Reviewer of research grant applications for National Science Foundation Neurobiology Program
 - 2. Reviewer of journal manuscripts, such as Teratology, Experimental Neurology, Science.

V. OTHER RELEVANT ACTIVITIES:

None

VI. PUBLICATIONS:

- 1. Hicks, S.P., D'Amato, C.J.: Further Studies of Hopping Rats Produced by Prenatal Irradiation. Proceedings of 12th Annual Meeting, Society for Neuroscience, Minneapolis, MN, (Abstract and poster exhibit). Neurosc., 8, 966, 1982, (Abstract).
- 2. Glover, R.A., D'Amato, C.J., Hicks, S.P.: Basement Membrane-Neuroepithelial Interrelations in the Etiology of Genetic Aqueductal Stenosis With Hydrocephalus. 35th Annual Meeting of the American Academy of Neurology, San Diego, CA, (Abstract and poster exhibit.) Neurology, 33, 221, 1983.
- 3. Hicks, S.P., D'Amato, C.J., Glover, J.A.: Recovery and Failure of Recovery After Fetal Radiation and Other Injuries. In: The Behavioral Biology of Early Brain Damage. C.R. Almli and S. Finger (editors), New York: Academic Press. (In press, 1983)

4. Glover, R.A., D'Amato, C.J., Hicks, S.P.: A New Cell Surface Relationship Between Neuroepithelial Cells During Rat Neural Tube Development. *Experimental Neurology*, In press, 1983.
5. Louis, D.S., McGillicuddy, J., Houston, T., Green, T., Hicks, S.P., D'Amato, C.J.: Light Microscopic Appearance of Nerve Cell Body Following Primary and Delayed Peripheral Nerve Repair. (Abstract) (Submitted. *Amer. Soc. Surg. Hand*, 1983)
6. Miller, F.D., Brix, K.A., D'Amato, C.J., Hicks, S.P.: A Descriptive Study of Neuritic Plaques and Neurofibrillary Tangles in an Autopsy Population. (In preparation 1983)
7. D'Amato, C.J., Hicks, S.P., Glover, R.A.: Genetic Prenatal Aqueduct Stenosis With Hydrocephalus in Rat. (In preparation, 1983)

KATERINA DOROVINI-ZIS, M.D.FRCP(C)
INSTRUCTOR IN PATHOLOGY
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
1 July 1982 - 30 June 1983

I. CLINICAL ACTIVITIES:

- A. Neurosurgical biopsies.
- B. All muscle and nerve biopsies.
- C. Autopsies: central and peripheral nervous system pathology
- D. Consultations on Neuropathological material (Biopsies and autopsies), Muscle and Nerve biopsies from other hospitals and medical centers.

II. TEACHING ACTIVITIES:

- A. Neuropathology for second year Medical Students (Neural and Behavioral Science 600)
- B. House officers in Pathology, Neurosurgery and Neurology:
 - 1. Review of post-mortem neuropathological material with house officers.
 - 2. Neuropathology 858. Course for house officers, staff, graduate and other students. 18 hours.
 - 3. Weekly Brain Cutting with house officers.
 - 4. Biweekly conference for Neurology house officers and staff: review of all neurosurgically removed material in this hospital.
 - 5. Monthly conference for Neurosurgery house officers and staff: review of all nerve and muscle biopsies performed in this medical center.
 - 6. Lectures on Muscle Histochemistry and Pathology for house officers and staff in Neurology and Rheumatology.
- C. Post-graduate teaching - Towsley Seminar on Selected Short Subjects in Anatomic Pathology: Lecture on Brain Tumors.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. NINCDS Teacher-Investigator Award (1K07-NS00708) 1982-87.
- B. Rackham School of Graduate Studies Faculty Research Grant 1/1/83 - 12/31/83.
- C. R01 ES02380 National Institute of Environmental Health Sciences 8/1/82 - 7/31/86. Co-investigator (Gary W. Goldstein, M.D.,P.I.).

PROJECTS UNDER STUDY:

- A. Morphology and barrier properties of brain endothelium in vivo and in vitro.
- B. Effects of hyperosmotic solutions on the permeability of the blood-brain barrier in rats and on brain capillary endothelial cultures. Significance of tight-junction opening and the role of pinocytosis.
- C. Collaborative Studies
 1. Coxsackievirus-induced murine polymyositis- with Dr. T. Schnitzer, Internal Medicine.
 2. Clinical, electrophysiological and morphological studies of patients with Polymyositis and Dermatomyositis-with Drs. T. Schnitzer, Internal Medicine and J. Albers, Neurology.

IV. ADMINISTRATIVE ACTIVITIES:

None

V. OTHER RELEVANT ACTIVITIES:

- A. Referee submitted journal articles.

VI. PUBLICATIONS:

1. Wolter, J.R., Schut, A.L., Dorovini-Zis, K.: Massive Ocular Astrocytoma in a Congenitally Deformed Eye. *Brit. J. Ophthalmol.*, 66:583-588, 1982.
2. Dorovini-Zis, K., Sato, M., Goping, G., Rapoport, S.I., Brightman, M.W.: Ionic Lanthanum Passage Across Cerebral Endothelium Exposed to Hyperosmotic Arabinose. *Acta Neuropath. (Berl.)*, 60:49-60, 1983.
3. Brightman, M.W., Dorovini-Zis, K., Anders, J.: Morphologies of Cerebral Endothelium and Astrocytes as Determinants of the Neuronal Microenvironment. *Acta Neuropath. (Suppl.) (Berl.)*, 8:21-33, 1983.
4. Mata, M., Dorovini-Zis, K., Wilson, M., Young, A.: A New Form of Familial Parkinson-Dementia Syndrome: Clinical and Pathological Findings. *Neurology*, In Press.
5. Hildenbrand, P.G., Gabrielsen, T.O., Dorovini-Zis, K., Knake, J.E., Latack, J.T., Gebarski, S.S.: Radiology of Primary Intracranial Yolk Sac (Endodermal sinus) tumors. *Amer. J. Neuroradiology*, 4:991-993, 1983.
6. Strongwater, S.L., Dorovini-Zis, K., Ball, R.D., Schnitzer, T.J.: A Murine Model of Polymyositis Induced by Coxsackievirus B1 (Tucson Strain). *Arthritis and Rheumatism*. (Submitted.)
7. Latack, J.T., Gabrielsen, T.O., Knake, J.E., Gebarski, S.S., Dorovini-Zis, K.: Computed Tomography of Spinal Cord Necrosis due to Multiple Sclerosis. *Am. J. Neuroradiology*, In Press.
8. Walker, F.O., Dorovini-Zis, K., Young, A.B., Penney, J.B.: Evidence for Neurotransmitter receptor changes in early Huntington's Disease (H.D.). *Neurology*, 33:149, 1983.

9. McLean, M.J., McCormick, F.X., Dorovini-Zis, K., Keren, D.F., Fink, D.J., Mata, M.M., Donofrio, P.D., Albers, J.W.: Evidence for Immune-Mediated Polyneuropathy in Waldenstrom's Macroglobulinemia. *Neurology*, 33:140, 1983.

RICARDO E. DUQUE, M.D.
ADJUNCT RESEARCH INVESTIGATOR
DEPARTMENT OF PATHOLOGY

Annual Department Report
1 July, 1982 - 30 June, 1983

I. CLINICAL ACTIVITIES:

Collaboration with Dr. Kent Johnson and Paul Gikas in the Renal Biopsy Service.

II. RESEARCH ACTIVITIES:

Development of the methodology necessary to measure changes in the transmembrane potential of activated phagocytic cells. Some of this technology has allowed for the identification of activation defects in alveolar macrophages in certain disease states such as thermal injury. Additionally, with the incorporation of flow cytometric technology into the research facilities, a gradual interphasing of previously published methodologies with flow cytometry is under way thus providing enormous research and clinical potential.

III. OTHER RELEVANT ACTIVITIES:

- A. Experimental Pathologist in Training Award. American Association of Pathologists. Chicago, 1983
- B. Invited participant, The First Annual University of Michigan/McNeil Pharmaceutical Company Symposium on Drug Development, Ann Arbor, May 13 & 14, 1983

V. PUBLICATIONS:

1. Ward, P.A., Duque, R.E., Sulavik, M.C., Johnson, K.J.: In Vitro and In Vivo Stimulation of Rat Neutrophils and Alveolar Macrophages by Immune Complexes Production of O_2^- and H_2O_2 . Am. J. Path., 110: 297-309, 1983.
2. Phan, S.H., Schrier, D., McGarry, B., Duque, R.E.: Effect of the Beige Mutation on Bleomycin Induced Pulmonary Fibrosis. Am. Rev. Resp. Dis., 127:456-459, 1983.
3. Duque, R.E., Phan, S.H., Sulavik, M.C., Ward, P.A.: Inhibition by Tosyl-L-Phenylalanine Chloromethyl Ketone (TPCK) of Membrane Potential Changes in Rat Neutrophils. J. Biol. Chem., 258:8123-8128, 1982.
4. Marak, G.E., Rao, N.A., Scott, J.M., Duque, R.E., Ward, P.A.: Free Radicals and Phacoanaphylaxis. Third International Symposium on the Immunology and Immunopathology of the Eye. Masson Publishers. In Press.
5. Fantone, J.C., Duque, R.E., Phan, S.H.: Prostaglandin Modulation of Formyl-Methionyl-Leucyl-Phenylalanine Induced Transmembrane Potential Change in Rat Neutrophils.

6. Duque, R.E., Phan, S.H.: Irreversible Inhibition of Rat Neutrophils by P-Bromophenacyl Bromide Correlation Between Membrane Potential Changes and Secretion. *J. Biol. Chem.*
7. Duque, R.E., Kunkel, S.L., Phan, S.H., Ward, P.A.: Effect of Complement Derived Chemotactic Factors on the Membrane Potential of Human Neutrophils. *Blood.*
8. Kunkel, S.L. and Duque, R.E.: The Macrophage Adherence Phenomenon: Its Relationship to Prostaglandin E₂ and Superoxide Anion Production and Changes in Transmembrane Potential. *Prostaglandins.*
9. Duque, R.E., Phan, S.H., Sulavik, M.C., Ward, P.A.: Effect of Protease Inhibitors on Depolarization of the Transmembrane Potential in Rat neutrophils: Correlation With Superoxide Generation and Enzyme Release. *Fed. Proc.*, 42:385(A), 1983.
10. Duque, R.E., Phan, S.H., Sulavik, M.C., Ward, P.A.: Injury to the Plasma Membrane of Rat Pulmonary Alveolar Macrophage Following Remote Thermal Injury. *Am. Rev. Resp. Dis.*, 127:275(A), 1983.
11. Phan, S.H. and Duque, R.E.: Irreversible Inhibition of Neutrophil Membrane Potential Depolarization by a Phospholipase A-2 Inhibitor. *Fed. Proc.*, 42:1035(A), 1983.
12. Sulavik, M.C., Duque, R.E., Ward, P.A., Johnson, K.J.: Production of Oxygen Free Radicals by Rat Neutrophils and Alveolar Macrophages In Vitro and In Vivo After Stimulation by Immune Complexes. *Fed. Proc.*, 42:700(A), 1983.
13. Fantone, J.C., Duque, R.E., Phan, S.H.: Prostaglandin Modulation of Formyl-Methionyl-Leucyl-Phenylalanine Stimulated Rat Neutrophil Membrane Depolarization. Submitted to 5th International Congress Immunology, Japan 1983.

BARRY G. ENGLAND, Ph.D.
ASSOCIATE PROFESSOR
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
July 1, 1982 - June 30, 1983

I. CLINICAL ACTIVITIES:

- A. Director, Ligand Assay Laboratory (for specific LAL related activities see Laboratory Annual Report).

II. TEACHING ACTIVITIES:

- A. Pathology House Officers laboratory rotation.
- B. Medical Technology Student laboratory rotation.
- C. Medical Student Biochemistry 500.
- D. Medical Technology Student mini-course (two week) on radioimmunoassay techniques.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. New England Nuclear Corporation: Research Grant, Study of Reproductive Endocrinology and Ligand Assay Techniques; Principal Investigator, \$15,000/year; 1976-present.
- B. NIAMDD: Michigan Diabetes Research and Training Center; Director, Ligand Assay Core Facility, \$117,000/year; 1983-1988.
- C. National Cancer Institute: Cancer Research and Training in Nuclear Medicine, Co-Investigator, \$129,000/year; 1978-1983.
- D. Andrew W. Mellon Foundation; Mellon Young Scientist Program in Reproductive Endocrinology, Co-Investigator, \$225,000/three years; 1979-1982.
- E. NICHD: Reproductive Endocrinology Program; Co-Director, Standards and Reagents Core Facility, \$93,211/year; 1979-1984.
- F. NICHD: Training Program in Reproductive Endocrinology, Faculty member, \$150,914/year; 1980-1985.
- G. Ford Foundation: Training Program in Reproductive Endocrinology, Faculty member, \$120,000/year; 1981-1984.

PROJECTS UNDER STUDY:

- A. One of the more active projects under development is the production of monoclonal antibodies against specific epitopes on the surface of various hormones of interest. We have several antibodies against the alpha and beta subunits of human chorionic gonadotrophin (hCG) and are attempting to develop high affinity antibodies against the intact form of hCG. Other substances for

which we are developing antibodies include: parathormone, thyroid stimulationg hormone, luteinizing hormone, follicle stimulating hormone, and two forms of the complement system.

Projects have also been initiated for the production of monoclonal antibodies against the A and B chains of human insulin as well as the intact insulin molecule. These antibodies will be used as probes to identify specific mutational changes in the insulin molecule that appear in certain hereditary forms of diabetes.

- B. Development of the ovulatory follicle in single-bearing animals occurs in the face of atresia and eventual destruction of the vast majority of follicles present on the ovary. We are examining the biochemical and physiological characteristics of the ovulatory follicle that make it unique. These studies are being carried out in sheep and cattle in a joint project with the USDA Experiment Station located in Miles City, Montana.
- C. The Ligand Core Facility of the Diabetes Research and Training Center is charged with the responsibility of providing a wide variety of radioimmunoassay procedures for use by investigators studying diabetes. That laboratory is also heavily involved in the development of new technology that will be of wide spread general use. New procedures developed and placed in routine use during the past year include:
 - 1. Radioimmunoassay for 13,14-dihydro-15-keto prostaglandin $F_2\alpha$.
 - 2. Radioimmunoassay specific for the B chain of insulin.
 - 3. Radioimmunoassay for calmodulin.
 - 4. High performance liquid chromatographic procedure for the determination of the catecholamines is being developed. This procedure is based upon the use of an electrochemical detection system.
 - 5. Purification of radiolabeled probes used in the RIA procedures is being explored using HPLC methodology.

IB. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Director, Ligand Assay Laboratory

MEDICAL SCHOOL/HOSPITAL:

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

REGIONAL AND NATIONAL:

- A. National Education Committee Member, Society for the Study of Reproduction.

B. National Scientific Program Director, Clinical Ligand Assay Society.

V. PUBLICATIONS:

1. Staigmiller, R.B., England, B.G., Webb, R., Short, R.E., Bellows, R.A.L.: Estrogen Secretion and Gonadotropin Binding by Individual Bovine Follicles During Estrus. *J. An. Sci.*, 55:1473-1482, 1982.
2. Webb, R. and England, B.G.: Relationship Between LH Receptor Concentrations in Thecal and Granulosa Cells and In Vivo and In Vitro Steroid Secretion by Ovine Follicles. *J. Reprod. Fert.*, 66:169-180, 1982.
3. England, B.G.: Follicular Development in the Cow and Sheep. University of Arkansas, Experimental Station Special Report, 105:1-19, 1982.
4. Falck, F.Y., Jr., Fine, L.J., Smith, R.G., McClatchey, K.D., Annesley, T., England, B.G., Schork, A.M.: Occupational Cadmium Exposure and Renal Status. *Amer. J. Indust. Med.*, 4:541-549, 1983.
5. Falck, F.Y., Jr., Fine, L.J., Smith, R.G., Garvey, J., Schork, A., England, B.G., McClatchey, K.D., Linton, H.: Metallothionein and Occupational Cadmium Exposure. *Brit. J. Indust. Med.* In Press.
6. Falck, F.Y., Jr., Annesley, T., Fine, L., Smith, R., McClatchey, K.D., England, B.G.: Protein Excretion Patterns in Cadmium Exposed Individuals: High Resolution Electrophoresis. *Rach. Environ. Health.* In Press.
7. Schappa, L.W., England, B.G., Staigmiller, R.B., Brownlee, B.E., Roy, C.W.N.: Effects of Cautery on Follicular Growth. 15th Annual Meeting of the Society for the Study of Reproduction. Madison, Wisconsin, August, 1982.

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

Annual Departmental Report
July 1, 1982 - June 30, 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Autopsy service
- B. Occasional surgical pathology interpretation

II. TEACHING ACTIVITIES:

- A. Member - ICS Operating Council
- B. Coordinator and Lecturer - Sophomore Medical Students (ICS-600) Immunopathology
- C. Lecturer - Clinical Immunology Series for House Officers
- D. Pulmonary Pathology Conference (monthly to Pulmonary Division - Internal Medicine)
- E. Lecturer - Nephrology Research Conference
- F. Lecturer - Allergy Research Conference
- G. Lecturer - Microbiology and Immunology 624
- H. Supervise undergraduate in Laboratory Honors Program
- I. Supervise one medical student in summer research program resulting in the presentation of an abstract at Mid-western Medical Research Forum
- J. University of Michigan Medical School Faculty Conference on Education
- K. Lecturer - Medical Student Research Forum

III. RESEARCH ACTIVITIES:

- A. During the previous 12 months, I have focused my efforts on:
 - 1. Examining the role of prostaglandins in modulating acute inflammatory reactions.
 - 2. Examining the role of oxygen derived metabolites in inflammatory reactions.

GRANT SUPPORT:

- 1. NIH - Clinical Investigator Award (5 yrs.) - Lung Inflammation (NIH-HL-00905)
- 2. Co-investigator: NIH grant Modulation of Acute Inflammatory Reactions in Experimental Diabetes. (Steven L. Kunkel, Ph.D., P.I.)

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

1. Interview resident applicants (20)
2. Chairman's Computer Advisory Committee

MEDICAL SCHOOL/HOSPITAL:

1. Medical student advisor (3rd and 4th years)
2. Participant McNeil workshop on inflammation

REGIONAL AND NATIONAL:

1. Co-chairman - Symposium on mechanisms of lung injury for AAP at FASEB meeting 1983
2. Lecturer - Eastern Michigan University Medical Technologists Program

VI. PUBLICATIONS:

1. Fantone, J.C., Schrier, D., Weingarten, B.: Inhibition of Vascular Permeability Changes by Captopril. *J. Clin. Invest.*, 69:107-111, 1982.
2. Fantone, J.C., Weingarten, B., Kunkel, S.L.: Systemic Prostaglandin Treatment Inhibits Carrageenan Induced Vascular Permeability. *Biochem. Pharm.*, 31:3126-3128, 1982.
3. Fantone, J.C., Geisinger, K.R., Appelman, H.D.: Papillary Adenoma of the Lung with Lamellar and Electron Dense Granules: An Ultrastructural Study. *Cancer*, 50:2839-2844, 1982.
4. Marasco, W.A., Fantone, J.C., Ward, P.A.: N-Formylated Oligopeptides are Potent Spasmogenic Agents for Guinea Pig Ileum. *Proc. Nat. Acad. Sci.*, 79:7470-7473, 1982.
5. Varani, J., Grimstad, I.A., Wass, J.A., Spirnak, J., Fantone, J.C.: Chemotactic Factor-Induced Adherence of Tumor Cells: Involvement of Ca^{2+} and Mg^{2+} . *Invasion and Metastasis*, 2:274-288, 1982.
6. Kunkel, S.L., Kaercher, K., Plewa, M., Fantone, J.C., Ward, P.A.: Production of Cyclooxygenase Products and Superoxide Anion by Macrophages in Response to Chemotactic Factors. *Prostaglandins*, 24:789-799, 1982.
7. Fantone, J.C., Marasco, W.A., Elgas, L.J., Ward, P.A.: Modulation of Rat Neutrophil Function In Vivo by Prostaglandins. *J. Immunol.*, 130:1495-1497, 1983.
8. Marasco, W.A., Fantone, J.C., Ward, P.A.: Characterization of the Rat Neutrophil Formyl Peptide Receptor. *Amer. J. Pathol.*, 111:273-281, 1983.
9. Fantone, J.C., Johnson, K.J., Till, G.O., Ward, P.A.: Acute and Progressive Lung Injury Secondary to Toxic Oxygen Products from Leukocytes. *Chest*, 83:465-485, 1983.
10. Fantone, J.C., Kinnes, D.A.: Prostaglandin E_1 and Prostaglandin I_2 Modulation of Superoxide Production by Human Neutrophils. *Biochem. Biophys. Res. Commun.*, 113:506-512, 1983.

11. Johnson, H., Fantone, J.C., Flye, W.: Thoracotomy and Excisional Lung Biopsy in the Treatment of Pulmonary Metastasis. *J. Surgical Oncol.*, 21:1-4, 1982.
12. Fantone, J.C., Elgas, L.J., Weinberger, L., Varani, J.: Modulation of Tumor Cell Adherence by Prostaglandins: Correlation with Intracellular Cyclic Adenosine 5':5' Monophosphate Levels. *Oncology*. In Press.
13. Fantone, J.C., Ward, P.A.: Chemotactic Mechanisms in the lung. In, "Immunopharmacology of the Lung". H.H. Newball, editor. Marcel Dekker, Inc., New York. p. 243-272, 1983.
14. Ward, P.A., Fantone, J.C., Johnson, K.J.: Lung Injury Produced by Oxygen Metabolites. In, *Immunopathology: VIIIth International Symposium*, Dixon and Miescher, eds. Academic Press. p. 459-473, 1982.
15. Fantone, J.C., Ward, P.A.: Mechanisms of Neutrophil Dependent Lung Injury. In, "Handbook of Inflammation", vol. 4. P.A. Ward ed. Elsevier/North Holland Biomed. Press. In Press.
16. Phan, S.H., Fantone, J.C.: The Effect of Lipopolysaccharide on Bleomycin Induced Pulmonary Fibrosis in Rats (Submitted).
17. Fantone, J.C., Elgas, L.J., Marasco, W.A., Kinnes, D.A., Ward, P.A.: Stimulus Specificity of Prostaglandin Inhibition of Rabbit Polymorphonuclear Leukocyte Lysosomal Enzyme Release and Superoxide Anion Production (Submitted).
18. Fantone, J.C., Marasco, W.A., Elgas, L.J., Ward, P.A.: Anti-Inflammatory Effects of PGE₁: In Vivo Modulation of the Formyl Peptide Chemotactic Receptor on the Rat Neutrophil. *Fed. Proc.* 1983. (abstract)
19. Beauchamp, C., Gilbertson, R.B., Fantone, J., Menapace, D.P.: Disease Modifying Activity of Superoxide Dismutase in Collagen Induced Arthritis in the Rat. *Fed. Proc.* 1983. (abstract).
20. Kunkel, R.G., Fantone, J.C.: Enhancement of ANTU Induced Pulmonary Edema by PGE₁. *Amer. Thorac. Soc.* 1983. (abstract).
21. Park, S., Fantone, J.C., Kunkel, S.L., Ward, P.A.: Acute Lung Injury in Mice After Vascular Infusion of Phorbol Ester. *Amer. Thorac. Soc.* 1983. (abstract).

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

Cytology Rotation: July, September, December, May

II. TEACHING ACTIVITIES:

- A. Sophomore Pathology Course: January-April
- B. ICS Lectures:
 - 1. Chronic Obstructive Pulmonary disease (1 hr)
 - 2. Diffuse Lung Disease (1 hr)
 - 3. Pulmonary Vascular Disease and Pulmonary Emboli (1 hr)
 - 4. Inhalational and Occupational Lung Disease (1 hr)
 - 5. Pleural Disease (1 hr)
- C. Towsley Center Anatomic Pathology Update Series
 - 1. The Pulmonary Vasculitides
 - 2. The Interstitial Lung Diseases .
- D. Group Leader: M4 student elective, February, 1983
- E. Pulmonary Pathology - Pizza Seminar
- F. Pulmonary Pathology Didactic Seminars for Resident Staff
- G. Pathology - Pulmonary Medicine Conference (monthly)

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- 1. Pathology Consultant, Control of Thrombosis during Extracorporeal Circulation, Michael D. Klein, M.D. Principle Investigator
- 2. Pathology Consultant, A Comparative Study using Conventional Radiography, Conventional Tomography, Computed Tomography, and Nuclear Magnetic Resonance Imaging, Gary N. Glazer, M.D., Co-Investigator

PROJECTS UNDER STUDY:

- 1. Cervical Vaginal epithelial cells (normal versus dysplastic and neoplastic epithelial cells)
- 2. A study comparing the relative efficacies of pleural biopsy and the cytologic examination of effusions in the evaluation of patients with pleural effusions
- 3. Cytologic examination of bile drainage material as an aid to the diagnosis of hepatobiliary tree disorders
- 4. Comparison of various methods of cytocentrifugation with filter preparations of cytologic material

5. Retrospective analysis of Hodgkin's disease: Prognostic significance of subclassifications, in collaboration with other Lymphoma Panel members, Southeastern Cancer Study Group (2nd year of 2 year study)
6. An analysis of the histologic and cytologic characteristics of the papillary variant of renal cell carcinoma

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

1. Resident's teaching conference coordinator

MEDICAL SCHOOL/HOSPITAL:

None.

REGIONAL AND NATIONAL:

1. Member, Legislative Affairs Committee, Michigan Society of Pathologists

V. OTHER RELEVANT ACTIVITIES:

- A. Panel Discussant: The Pulmonary Vasculitides. American College of Chest Physicians, Toronto, Canada, October, 1982
- B. Guest Pathologist, Tri State Thoracic Society Conference, Biloxi, Mississippi, January, 1983
- C. Panel Member, Lymphoma Review Panel, Southeastern Cancer Study Group
- D. Pulmonary Pathology Review Course, part of Pathology Board Review Course, Columbus, Ohio, May, 1983
- E. Presentation of Abstract, "Infarction and Squamous Metaplasia of Intraductal Papillomas, "International Academy of Pathology, Atlanta, Georgia, March, 1983

VI. PUBLICATIONS:

1. Kheir, S.M., Flint, A., Moss, J.A.: Primary Aspergillosis of the Larynx Simulating Carcinoma. *Human Path.*, 14:184, 1982
2. Polt, S.S., Dismukes, W.E., Flint, A., Schaefer, J.: Human Brucellosis Caused by Brucella Canis. *Ann. Int. Med.*, 97:717, 1982
3. Schnitzer, B., Lovett, E.J., Flint, A., Hudson, J.C., Kahn, L.E., Bricker, L.J., Griffin, J.D.: Microgranular Acute Promyelocytic Leukemia Diagnosed by Flow Cytometry. *New Eng. J. Med.* In Press.
4. Flint, A., Oberman, H.A.: Infarction and Squamous Metaplasia of Intraductal Papillomas: A Benign Breast Lesion that may Simulate Carcinoma. *Lab Invest.*, 48:25A, 1983 (Abstract).

5. Whitcomb, C.C., Cousar, J.B., Flint, A., Crissman, J.D., Barrolucci, A.A., Gams, R.A., Durant, J.R., Collins, R.D., Byrne, G.E.: Lymphomas of Small Cleaved Cells: Is Growth Pattern a Significant Prognostic Factor? The Southeastern Cancer Study Group Experience, *Lab Invest.*, 48:91A, 1983 (Abstract).
6. Whitcomb, C.C., Crissman, J.D., Byrne, G.E., Flint, A., Cousar, J.B., Collins, R.D.: Inconsistencies in Classification of Non-Hodgkin's Lymphomas Using the Lukes-Collins System: The Southeastern Cancer Study Group Experience. *Lab. Invest.*, 48:91A, 1983 (Abstract).
7. Flint, A., Murad, T.J.: Malakoplakia-Like Lesions of the Upper Gastrointestinal Tract. Submitted.
8. Cookingham, C.L., Flint, A.: The Cytologic Diagnosis of Papillary Renal Cell Carcinoma. *Acta Cytol.*, 27:569, 1983 (Abstract).
9. Flint, A., Restom, N., Hudson, J.L., Schnitzer, B.: Morphologic Analysis of Immunologically Distinctive Hematopoietic Cells. *Acta Cytol.*, 27:570, 1983 (Abstract).
10. Whitcomb, C.C., Crissman, J.D., Byrne, G.E., Flint, A., Cousar, J.B., Collins, R.D.: In Consistencies in Classification of Non-Hodgkins Lymphomas using the Lukes-Collins System. The Southeastern Cancer Study Group Experience. Submitted.
11. Flint, A., Oberman, H.A.: Infarction and Squamous Metaplasia of Intraductal Papillomas: A Benign Breast Lesion which may Simulate carcinoma. *Human Pathol.* In Press.
12. Fulmer, J.D., Flint, A., Law, D.E.: Experimental Granulomatous Lung Disease in Guinea Pigs: Morphology and Collagen Analysis. Submitted.
13. Flint, A., Restom, N., Hudson, J.L., Kahn, L.E.: The Preparation of Electronically sorted Hematopoietic cells for Visual Analysis. Submitted.

BETTY ANN FORBES, PH. D.
RESEARCH ASSOCIATE II
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Research Associate, Division of Infectious Diseases, Department of Medicine - Clinical Research and Development
- B. Coordinator of Clinical Laboratory teaching and research, infectious disease liaison

II. TEACHING ACTIVITIES:

- A. Daily clinical microbiology laboratory rounds, coordinator
- B. Pathology resident laboratory rotation, coordinator

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

Principle investigator. Antimicrobial Removal Device, Marion Laboratories, Inc., 1982-83, \$25,000 (Co-investigator, K.D. McClatchey)

PROJECTS UNDER STUDY:

Evolution of drug resistance in staphylococci - co-investigator with D. Schaberg, M.D., Division of Infectious Diseases

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: None

MEDICAL SCHOOL/HOSPITAL: None

REGIONAL AND NATIONAL:

Course associate director for spring symposium - Current Concepts in Clinical Microbiology. The Towsley Center, The University of Michigan, June, 1983

V. OTHER RELEVANT ACTIVITIES:

A. Presentations:

- 1. Forbes, B.A., D. Schaberg, and K. McClatchey. Subinhibitory concentrations of MK0787 induce increased resistance to

- methicillin and MK0787 in vitro in MRSA. ICAAC, 1982, Miami Beach
2. Schaberg, D., B. Forbes, C. Power. Conjugative gentamicin R-plasmids in clinical isolates of S. aureus. ICAAC, 1982, Miami Beach
 3. Schaberg, D., J. Betzold, B.A. Forbes. Evidence for a common genetic element in gentamicin-resistant S. aureus isolates from different geographic locations. ICAAC, 1983

VI. PUBLICATIONS:

1. Forbes, B.A., Schaberg, D.R.: Transfer of Resistance Plasmids From Staphylococcus Epidermidis to Staphylococcus Aureus: Evidence for Conjugative Exchange of Resistance. J. Bacteriol., 153:627-634,1983.
2. Blaser, M.J. et al.: (Collaborative Diarrhial Disease Study Group). Campylobacter Enteritis in the United States. Ann. Int. Med., 98:360-365, 1983.
3. Forbes, B.A., McClatchey, K.D., Schaberg, D.P.: Subinhibitory Concentrations of N-Formimidayl Thienamycin (MK0787) Induce Increased Resistance to Methicillin and MK0787 In Vitro in Methicillin-Resistant Staphylococcus aureus. Antimicrob. Agents Chemother., 1983.
4. Kish, M.A., Buggy, B.P., Forbes, B.A.: Achromobacter Species Bacteremia in a Immunocompromised Host. Antimicrob. Agents Chemother., 1983.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Laboratory Data Center (LDC), Director.
 - 1. Installation of an upgrade of the clinical laboratory computer system entailing contract negotiations, planning for the installation, and going live with the new system on 29 June 1983.
 - 2. Chairman of the Reference Range Work Group which is working with the departmental biostatistician to enhance the patient cumulative report and to refine quality control methodologies within the various clinical laboratories.
- B. Phlebotomy Team, Director.
- C. Blood Bank, Associate Director.

II. TEACHING ACTIVITIES:

- A. Clinical Laboratory Computers: Symposium 1983.
 - 1. Development of a new postgraduate symposium at the Towsley Center which was held on 16-17 June 1983.
 - 2. The course attracted 170 paid registrants from around the country and nine vendors of laboratory computer systems.
- B. Lecturer at two additional departmental conferences at the Towsley Center.
 - 1. The Phlebotomy Team Annual Spring Conference.
 - 2. The Spring Conference on Clinical Chemistry and Immunology.

III. RESEARCH ACTIVITIES:

- A. Using DRG's to establish a national blood utilization monitoring network (in cooperation with the Blood Resources Branch of the NHLBI).
- B. Reasons for laboratory test cancellations.
- C. Misfiling of laboratory reports when patients with the same name are located in the same hospital unit.
- D. Timing of computer-generated laboratory reports.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- 1. Departmental Advisory Committee on Appointments, Promotions, and Titles.
- 2. Departmental Coordinator for the RHP Capital Campaign.

MEDICAL SCHOOL/HOSPITAL:

1. Medical Record Work Group, Chairman.
2. Quality Assurance Committee.
3. Quality Assurance Executive Committee.
4. Patient Care Evaluation Committee.
5. Physicians' Advisory Committee to the Laboratory Data Center, Chairman.
6. University Ad Hoc Committee on Grievance Mechanisms.

REGIONAL AND NATIONAL:

1. Review Committee for the Academic Transfusion Medicine Award, NHLBI, 27-28 June 1983.
2. Chairman, Clinical Laboratory Section of the Medical Information Processing Track, Hawaii International Conference on System Sciences.

V. OTHER RELEVANT ACTIVITIES:

- A. Lectures and Workshops:
1. Trends in blood ordering practices. Chicagoland Blood Bank Society, Chicago, Illinois. 16 September 1982.
 2. Effective blood utilization in hospitals. Immunohematology Society of New Jersey, East Orange, New Jersey. 18 October 1982.
 3. Efficient and effective utilization of blood. A workshop sponsored by the American Society of Clinical Pathologists at the Fall Meeting, Miami Beach, Florida. 21 October 1982.
 4. Potential applications for computer monitoring of blood utilization in hospitals. Sixteenth Annual Hawaii International Conference on System Sciences, Honolulu, Hawaii. 7 January 1983.
 5. Trends in transfusion practice. Annual meeting of the Council of Community Blood Centers, Scottsdale, Arizona. 21 February 1983.
 6. Blood Bank inventory control. Blood utilization in the United States. Red Cross Regional Blood Center Directors' Symposium, St. Louis, Missouri. 14 June 1983.

VI. PUBLICATIONS:

1. Friedman, B.A., Abbott, R.D., Williams, G.W.: A Blood Ordering Strategy for Hospital Blood Banks Derived From a Computer Simulation. *Transfusion*, 78:154-160, 1982.
2. Friedman, B.A.: Potential Applications for Computer Monitoring of Blood Utilization in Hospitals. *Proceedings of the Sixteenth Annual International Conference on System Sciences*, Vol. II., pp. 300-314, 1983.
3. Samra, S., Friedman, B.A.: A Study of Blood Utilization in Association With Hysterectomy. *Tranfusion*. In Press.

4. Friedman, B.A.: A Technique for Monitoring the Placement of Computer-Generated Laboratory Reports in Patients Medical Records. Seventh Annual Symposium on Computer Applications in Medical Care. In Press.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Clinical Chemist for the Chemical Pathology Laboratory
 - 1. Responsible for research and new test development, methods improvement, house officer and medical technologist training, and clinical consultations for the laboratory.
- B. New Tests Introduced
 - 1. Evaluated and implemented the assay of total and direct bilirubin for Pediatric samples on the Beckman Astra.
 - 2. Responsible for evaluation and introduction of tests on the Cobas-Bio Centrifugal Analyzer, including:
 - a. Total iron binding capacity
 - b. Leucineaminopeptidase (LAP) by a kinetic method
 - c. Triglycerides
 - d. HDL cholesterol
 - e. Urine protein by dye binding
 - f. Aldolase by a kinetic method.
 - g. Ceruloplasmin

II. TEACHING ACTIVITIES:

- A. Coordinator, Laboratory Continuing Education In-Service Program, Clinical Chemistry
 - 1. Coordinate resident case discussions and journal review presentations.
 - 2. Six hours of lecture on special topics in Clinical Chemistry
- B. Clinical Pathology Conference Lectures
 - 1. "Tumor Markers in Clinical Chemistry"
 - 2. "Alternative Instrumentation for the Laboratory"
- C. Course Planning Committee, Towsley Center Conference on Clinical Chemistry and Immunology
- D. Lecture on Bilirubin Chemistry at Clinical Chemistry and Immunology Conference, Towsley center.
- E. Three lecture hours on Steroids to the Medical Technology Program.
- F. Resident training - daily during Chemistry rotation.

III. RESEARCH ACTIVITIES:

PROJECTS UNDER STUDY:

- 1. Evaluation of the usefulness of the protein creatinine ratio on a spot urine sample as a replacement of the 24 hour urine total protein determination. (with R. Wiggins)

2. Measurement of retinol and synthetic analogs by HPLC (with T. Annesley, R. Grekin)
3. Project Participant - Mucosal and Systemic response to protein-carcinogen conjugates. D.F. Keren, PI.
4. Analysis of urinary and erythrocyte porphyrins by HPLC.
5. Characterization of a serum antibody specific for LDH.
6. Measurement of blood levels of Cyclosporin A. (with T. Annesley)
7. Evaluation of methods for the quantitation of amylase isozymes in serum.
8. Purification of a serum factor responsible for the conversion of creatine kinase MM sub-isozymes (with T. Annesley).

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

1. Member, Reference Range Work Group. Coordinated recruitment of donors, sample distribution and analysis for the evaluation of reference ranges in Chemistry, Hematology, Immunology, and Flow Cytometry.

V. OTHER RELEVANT ACTIVITIES:

None

V. PUBLICATIONS:

1. Annesley, T., Giacherio, D., Wilkerson, K., Grekin R., Ellis C.: Analysis of Retinoids by HPLC Using Programmed Gradient Elution. Journal of Chromatography.
2. Giacherio D., Pierides A.M., Schniepp B., Burritt M.: Calcium Metabolism in Chronic Post-Dilutional Hemofiltration. Clin. Chem., 28:1578, 1982.
3. Giacherio D., Homburger H.: Autoantibodies to β_2 -Adrenoreceptors: False Positive Results Caused by Serum Proteases. Clinical Research, 30:704, 1982.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Necropsy Service - 1 month
- B. Surgical Pathology - 2 months
- C. Cytopathology - sporadic assignment to cover service when regular staff is away
- D. Diagnostic EM - share nephropathology work with Dr. Johnson - tumor diagnosis
- E. Consultation service for Uro-pathology
- F. Conduct monthly conference in Urologic Pathology with Urology Section
- G. Conduct monthly biopsy conference with Arthritis Section
- H. Participate in weekly Renal Biopsy Conference with Dr. Johnson

II. TEACHING ACTIVITIES:

- A. Sophomore Pathology Lab Section
- B. Lecture to sophomore class on Pathogenesis of Highway Injuries
- C. Lecture to sophomore class on Testicular Disease

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None

PROJECTS UNDER STUDY:

- A. Collaborate with urology staff on projects from time to time

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- 1. Assumed Directorship of Necropsy Service July 1, 1983

MEDICAL SCHOOL/HOSPITAL:

- 1. Hospital Disaster Committee

UNIVERSITY:

1. Faculty Representative to Big Ten Intercollegiate Conference and NCAA

REGIONAL AND NATIONAL:

1. Board of Directors, Physicians for Automotive Safety
2. Board of Directors, Public Citizen, Inc. (Ralph Nader, initial Chairman and Founder)
3. Invited to present paper on "Occupant Injuries in Automobile Crashes: Pathogenesis and Prevention" at AMA conference on Prevention of Disabling Injuries in Miami, Florida, May 20, 1983
4. Course Director, Causes and Prevention of Highway Injuries, Michigan State Medical Society Annual Scientific Meeting, Dearborn, Michigan, November 9, 1982
5. Invited to present lecture, "Prescription for Survival in a Highway Crash" at 90th Annual Meeting of the Upper Peninsula Medical Society, Iron Mountain, Michigan, June 24, 1983
6. Deputy Medical Examiner, County of Washtenaw

V. OTHER RELEVANT ACTIVITIES: None

VI. PUBLICATIONS:

1. Chapter, "Forensic Aspects of the Highway Crash" in Pathology Annual 1983 Part II, edited by S.C. Sommers and P.P. Rosen. Appleton-Century-Crofts. New York. In press.
2. Lloyd, R.V., Gikas, P.W., Chandler, W.F.: Prolactin and Growth Hormone-Producing Pituitary Adenomas. Am. J. Surg. Pathol., 7:251-260, 1983.

SANDRA C. GLUCK
INSTRUCTOR IN PATHOLOGY
PROGRAM DIRECTOR, MEDICAL TECHNOLOGY
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

None

II. TEACHING ACTIVITIES:

- A. Planned, coordinated, and implemented Pathology 410 and 412 winter and spring term courses for Medical Technology students. Identified topics and scheduled guest lecturers. Carried sole responsibility for some topics and student exercises.
- B. Cooperated with Barbara Barnes in planning and presenting an in-service program for all Pathology clinical laboratory technologists involved in teaching on the bench.
- C. Presented a lecture on MT profession in an LSA Residential College course.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Pathology Department - sponsored statewide survey of hospital and independent laboratories to determine present and future hiring practices for medical laboratory workers.

PROJECTS UNDER STUDY:

- A. Development of new test to rate MT program applicants on attitudinal, non-cognitive qualities.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Administration of Medical Technology program
- B. Liaison with LSA and Medical School
 - 1. Counseled all students interested in MT curriculum.
 - 2. Managed all student records; revised and updated all published material regarding MT curriculum.
 - 3. Maintained contact with all LSA and Medical School staff involved with MT program and students.

- C. Public relations
 - 1. Recruitment, program publicity, and admission of students
 - 2. Laboratory tour program for undergraduates
 - 3. Public school career programs
 - 4. Planning and implementation of Laboratory Week publicity and Hospital display

MEDICAL SCHOOL/HOSPITAL:

- A. Participated in Hospital Allied Health Education Program Directors' meetings
- B. Participated in Laboratory Communications Committee meetings

REGIONAL AND NATIONAL:

- A. Program Committee for 1984 Region IV ASMT meeting
- B. Organizing and planning committee for new regional continuing education group (Clinical Laboratory Educational Consortium)

V. OTHER RELEVANT ACTIVITIES:

- A. Participation in annual meeting of state MT program directors
- B. Attendance at state and national professional society meetings (MSMT and ASMT)
- C. Member of Promotion Board for position of Education Coordinator of Medical Technology program at Wayne County General Hospital
- D. Consultant to University of Michigan-Flint Medical Technology Program

VI. PUBLICATIONS:

None

ROBERT T. GOLDMAN, M.D.
CLINICAL ASSISTANT PROFESSOR
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
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I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Wayne County General Hospital
- B. Surgical Pathology, Necropsies, Cytology
- C. Director - Emergency Laboratory
- D. Director - Chemistry Laboratory

II. TEACHING ACTIVITIES:

- A. Resident Supervision

III. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Assistant Department Director
- B. Chairman, Credential Committee
- C. Chairman, Radioisotopes Committee

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 1982 - 30 June 1983

I. CLINICAL ACTIVITIES:

None

II. TEACHING ACTIVITIES:

A. D.D.S. LEVEL

- 1.) Oral Pathology 625. Oral Pathology Laboratory (1 credit)
(Laboratory teaching two afternoons per week, with one hour
of lecture one of those afternoons). (Winter term, sophomore
year).

B. DENTAL HYGIENE

- 1.) Oral Pathology 293. General and Oral Pathology Lectures (2
credits). (Course director and principal lecturer - 28 of 32
lectures). (Winter term, junior year).
- 2.) Oral Pathology 323. Clinical Oral Pathology Lectures (2
credits) (Course director and principal lecturer - 16 out of
26 lectures) (Fall term; senior year).

C. GRADUATE LEVEL

- 1.) Dental Hygiene 684. Seminars in General and Oral Pathology
(1 credit). (Course director; runs 9 out of 13 seminars).
(Fall term).
- 2.) Oral Pathology 698. Graduate seminar in Oral Pathology (1
credit). Histopathology seminar, 2 hours, participant).
(Fall & Winter term).
- 3.) Oral Pathology 694. Graduate Core course in Advanced Oral
Pathology (2 credits). (One or two, 2 hour lectures). (Fall
term).

[NOTE: During the upcoming Fall Semester (1983), I will teach a
lab section in Pathology 631 (General Pathology Laboratory
for Dental Students), a course which I participated in from
1970 through 1980, inclusively.]

III. RESEARCH ACTIVITIES:

1. INTERESTS:

- a) Morphogenesis, differentiation and function as it occurs and varies in embryogenesis, regeneration (and repair), hyperplasia and neoplasia. Tissues which have been studied in this respect are salivary glands, integumental epithelium, dermis and bone.
- b) Biocompatibility of synthetic materials (prosthetic materials, bioengineered devices) with living tissue. This includes cytotoxicity testing in cell and organ culture, mutagenesis, carcinogenesis as well as inflammatory events such as chemotaxis, vasoactivity, and immune responses such as lymphocyte transformation.

2. FUNDED RESEARCH THIS YEAR

- a) 1979-1983 Sybron/Kerr - Electromagnetic Stimulation of Bone and Connective Tissue Growth: Tissue Culture Studies.
- b) 1983 - 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.

IV. ADMINISTRATIVE ACTIVITIES:

1. DENTAL SCHOOL AND DEPARTMENT OF ORAL PATHOLOGY, UNIVERSITY SCHOOL AND DEPARTMENT OF ORAL PATHOLOGY, UNIVERSITY SCHOOL AND DEPARTMENT OF ORAL PATHOLOGY, UNIVERSITY OF MICHIGAN

- a) Master's Degree Thesis Committee for Dr. Byron Scott, Dept. of Orthodontics.
- b) Master's Degree Thesis Committee for Dr. Richard Beavers, Dept. of Endodontics.
- c) Educational Affairs Committee, School of Dentistry.
- d) Electron Microscope Facility Advisory Committee, School of Dentistry and Institute of Dental Research.

2. UNIVERSITY

- a) Library Advisory Council (SACUA)
- b) Biomedical Research Council
- c) Scientific Advisory Committee, Dental Research Institute

V. OTHER RELEVANT ACTIVITIES:

a. PROFESSIONAL ORGANIZATIONS:

1. International Association for Dental Research
2. American Academy of Oral Pathology
3. American Association for Advancement of Science
4. Omicron Kappa Upsilon
5. Tissue Culture Association (Nation)
6. Michigan Biomedical Materials and Prosthetic Group
7. Bioelectrical Repair and Growth Society
8. New York Academy of Sciences

b. REVIEWER FOR JOURNALS:

1. Journal of Dental Research
2. Journal of the American Dental Association

- c. Session organizer for International Workshop on Pulp Biology to be held at the University of North Carolina (Charlotte campus) in June, 1984. The session is entitled Cells and Extracellular Matrix of the Dental Pulp.

VI. PUBLICATIONS (1982-1983):

1. Hanks, C.T., Bergenholtz, G.: In Vitro Protein Synthesis in Presence of Ca(OH)₂ -Containing Pulp Capping Agents, (accepted for publication) J. Oral Pathology, 1983.
2. Strikwerda, S., Hanks, C.T., Bergenholtz, G.: In Vitro Protein Synthesis in Presence of Three Pulp Capping Agents. I.A.D.R. Abstracts, 60th annual meeting, #808, 1982.
3. Teaching Manual for Oral Pathology 625.
Oral Pathology: Clinical - Microscopic Correlations
Regezi, J.A., Courtney, R.M., Passo, S.A. and Hanks, C.T., The University of Michigan, School of Dentistry, 1982 (published).

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

A. Clinical Dermatology

II. TEACHING ACTIVITIES:

- A. Medical Students
 - 1. Dermatopathology lectures
- B. Pathology and Dermatology House Officers
 - 1. Dermatopathology
- C. Dermatology House Officers
 - 1. Clinical Dermatology

III. RESEARCH ACTIVITIES:

None

SPONSORED SUPPORT:

Burroughs Wellcome Travel Grant

PROJECTS UNDER STUDY:

- A. Androgenetic alopecia
- B. Alopecia areata
- C. Dermal dendritic cells
- D. Cutaneous lipomas

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Pigmented Lesion Clinic
- B. Director, Histochemistry Laboratory

MEDICAL SCHOOL/HOSPITAL:

- A. Co-director, Clinical Microbiology Laboratory
- B. Acting Chairman, Department of Dermatology (in Dr. Voorhees' absence)

REGIONAL AND NATIONAL:

- A. Director, Advanced Dermatopathology, The American Academy of Dermatology
- B. Director and Presenter, Advanced Dermatopathologic Oncology (Short Course), The International Academy of Pathology
- C. Director, Annual Dermatopathology Symposium, The International Academy of Pathology

V. OTHER RELEVANT ACTIVITIES:

- A. President, The American Society of Dermatopathology
- B. Editorial Board, The Archives of Dermatology
- C. Editorial Board, The Journal of Cutaneous Pathology
- D. Senior Editor, Dermatopathology (textbook)
- E. Member, NIH Consensus Conference Planning Committee (Precursors to Melanoma)

VI. PUBLICATIONS:

1. Padilla, R.S., Flynn, K., Headington, J.T.: Epithelioid Sarcoma. Enzyme Histochemical and Electron Microscopic Evidence of Histiocytic Differentiation. A Case Report With Review of the Literature. J. Am. Acad. Dermatol.
2. Solomon, A.R., Headington, J.T.: An Evaluation of Vertical Growth of Thin Superficial Spreading Melanomas by Serial Sections. Cancer.
3. Chanda, J.J., Headington, J.T.: Primary Granulomatous Dermatitis Caused by Rhodochrous: Evidence for a Pathogenic Role in Humans. Arch. Dermatol.
4. Headington, J.T.: Enzyme Histochemical Probes of the Dermal-Epidermal Interface Using Thin Frozen Sections. Clin. Res.
5. Siegle, R.J., Headington, J.T., Swanson, N.A.: Early Invasive Carcinoma of the Vulva Treated with Mohs Microscopically Controlled Surgery. Obst. Gynecol.
6. Headington, J.T., Novak, E.: Clinical and Histological Studies of Androgenetic Alopecia Treated with Topical Minoxidil. Arch. Dermatol.
7. Headington, J.T.: Transverse Microscopic Anatomy of the Human Scalp: A Basis for a Morphometric Approach to disorders of the hair follicle. Arch. Dermatol.
8. Case, P.C., Mitchell, A.J., Swanson, N.A., Vanderveen, E.E., Ellis, C.N., Headington, J.T.: Topical Therapy of Alopecia Areata with Squaric Acid Dibutylester. J. Am. Acad. Dermatol.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Pediatric Surgical Pathology - daily, all year
- B. Pediatric Necropsies - daily, all year
- C. Pediatric Consultation Cases - daily, all year
- D. Bone Consultation Cases - intermittent backup for Lee Weatherbee
- E. Teratology Unit - Histology, as necessary, approximately 30 cases per year
- F. Children's Cancer Study Group - coordinate all pathological material and data necessary for all children registered in national tumor protocols

II. TEACHING ACTIVITIES:

- A. One full class M2 lecture
- B. Inteflex students - organized, coordinated and participated in "Congenital Heart Day"
- C. M4: Pediatric Surgical Pathology, all year, while they were on their pathology electives
- D. House Officers in Pathology - daily reading of pediatric surgicals.
- E. House Officers in Pathology - Gross and microscopic supervision of most pediatric necropsies
- F. Surgical Pathology Conference - 1 hour/week
- G. Gross Autopsy Conference - 1 hour/week
- H. Supervised M4s on Pathology elective, 1 rotation (4 weeks)
- I. Seminar for house officers on congenital heart disease (1.5 hours)
- J. Attended monthly staff histopathology conference for house officers 1.5 hours/month
- K. Towsley AP Conference - 1.5 hour lecture/workshop on congenital heart disease
- L. Conferences
 - 1. Pediatric Cardiology Death Conference - monthly
 - 2. Pediatric Tumor Conference - twice monthly
 - 3. Pediatric Liver/G.I. Conference - monthly
 - 4. CPC/General Death Conference - approximately bimonthly

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
- D. Study of pulmonary vascularity in SIDS
- E. Study of lung development in RDS of newborn

SPONSORED SUPPORT: None

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.
- C. Several case reports with pediatricians and/or surgeons concerning lung cysts, genetic causes of cirrhosis and an unusual variant of Wilms' tumor
- D. Ongoing histologic studies of myocardium in hypoplastic left heart syndrome; working with cardiac surgeons to establish criteria for surgical correction.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Departmental ACAPT

MEDICAL SCHOOL/HOSPITAL:

- A. Executive Committee for Mott/Women's/Holden Unit

REGIONAL AND NATIONAL:

- A. Chairman of the Pediatric Pathology Club's Study Committee on Feasibility/Applicability of Anatomic Pathology Boards
- B. Continued in three-year term as Councilor of the Pediatric Pathology Club

V. PUBLICATIONS:

1. Sander, C.H., Martin, J.N., Rogers, A.L., Barr, M., Heidelberger, K.P.: Perinatal Infection with Torulopsis Glabrata: Report of a Case Associated with Maternal Sickle Cell Anemia. Obst. Gyn., 61:S21-24, 1983.
2. Barr, M., Heidelberger, K.P.: Short Umbilical Cord: Cause or Effect of Fetal Anomalies? Proc. Greenwood Genetics Center, 2:100-101, 1983.
3. Lemmer, J.H., Coran, A.G., Behrendt, D.M., Heidelberger, K.P., Stern, A.M.: Liver Fibrosis (Cardiac Cirrhosis) Five Years Following Modified Fontan Operation for Tricuspid Atresia. J. Thoracic Cardiovasc. Surg. In Press.

ROBERT C. HENDRIX, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
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I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Surgical Pathology - 2-1/2 months assigned
Frequent and sometimes prolonged substitution
- B. Autopsy Service
 - 1. General supervision
 - 2. Four months immediate supervision
 - 3. Frequent and sometimes prolonged substitution
 - 4. Forensic pathology

II. TEACHING ACTIVITIES:

- A. Medical Students
 - 1. Coordinator, Medicine & Law Sequence, Clinical Medicine 500
 - 2. Lecture on Forensic Pathology, Pathology 600
- B. House Officers
 - 1. Autopsy supervision and teaching
 - 2. Surgical diagnoses supervision and teaching
 - 3. Gross conference
 - 4. Brain cutting (with Dr.Hicks)
 - 5. Formal presentations on Forensic Pathology
- C. Internal Medicine CPC's
- D. Lecture to National Society of Histotechnologists, Region IV

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT: None

PROJECTS UNDER STUDY:

- A. Melanotic lesions of conjunctiva (with J.R. Wolter)

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: None

MEDICAL SCHOOL/HOSPITAL:

- A. Tissue Committee
- B. Cancer Work Group
- C. Consultation on planning autopsy room in RHP

REGIONAL AND NATIONAL:

- A. Deputy Medical Examiner, County of Washtenaw
- B. Chairman, Forensic Pathology Committee, Michigan Society of Pathologists

V. OTHER RELEVANT ACTIVITIES:

- A. Liaison with Hospital Attorney, Patient-Staff Relations Office, and outside attorneys
- B. Supervision of coding of surgical specimens
- C. Correspondence concerning transmittal of surgical material to other laboratories

VI. PUBLICATIONS: None

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

Annual Departmental Report
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I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Work with house officers and staff in gross and microscopic examination and diagnosis of brains at the autopsy and from autopsies, and neurosurgical and other nervous system biopsy material from University Hospital; and in the same way with material sent for consultative study from University-associated hospitals, state hospitals, and other hospitals and institutions.
- B. Brain Cutting Conference, weekly, for diagnosis and demonstration of diagnostic methods, and teaching, using selected cases in A and B.
- C. Continuous quality control of neuropathologic techniques for diagnosis and search for better ones.
- D. Responsibility for Neuropathology Laboratory.

II. TEACHING ACTIVITIES:

- A. Neural and Behavioral Sciences 600, Neuropathology for second-year medical students, and others, including Inteflex-4 students, annually, 20 hours. Lectures and laboratories.
- B. Neuropathology for Pathology house officers. This exercise is integrated with Clinical Activities A and B.
- C. Neuropathology 858. Intensive laboratory-lecture course for house officers in Pathology, and the several clinical services concerned with the nervous system, graduate students, and faculty, 18 hours. One credit hour elective.
- D. Teach neuropathologic techniques, basic neuroanatomy and neuropathology to our laboratory technologists.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- 1. USPHS grant NS 10531, concluded July 1, 1983.
- 2. U of M Biomedical Research Council Support Grant, 1983, concluded July 1, 1983.

PROJECTS UNDER STUDY:

- 1. Experimental work centers on the mechanisms of recovery by regenerative regenerative processes in the fetus (rat) after severe destructive injury or other alteration, and why this capacity may

fail, as it often does, producing malformation. A center of interest is the basement membrane and other extracellular matrix components associated with interactions between the neuroepithelium of the early forebrain and brainstem and the adjacent mesenchyme. Developmental events are particularly prone to go awry in these regions resulting in cerebral hemisphere disease and aqueduct stenosis with hydrocephalus.

In another area, studies on possible environmental factors in the promotion of presenile and senile Alzheimer's diseases continue. (See VI. PUBLICATIONS below.)

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

A. Inferred from this report

MEDICAL SCHOOL/HOSPITAL:

1. Neural and Behavioral Sciences Curriculum Committee (Medical School)
2. Neural and Behavioral Sciences Examinations Committee
3. Subcommittees on Human Use of Radioisotopes and on Radioactive Drug Research

REGIONAL AND NATIONAL:

1. Reviewer for National Science Foundation research grant applications
2. Referee submitted journal articles, review books

V. OTHER RELEVANT ACTIVITIES:

None

VI. PUBLICATIONS:

1. Hicks, S.P., D'Amato, C.J.: Further Studies of Hopping Rats Produced by Prenatal Irradiation. Proceedings of 12th Annual Meeting, Society for Neuroscience, Minneapolis, MN, (Abstract and poster exhibit). Neurosc. Abst., 8, 996, 1982.
2. Glover, R.A., D'Amato, C.J., Hicks, S.P.: Basement Membrane-Neuro-Epithelial Interrelations in the Etiology of Genetic Aqueductal Stenosis with Hydrocephalus. 35th Annual Meeting of the American Academy of Neurology, San Diego, CA, (Abstract and poster exhibit, Neurology, 33, 221, 1983).
3. Hicks, S.P., D'Amato, C.J., Glover, R.A.: Recovery and Failure of Recovery After Fetal Radiation and Other Injuries. In: The Behavioral Biology of Early Brain Damage. C.R. Almli and S. Finger (editors), New York: Academic Press. In Press, 1983.

4. Bertoni, J.M., Label, L.S., Sackellares, J.C., Hicks, S.P.: Supranuclear Gaze Palsy in Familial Creutzfeldt-Jakob Disease. Arch. Neurol. In Press, 1983.
5. Glover, R.A., D'Amato, C.J., Hicks, S.P.: A New Cell Surface Relationship Between Neuroepithelial Cells During Rat Neural Tube Development. Exper. Neurol. In Press, 1983.
6. Louis, D.S., McGillicuddy, J., Houston, T., Green, T., Hicks, S.P. D'Amato, C.J.: Light Microscopic Appearance of Nerve Cell Body Following Primary and Delayed Peripheral Nerve Repair. (Abstract) Submitted Amer. Soc. Surg. Hand, 1983.
7. Miller, F.D., Brix, K.A., D'Amato C.J., Hicks, S.P.: A Descriptive Study of Neuritic Plaques and Neurofibrillary Tangles in an Autopsy Population. In preparation, 1983.
8. D'Amato, C.J., Hicks, S.P., Glover, R.A.: Genetic Prenatal Aqueduct Stenosis with Hydrocephalus in Rat. In Preparation, 1983.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

1. Director, Cytometry Program Research and Development
2. Coordinator - Department of Pathology Clinical Cytometry Conference

II. TEACHING ACTIVITIES:

1. Lectures: Immunotoxicology, Lecture in Essentials of Toxicology, EIH 541, Program in Toxicology, School of Public Health, University of Michigan, November, 1982.
2. Lectures: Cytometry: Theory and Instrumentation, Bioengineering 890 seminar, Bioengineering Program, School of Engineering, University of Michigan, November, 1982.
3. Additional lectures on clinical applications of automated cytology delivered to faculty, house officers and staff of Institute for Gerontology, Division of Allergy, Division of Nephrology, and Department of Pathology.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

1. Cytometry Research and Development Project, Coulter Electronics, Inc. and Department of Pathology, University of Michigan (J.L. Hudson, principal investigator, E.J. Lovett III and K.D. McClatchey, Co-investigators), 1 April 1983 - 31 March 1984.
2. Detection of Acute Lymphoblastic Leukemia Relapse by Flow Cytometry, Children's Leukemia Foundation of Michigan, (E.J. Lovett III, project director; D.N. Shapiro, B. Schnitzer, and J.L. Hudson, Co-investigators), 1 July 1983 - 30 June 1984.

PROJECTS UNDER STUDY:

1. A series of studies involving research and development of clinical applications for flow cytometry including: cell surface marker analysis, immune cell responses, cell surface receptor analysis, cell membrane electronic potential analysis, cell cycle analysis, cervical and bladder cell neoplastic screening, prototypic instru-

mentation development, instrumentation-computer networking, cytometry data analysis software development, and cytometry data base development.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: None

MEDICAL SCHOOL/HOSPITAL: None

REGIONAL AND NATIONAL:

- A. Member, Flow Cytometry Standards Development Group, Society for Analytical Cytology
- B. Member, Scientific Advisory Group, Immunotoxicology Program, Bureau of Foods, FDA
- C. Reviewer, J. National Cancer Inst., and Cytometry

V. OTHER RELEVANT ACTIVITIES:

1. Hudson, J.L., Steele, R.W., Marmur, D.J., Schol, H.S., Hinson, W.G., Pipkin, Jr., J.L. §; Effects of Free Fatty Acids Upon Human Lymphocyte Proliferation. Poster Presentation at the Engineering Foundation Conference on Cytometry in the Clinical Laboratory, Santa Barbara, California, 28 April 1982.
2. Hudson, J.L.: The Cytometry Program, Department of Pathology, University of Michigan Medical School, Clinical Applications of Flow Cytometry, Coulter Electronics, Inc., Doral Country Club, Miami, Florida, 15 October 1982.
3. Hudson, J.L.: New Technology for the 80's-Cytometry: A New Diagnostic Method for Both Anatomic and Clinical Pathology; Overview of Cytometry-Applications of Flow Cytometry/Applications of Image Analysis/Data Analysis. Presented at the CAP/ASCP Fall Meeting, Miami Beach, Florida, 16 October, 1982.
4. Hudson, J.L.: Current Topics in Flow Cytometry, Presented at the Coulter Countdown, Philadelphia, Pennsylvania, 2 November 1982.
5. Hudson, J.L.: Current Topics in Flow Cytometry. Presented at the Coulter Countdown, Chicago, Illinois, 16 November 1982.
6. Hudson, J.L.: Flow Cytometric Analysis of Macrophage Function: Phagocytosis and Killing. Henry Ford Hospital, Detroit, Michigan, 6 May, 1982.
7. Hudson, J.L.: Analysis of Miltparameter Cytometry Data. Symposium on Medical Computing at the University of Michigan, Ann Arbor, Michigan, 22 April, 1983.
8. Hudson, J.L.: Automated Cytology: Clinical and Research Applications. Department of Microbiology and Immunology, Texas College of Osteopathic Medicine, Fort Worth, Texas, 12 May, 1983.

VI. PUBLICATIONS:

1. Pipkin, J.L., Anson, J.A., Hinson, W.G., Hudson, J.L.: The Effects of Isoproterenol and Hydroxyurea on the Presence of Ubiquitin and Protein-A24 in Rat Salivary Gland. *Biochem. Biophys. Acta*, 699:155-163, 1982.
2. Pipkin, J., Jr., Hinson, W., Hudson, J., Anson, J., Pack, D.: The Modulating Effect of Isoproterenol on DNA Replication and Protein Synthesis: Synthesis Patterns of the HMG Proteins From Electrostatically Sorted Salivary Gland Nuclei During the In Vivo Cell Cycle. *Biochem. Biophys. Acta.*, 655:421-431, 1982.
3. Pipkin, J.L., Hinson, W.G., Anson, J.F., Hudson, J.L.: Isoproterenol Modulation of Nuclear Protein Synthesis During Rat Liver Regeneration: An Electrophoretic and Capillary Isotachophoretic Study. *Cell Biology International Reports*, 6:3, 205-214, 1982.
4. Hinson, W.G., Pipkin, J.L., Hudson, J.L., Anson, J.F., Tyrer, H.: A Microsample Collection Device for Electrostatically Sorted Cells or Particles and Its Preparative Use for Biochemical Analysis. *Cytometry*, 2:6, 390-395, 1982.
5. Schnitzer, B., Lovett, III, E.J., Hudson, J.L., McClatchey, K.D., Keren, D.F., Dabich, L., Mitchell, B.F.: Adult T-Cell Leukemia-Lymphoma with Unusual Phenotype. *Lancet*, 2:1273-1274, 1983.
6. Brown, R.E., Steele, R.W., Marmer, D.J., Hudson, J.L., Brewster, M.A.: Fatty Acids and the Inhibition of Mitogen-Induced Lymphocyte Transformation by Leukemic Serum. *J. Immunology*, August, 1983. In Press.
7. Burns, E.R., Bagwell, C.B., Hinson, W.G., Pipkin, Jr., J.L., Hudson, J.L.: Preparation and Stability of Seventeen Murine Tissues for Flow Cytometric Cell Cycle Analysis as a Basis for Studies on the Chromobiological Aspects of In Vivo Cell Kinetics. *Cytometry*, In Press, August 1983.
8. Schnitzer, B., Lovett III, E.J., Flint, A., Hudson, J.L., Kahn, L.E., Bricker, L.J., Griffin, J.D.; Microgranulocytic Acute Promyelocytic Leukemia Diagnosed by Flow Cytometry. *New England J. Med.*, In Press, 1983.

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

Annual Department Report
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I. DIAGNOSTIC SERVICE ACTIVITIES:

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

II. TEACHING ACTIVITIES:

- A. Lecturer Renal Pathology - Second year pathology course
- B. Lecturer Systemic Pathology - Second year dental students
- C. Lecturer - Medical Technology Students
- D. Lecturer - Glomerulonephritis; Interphase

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.

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

MEDICAL SCHOOL/HOSPITAL: None

REGIONAL AND NATIONAL: None

V. OTHER RELEVANT ACTIVITIES: None

VI. PUBLICATIONS:

1. Johnson, K.J., Varani, J.: Substrate Hydrolysis by Immune Complex-Activated Neutrophils: Effect of Physical Presentation of Complexes and Protease Inhibitors. *J. Immuno.*, 127:1875-1879, 1981.
2. Johnson, K.J., Ward, P.A.: Acute and Progressive Lung Injury After Contact with Phorbol Myristate Acetate. *Am. J. Pathol.*, 107:29, 1982.
3. Varani, J., Ward, D., Johnson, K.J.: Nonspecific Protease and Elastase Activity in Rat Leukocytes. *Inflammation.*, 6:177, 1982.
4. Till, G.O., Johnson, K.J., Kunkel, R., Ward, P.A.: Intravascular Activation of Complement and Acute Lung Injury: Dependency on Neutrophils and Toxic Oxygen Metabolites. *J. Clin. Invest.*, 69:1126, 1982.
5. Johnson, K.J., Ward, P.A.: Newer Concepts of the Pathogenesis of Immune Complex Induced Tissue Injury. *Lab. Invest.*, 47:218-225, 1982.
6. Ward, P.A., Fantone, J.C., Johnson, K.J.: Lung Injury Produced by Oxygen Metabolites. *Immunopathology: VIIIth International Symposium*, 1980. pp. 459-473, 1982.
7. Ward, P.A., Duque, R.E., Sulavik, M.C., Johnson, K.J.: In Vitro and In Vivo Stimulation of Rat Neutrophils and Alveolar Macrophages by Immune Complexes: Production of O_2^- and H_2O_2 . *Am. J. Pathol.*, 110:297-309, 1983.
8. Till, G.O., Beauchamp, C., Menapace, D., Tourtellotte, W., Jr., Kunkel, R., Johnson, K.J., Ward, P.A.: Oxygen Radical Dependent Lung Damage Following Thermal Injury of Rat Skin. *J. Trauma*, 23:269-277, 1983.
9. Ward, P.A., Johnson, K.J.: Lung Inflammatory Mechanisms. *Human Path.* In Press.
10. Sandblom, R., Johnson, K.J., Killen, P., Sage, H., Hudson, L., Striker, G.: Lung Injury by Oxygen Metabolites Alters the Composition of Extracellular Matrix. *Chest*, 83:425-445, 1983.
11. Fantone, J.C., Johnson, K.J., Till, G.O.: Acute and Progressive Lung Injury Secondary to Toxic Oxygen Products from Leukocytes. *Chest*, 83:465-485, 1983.
12. Phan, S., Armstrong, G., Sulavik, M., Schrier, D., Johnson, K.J., Ward, P.A.: A Comparative Study of Pulmonary Fibrosis Induced by Bleomycin and an O_2^- Metabolite Producing Enzyme System. *Chest*, 83:445-465, 1983.
13. Cole, S., Johnson, K.J., Ward, P.A.: Sarcoidoses and Other Granulomatous Diseases of the Lung. In "Sarcoidosis and Other Granulomatous Diseases of the Lung". B.L. Fanburg, Editor. Marcell Decker, 1982.
14. Ward, P.A., Johnson, K.J.; Inflammatory Mechanisms in Lung Injury. In 'Immunopathology Symposium'. Symposia Specialists, 1981.
15. Ward, P.A., Johnson, K.J.; Immunologically Mediated Pulmonary Damage. In "The Mucosal Immune System in Health and Disease". Proceedings of the Eighty First Ross Conference on Pediatric Research. Ross Laboratories, Columbus 296-306, 1981.

16. Ward, P.A., Johnson, K.J.: Inflammatory Mechanisms in Lung Injury. In, "Advances in Immunopathology". W.O. Weigle, Editor. Elsevier North Holland, Inc., pp. 257-269, 1981.
17. Johnson, K.J., Striker, G., Killen, P.: Immunopathology of Glomerular Disease. In, "Handbook of Inflammation", Vol. IV. Peter A. Ward, Editor. Elsevier North Holland, Submitted.
18. Johnson, K.J., Ward, P.A.: Immune Complexes. In, "Immunology of the Lung". J. Bienenstock, Editor. McGraw-Hill. In Press.
19. Johnson, K.J., Tennant, R., Gilles, C.: Ultrastructural Evidence of a Neural Origin for Wilm's tumor. Submitted for publication.
20. Hirszel, P., Yamase, H.T., Carney, W.R., Galen, M.A., Graebbe, C.W., Johnson, K.J., Kennedy, T.L., Lapkin, R.A., McLean, R.H., Rosenworcel, E., Rawett, D.A.: Mesangial Proliferative Glomerulonephritis With IgM Deposits: Clinicopathologic Analysis and Evidence for Morphologic Transitions. Submitted for publication.
21. Johnson, K.J., Ward, P.A., Glovsky, M.M., Schrier, D.: Glucan Induced Granulomatous Vasculitis. Amer. J. Pathol. In Press.
22. Till, G.O., Beauchamp, C., Menapace, D., Tourtellotte, W., Kunkel, R., Johnson, S.K., Ward, P.A.: Oxygen Radical Dependent Lung Damage Following Thermal Injury of Rat Skin. J. Trauma, 23:269-277, 1983.
23. Ward, P.A., Duque, R.E., Sulavik, M.C., Johnson, K.J.: In Vitro and In Vivo Stimulation of Rat Neutrophils and Alveolar Macrophages by Immune Complexes. Amer. J. Path., 110:297-309, 1983.
24. Ward, P.A., Johnson, K.J.: Tissue Injury Caused by Oxygen Products From Phagocytic Cells. 5th International Congress of Immunological Sciences, 1982.
25. Johnson, K., Varani, J.: Interaction Between Oxygen Radicals and Proteases in Substrate Hydrolysis. Fed. Proc., 42:5894, 1983.
26. Fligiel, S., Sulavik, M., Johnson, K.J., Ward, P.A.: Acute Injury Following Generation of H₂O₂ in Airway and Vascular Compartments of Lung. Fed. Proc., 42:5895, 1983.
27. Sulavik, M., Duque, R., Ward, P., Johnson, K.J.: Production of Oxygen Free Radicals by Rat Neutrophils and Alveolar Macrophages In Vitro and In Vivo After Stimulation With Immune Complexes. Fed. Proc., 42:2392, 1983.
28. Rehan, R., Johnson, K.J., Wiggins, R.C.: Oxygen Free Radicals Induced Proteinuria in Rats Caused by Injection of Phorbol Myristate Acetate. Midwest AFCR. 1983.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Director, Blood Bank Reference Laboratory.
 - 1. Provided consultation on refer samples from outside institutions.
 - 2. Attended Blood Bank Communications Meetings.
- B. Consultant, Veterans Administration Hospital, Ann Arbor.

II. TEACHING ACTIVITIES:

- A. Pathology 409 and 412.
- B. Attended Clinical Pathology House Officer Conferences.
- C. Presented three lectures to Pathology House Officers in Blood Bank Reference Laboratory procedures.
- D. Provided "hands on" experience to Pathology House Officers in Blood Bank Reference Laboratory procedures.
- E. Presented lectures at Blood Bank Continuing Education Program.
- F. Presented lecture on Selection and Applications of Elution Methods at Current Topics in Blood Banking Program, Department of Post-graduate Medicine.
- G. Presented Workshop on Special Techniques in Blood Banking at Current Topics in Blood Banking Program, Department of Post-graduate Medicine.
- H. Presented two lectures to Pathology and Internal Medicine Department, Veterans Administration Hospital, Ann Arbor.
- I. Presented lectures to Specialist in Blood Banking Programs at Wayne State University, Detroit, and Georgia State University, Atlanta.
- J. Invited Lectures:
 - 1. A clinically-significant anti-N. Annual Meeting of the Michigan Association of Blood Banks. Detroit, October, 1982.
 - 2. Antibody elution from red cells. Annual Seminar. Annual Meeting of the American Association of Blood Banks. Anaheim, November, 1982.
 - 3. Elution techniques. Annual Meetings of American Red Cross Reference Laboratories. St. Louis, March, 1983.
 - 4. Special techniques in blood banking. Annual Meeting of West Virginia Association of Blood Banks. Clarksburg, April, 1983.
 - 5. Special techniques in blood banking. Atlanta Area Antibody Club. Atlanta, April, 1983.

6. Special techniques in blood banking. Annual Meeting of the New Jersey Association of Blood Banks. Atlantic City, April, 1983.
7. Alloantibody identification. Garden City Osteopathic Hospital. Garden City, May, 1983.
8. Special techniques in blood banking. Annual Meeting of the Massachusetts Association of Blood Banks. Boston, May, 1983.

III. RESEARCH ACTIVITIES:

RESEARCH IN PROGRESS:

1. Dahr W, Kordowicz M, Judd WJ, Moulds J, Kruger J. Structure of the Henshaw antigen. Annual Meeting of the American Association of Blood Banks. Anaheim, November, 1982. Transfusion 1982;22:-412.
2. Judd WJ, Rolih SD, Dahr W, Oilshlager R, Miller FP, Lau P. Serological evidence that Henshaw-producing genes do not code for 'N'. Annual Meeting of the American Association of Blood Banks. Anaheim, November, 1982. Transfusion 1982;22:412.
3. Dahr, Baumeister G, Beyreuther K, Kruger J, Moulds J, Judd WJ, Issitt PD, Wilkinson SL, Harris P. Studies on structure of the M₁, Tm and Can antigens. Annual Meeting of the American Association of Blood Banks. Anaheim, November, 1982. Transfusion 1982;22:420.
4. Necessity for D^u testing in prenatal serology.
5. Neonatal Tn-activation.
6. Persistent T-polyagglutination.
7. Studies on K. pinnata lectin.
8. Studies on monoclonal antibodies with anti-M-like and anti-N-like activity.
9. Mechanisms for positive direct antiglobulin tests induced by antithymocyte globulin therapy.
10. Clinical significance of anti-Lan.
11. Failure of IgG anti-Rh globulin to induce in vivo hemolysis.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Attended Pathology Departmental Meetings.

REGIONAL AND NATIONAL:

- A. American Association of Blood Banks:
 1. Technical Workshop Committee - directed workshop on "Clinical and Serological Aspects of Transfusion Reactions". AABB Annual Meeting, Anaheim, November, 1982
 2. Reference Laboratory Committee - term expired November 1982.

3. Technical Manual Committee - wrote and revised drafts of three chapters for 9th edition of AABB Technical Manual, to be published in 1985.
 4. Scientific Section Coordinating Committee - elected for a 3-year term, November, 1982.
- B. Michigan Association of Blood Banks:
1. Interim Scientific Meeting Committee.
- C. National Committee for Clinical Laboratory Standards:
1. Chairman, Subcommittee on Lectins - to develop standards for lectin reagents used in blood banking.
- D. Articles Refereed for Scientific Journals
1. Transfusion.
 2. Blood.
 3. Vox Sanguinis.

V. PUBLICATIONS:

1. Daniels, G.L., Judd, W.J., Moore, B.P.L., Neitzer, G., Ouellet, P., Plantos, M., Verrette, S.: A 'New' High-Frequency Antigen, Er^a. Transfusion, 22:189-93, 1982.
2. Advani, H., Zamor, J., Judd, W.J., Johnson, C.L., Marsh, W.L.: Inactivation of Kell Blood Group Antigens by 2-Aminoethylisothiuronium Bromide. Br. J. Haematol., 51:107-15, 1982.
3. Judd, W.J., Geisland, J.R., Issitt, P.D., Wilkinson, S.L., Anstee, D.J., Shin, C., Glidden, H.: Studies on the Blood of an Mi^v/M^k Proposita and Her Family. Transfusion, 23:33-36, 1983.
4. McCoy J.P., Schrier, D., Lovett, E.J., Judd, W.J., Varani, J.: Hyperimmune Human ABO Blood-Typing Sera: Reactivity with Murine Laminin and Cytotoxicity for Metastatic Murine Tumour Cells. J. Cell Sci., 59:245-56, 1983.
5. Judd, W.J., Oberman, H.A., Flynn, S.D.: Fatal Intravascular Hemolysis Associated with T-Polyagglutination. Transfusion, 22:345-346, 1982.
6. Trudeau, L.R., Judd, W.J., Butch, S.H., Oberman, H.A.: Is a Room Temperature Crossmatch Necessary for the Detection of ABO Errors. Transfusion, 23:237-9, 1983.
7. Judd, W.J.: Whither the Crossmatch? Biotest Bulletin, 1:76-77, 1982.
8. Judd, W.J.: Antibody Elution From Red Cells. In, "Seminar on Antigen-Antibody Reactions Revisited". Bell CA, ed. Arlington: American Association of Blood Banks 175-221, 1982.
9. Judd, W.J., Barnes, A.: Clinical and Serological Aspects of Transfusion Reactions. Arlington: American Association of Blood Banks, 1982.
10. Judd, W.J., Rolih, S.D., Dahr, W., Oilshlager, R., Miller, F.P., Lau, P.: Studies on the Blood of an MsHe/MS^u Proposita and Her Family: Serological Evidence That Henshaw-Producing Genes Do Not Code for the 'N' Antigen. Transfusion.
11. Judd, W.J.: Urines for Inhibition. Transfusion.
12. Dahr, W., Kordowicz, M., Judd, W.J., Moulds, J., Beyreuther, K., Kruger, J.: Structural Analysis of the Henshaw Blood Group Antigen. J. Immunogenet.

VI. AWARDS:

Recipient of the Ivor Dunsford Memorial Award of the American Association of Blood Banks. Presented at the Annual Meeting of the American Association of Blood Banks. Anaheim, November, 1982.

"For his innovative application of lectins to blood group serology, especially to elucidation of polyagglutination, for his characterization of antigen specificities in the MNS system, for his definition of practical approaches to resolution of antibody identification problems in hospital blood banking, and for his many contributions to the teaching programs of the American Association of Blood Banks."

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Director, Clinical Immunopathology Laboratory.
- B. Director, Clinical Chemistry Laboratory.
- C. Surgical Pathology - Consultant on Immunopathology and Gastro-intestinal Pathology.

II. TEACHING ACTIVITIES:

- A. Medical Students and Graduate Students.
 - 1. Biology 414 - Lecture on Mucosal Immunity
 - 2. Pathology Course - Lectures on Neoplasia, Asthma, Chronic Obstructive Pulmonary Disease.
- B. House Officers
 - 1. Coordinator - Weekly Clinical Pathology Rounds.
 - 2. Coordinator - Clinical Pathology Grand Rounds.
 - 3. Clinical Immunopathology - Daily sign-out.
 - 4. Flow Cytometry - Daily specimen sign-out.
 - 5. Immunology Journal Club - weekly.
 - 6. Clinical Chemistry Conference - weekly.
- C. Postgraduate Training
 - Director - Towsley Seminar in Clinical Chemistry and Immunology.

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 lymphomas.
- D. Grant Support
 - 1. United States Army Research and Development Command. "An Investigation of the Memory Response of the Local Immune System to Shigella Antigens". \$108,00. September 1, 1983 - August 31, 1984.
 - 2. Cancer Research Institute, University of Michigan. "Mucosal Immune Response to Carcinogen-Protein Conjugates". \$10,000. July 1, 1982 - June 30, 1983.
- E. Student Research Projects.
 - 1. Scott Kern - "Changes of Crypts and Paneth Cells in Isolated Ileal Loops".
 - 2. Arthur Rosner - "Demonstration of M Cells in the Epithelium Overlying Isolated Lymphoid Follicles".

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

1. Clinical Pathology Committee.
2. Resident Selection Committee.
3. Resident Counselor.

MEDICAL SCHOOL/HOSPITAL:

1. Scientific Advisory Committee - Dental School.
2. University Laboratory Animal Committee.
3. University Senate Assembly.

REGIONAL AND NATIONAL:

1. Immunopathology Council (ASCP).
2. Editorial Board - Infection and Immunity (ASM).
3. Chairman, Education Committee, Gastrointestinal Pathology Club (IAP).

V. OTHER RELEVANT ACTIVITIES: Invited Lectures.

- A. National Foundation for Ileitis and Colitis. Inflammatory Bowel Disease - Future Research Approaches. "B cell studies on intact tissues". Princeton, N.J., October, 1982.
- B. Laboratory Medicine Symposium. Lutheran General Hospital. "Multiple Myeloma - Role of the Laboratory in Diagnosis". September, 1982.
- C. American Veterinary Association. "Models to Study the Mucosal Immune Response". Washington, D.C., October, 1982.
- D. Wayne State University. Department of Pathology. "Mucosal Immunity and Vaccine Research". Detroit, Michigan, January, 1983.
- E. International Academy of Pathology. Gastrointestinal Pathology Club Scientific Session. "Lymphocyte subpopulations in the bowel". Atlanta, Georgia, March, 1983.
- F. International Academy of Pathology Gastrointestinal Specialty Surgical Pathology Panel. "Immunohistology of gastric lymphomas". Atlanta, Georgia, March, 1983.
- G. American Society for Clinical Pathology Current Topics in Clinical Immunology. "Flow Cytometry and Clinical Immunology". Baltimore, Maryland, April, 1983.
- H. Midwest Radioassay Society. "New applications of immunofluorescence and immunoperoxidase". Royal Oak, Michigan, May, 1983.

VI. PUBLICATIONS:

1. Clark, K.A., Keren, D.F.: Demonstration of Monoclonal Lymphoplasmacytic Proliferations by Immunofluorescence on Routine Formalin-Fixed, Paraffin-Embedded Tissue. Cancer, 49:2376-2382, 1982.

2. Keren, D.F., Collins, H.H., Baron, L.S., Kopecko, D.J., Formal, S.B.: Intestinal IgA Responses in Rabbits to a Salmonella Typhi Strain Harboring a Shigella Sonnei Plasmid. *Infect. Immun.*, 37:387-389, 1982.
3. Keren, D.F.: Oral Vaccines and the Development of Mucosal IgA Responses. *Clin. Immunol. News.*, 3:99-101, 1982.
4. Hamilton, S.R., Keren, D.F., Yardley, J.H., Brown, G.D.: Effects of Parenteral Keyhole Limpet Hemocyanin or Cholera Toxin on Intestinal Immune Response to Keyhole Limpet Hemocyanin. *Int. Arch. Allergy Appl. Immunol.*, 68:242-246, 1982.
5. Keren, D.F.: Mucosal (Immunoglobulin A) Immune Response to Noninvasive Bacteria in the Gut. *Microbiology*, 357-360, 1982.
6. Mozdzen, Jr., J.J., Keren, D.F.: Detection of Immunoglobulin A by Immunofluorescence in Glycol Methacrylate-Embedded Human Colon. *J. Histochem. Cytochem.*, 30:532-535, 1982.
7. Schnitzer, B., Lovett, III, E.J., Hudson, J.L., McClatchey, K.D., Keren, D.F., Dabich, L., Mitchell, B.F.: Adult T-Cell Leukemia-Lymphoma With Unusual Phenotype. *Lancet*, 2:1273-1274, 1982.
8. Keren, D.F., Scott, P.J., McDonald, R.A., Kern, S.E.: Local IgA-Memory Response to Bacterial Antigens. *Ann. N.Y. Acad. Sci.*, 409:734-744, 1983.
9. Braunstein, A.H., Keren, D.F.: Monoclonal Gammopathy (IgMK) in a Patient With Burkitt's Lymphoma. *Arch. Pathol. Lab. Med.*, 107:235-238, 1983.
10. Keren, D.F.: Immunopathology of Inflammatory Bowel Disease. *In*, "Pathology of the Colon, Small Intestine, and Anus". H. Thomas Norris, Editor. Churchill Livingstone, Inc., New York. In Press.
11. Keren, D.F.: Local IgA Anamnestic Response Following Peroral Immunization With Shigella Flexneri Antigens. *In*, "Progress in Cholera Research". In Press.
12. Mutchnik, M.G., Keren, D.F., Weller, F.E., McClure, J.E., Goldstein, A.L.: Measurement of Thymosin α 1 by Diassociation MicroElisa. *J. Immunol. Methods*, In Press.
13. Keren, D.F.: Mechanisms of Immunologic Injury in Inflammatory Bowel Injury: Ulcerative Colitis and Crohn's Disease. *In*, "Handbook of Inflammation Vol. 4. Immunology of Inflammation". P.A. Ward, Editor. Excerpta Medica. In Press.
14. Schaldenbrand, J.D., Keren, D.F.: IgD Amyloid in an IgD Lambda Monoclonal Conjunctival Amyloidoma - A Case Report. *Am. J. Clin. Pathol.*, In Press.
15. Keren, D.F., Scott, P.J., McDonald, R.A., Wiatrak, M.: The Effect of Parenteral Immunization on the Local Immunoglobulin A Response of the Intestine to Shigella Flexneri Antigens. *Infect. Immun.*, In Press.
16. Keren, D.F.: Whipple's Disease. *In*, "Current Diagnosis". 7th Edition. In Press.
17. Keren, D.F.: A Model for Studying the Local Immune Response to Shigella Flexneri in the Bowel. *In*, "Attachment of Microorganisms to the Gastrointestinal Mucosal Surface". E.C. Boedecker, Editor. CRC Press. In Press.

NEELAM B. KUMAR, M.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Cytopathology laboratory assignment in October (2 weeks), November and June (2 weeks).
- B. Surgical Pathology assignment in May.
- C. All Gynecologic consultation cases.
- D. All Breast consultation cases during H. Oberman's absence.
- E. Cytopathology consultation cases.
- F. Gynecologic tumor conference twice a week.

II. TEACHING ACTIVITIES:

- A. Pathology 600 (Medical School, Sophomore year) Laboratory section instructor. January to April 1983.
- B. Gynecologic Pathology lectures for the Pathology 600 (2 hours).
- C. Cytopathology conference for the residents (every 6 weeks).
- D. Gynecologic pathology teaching of the Gynecologic oncology fellows during their elective rotation in the Department of Pathology (2 months).
- E. Gynecologic Pathology teaching of the Pathology resident during the elective rotation (1 month).
- F. Department of Pathology House Officer surgical pathology conference (weekly).
- G. Gynecologic Pathology lectures for the residents.
- H. Post-graduate teaching.
 - 1. Acute self-limited colitis: A disease which can be distinguished from chronic inflammatory bowel disease. Presented at the Towsley Center for Continuing Medical Education on Oct. 11, 1982.
 - 2. Sarcomas of the uterus. Presented at the Towsley Center for Continuing Medical Education on April 13, 1983.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Co-investigator on a grant application to center of disease control. Approval is pending.

PROJECTS UNDER STUDY:

1. Histology differentiates acute self-limited colitis from chronic ulcerative colitis. Coworkers. Henry D. Appelman, M.D. and Timothy T. Nostrant, M.D.
2. Clinicopathologic study of squamous carcinoma of the vagina. Coworkers George W. Morley, M.D. and William A. Peters, III., M.D.
3. Clinicopathologic study of vaginal sarcomas. Coworkers George W. Morley, M.D. and William A. Peters, III., M.D.
4. Clinicopathology study of an unusual variant of adenocarcinoma of vagina in Non DES exposed women. Coworker William A. Peters, III., M.D.
5. Effect of Adjuvant therapy on uterine sarcomas. Coworkers Ian Hahn and William A. Peters, III., M.D.
6. Staging of carcinoma of the fallopian tube. Coworker William A. Peters III., M.D.
7. Role of radiation therapy in stage II endometrial adenocarcinoma. Coworker Ian Hahn.
8. A clinicopathologic study of leiomyosarcoma of the uterus. Coworker William A. Peters, III., M.D.
9. Cells of Extrauterine metastases seen in cervicovaginal smears (a study of 81 cases).
10. Cell cycle analysis of urothelial cells by flow cytometry.
11. Differentiation of Acute self limited colitis from chronic ulcerative colitis based on the quantitative and qualitative analysis of immunoglobulin containing cells in the colonic mucosa. Coworker David F. Keren.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

1. Associate director of the cytopathology laboratory.
2. Quality Control Program in the cytopathology laboratory.
3. Surgical Pathology coding system.

MEDICAL SCHOOL/HOSPITAL:

1. Member of the Hospital Tissue Committee

V. OTHER RELEVANT ACTIVITIES:

Guest speaker:

Participation as a Panel member on "Ask the experts on Aspiration cytology" at the meeting of Michigan Society of Cytology held in Detroit Michigan on May 7, 1983.

VI. PUBLICATIONS:

1. Hoffman, J.S., Kumar, N.B., Morley, G.W.: Microinvasive Squamous Carcinoma of the Vulva: Search for a Definition. *Obstet. Gynecol.*, 61, No. 5. May 1983.
2. Kumar, N.B., Nostrant, T.T., Appelman, H.D.: The Histopathologic Spectrum of Acute Self-Limited Colitis (Acute Infectious Type Colitis). *Am. J. Surg. Pathol.*, 6:523-529, 1982.
3. Kumar, N.B., Hart W.R.: Metastases to the Uterine Corpus from Extra-Genital Cancers - A Clinicopathologic Study of 63 Cases. *Cancer*, 50:2163-2169, 1982.
5. Novak, P.M., Kumar, N.B., Naylor, B.: Curschmann's Spirals in Carcino-vaginal Smears: Prevalence, Morphology, Significance and Origin. *Acta Cytologica*.
6. Kumar, N.B.: Small Cell Carcinoma of the Endometrium in a 23 Year Old Woman: Light Microscopic and Ultrastructural Study. *Am. J. Clin. Path.*
7. Peters, W.A., Kumar, N.B., Fleming, W.P., Morley, G.W.: Prognostic Features of Endometrial Sarcomas. *Obstet. Gynecol.*
8. White, C., Morley, G.W., Kumar, N.B.: Prognostic Significance of Angi-lymphatic Invasion in Stage IB Squamous Carcinoma of the Cervix. *Obstet. Gynecol.*
9. Novak, P.M., Kumar, N.B., Naylor, B.: Curshman's Spirals in Cervico-vaginal Smears: Prevelance, Morphology, Significance and Origin. *Acta Cytol.*, 26, 1982. (Also presented at the American Society of Cytology Meeting in November 1982.)
10. Cohen, A.R., Kumar, N.B., Novak, P.M.: Cytologic Features of Extra-uterine Cancers in Cervicovaginal Smears: A Study of 81 Cases.
11. Kumar, N.B., Naylor, B.: Diagnosis of Hodgkin's Disease of Lung by Transthoracic Fine Needle Aspiration Cytology.
12. Kumar, N.B., Fleming, W.P., Peters, W.A., III, Morley, G.W.: Autopsy Findings in Patients With Uterine Sarcoma.

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

Annual Department Report
July 1, 1982 - June 30, 1983

I. DIAGNOSTIC SERVICE ACTIVITIES: None

II. TEACHING ACTIVITIES:

- A. Inflammation/Immunopathology Series ICS-600 for second year medical students.
- B. Presented teaching/research seminars in various departments in the medical school.
- C. Supervision of the following medical students and fellows: Mike Plewa, Lori Quinlan, Andrew Lifer, Stephen Chensue, Tony Razma, and Tom Papin.
- D. Doctorate degree committee for Bruce L. Riser in Epidemiologic Science.
- E. Supervise undergraduate honors program.
- F. Advance course in Dermatopathology - American Academy of Dermatology.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. NIH - Modulation of Acute Inflammatory Reactions in Experimental Diabetes AM20572 pilot project - Principal Investigator.
- B. NIH - Targeted Cell Injury HL26598 Co-investigator
- C. NIH - Leukocyte Chemotaxis HL28442 Co-investigator
- D. NIH - Thermal Injury Complement and Leukocyte Dysfunction GM28499 Co-investigator
- E. American Lung Association - DR antigen expression and release of cyclooxygenase products by alveolar macrophages in pulmonary sarcoidosis, co-investigator.

PROJECTS UNDER STUDY:

Experimental research in my laboratory is directed at understanding the role of inflammatory mediators that participate in acute and chronic immune reactions. Specifically, we have developed an HPLC program for the examination of arachidonic acid metabolites synthesized by various inflammatory cells. Using this system we are able to isolate cells from various inflammatory foci and examine the metabolites of arachidonic acid. We are also studying the ability of various metabolites of arachidonic acid to influence various animal models of inflammation, as well as dictate the function of immune cells. With regard to immune

cell function, we are examining the role of these metabolites on macrophage Ia antigen expression, antigen presentation, and mediator release (O_2 and lysosomal enzymes). Our animal model and source of immune cells for the majority of these studies is the schistosoma mansoni egg-induced pulmonary granuloma. This model is extremely useful, since it has many similarities to human pulmonary sarcoidosis (alveolar macrophages from the bronchoalveolar lavage of these patients are also being examined using many of the above criteria).

Our laboratory is also interested in the purification, and quantitation of C5a and the use of this anaphylatoxin as a probe for the activation of inflammatory cells. We have purified C5a to homogeneity using an affinity column and have found this peptide to be extremely active in biological systems. The human C5a molecule is presently being quantitated in the laboratory using an ELISA procedure. Preliminary evidence indicates that this assay may prove useful for understanding the role of complement activation in diseases involving the joints and lungs, where fluid from joint taps and lavage can be readily obtained. A number of studies in the Department of Pathology have used the C5a purified in our laboratory as a potent probe from immune cell activation. Our laboratory has established collaboration ties with the following faculty members outside of the Department of Pathology:

- a) Dr. Darrel Campbell - Department of Surgery. Arachidonic acid metabolites and I-region associated antigen expression.
- b) Dr. Gene Higashi - Department of Epidemiology. Immuno-modulation of schistosome egg-induced pulmonary granulomas.
- c) Dr. Ben Lucchesi - Department of Pharmacology. Role of neutrophils in myocardial infarcts.
- d) Dr. Joseph Lynch - Pulmonary Medicine. Superoxide anion and cyclooxygenase products from alveolar macrophages in pulmonary sarcoidosis.
- e) Dr. Roger Wiggins - Nephrology. Cyclooxygenase products in renal disease.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Conducted Departmental Research Seminars
- B. Interviewed Candidates for Residency Program

MEDICAL SCHOOL/HOSPITAL:

- A. Committee on Medical Student Research
- B. Committee on Immunology Forum
- C. Reviewer for Biomedical Research Council grants

REGIONAL AND NATIONAL:

- A. Reviewed numerous manuscripts for 7 different national journals.
- B. Co-chaired the session on macrophage activation at the 1983 National American Thoracic Society meeting.

V. OTHER RELEVANT ACTIVITIES:

Invited Lectures and Seminars:

- A. Inflammation Research Association First International Conference. Therapeutic Control of Inflammatory Disease (Nov. 1982) Liberty, New York.
- B. Advance Course in Dermatopathology. Granuloma formation (Dec. 1982) New Orleans, LA.
- C. Symposium on Arachidonic Acid and Lung Injury. Arachidonic Acid metabolites in chronic inflammation (Dec. 1982) Winston-Salem, N.C.
- D. Symposium on Drug Development. Arachidonic Acid metabolites in immune responses (May 1983) Ann Arbor, MI.
- E. Spring Seminar Series. Department of Pharmacology New York Medical College. Arachidonic Acid metabolites as mediators of macrophage-dependent immune responses (June 1983) Valhalla, N.Y.
- F. Mt. Carmel Seminar Series. Department of Surgery. Regulation of chronic immune responses by prostaglandins (June 1983) Detroit, MI

Abstracts/Presentations at National Meetings:

- A. Romson, J, Hook, B, Kunkel, S, Abrams, G, and Lucchesi, B: Reduction in myocardial infarct size by neutrophil depletion in the dog. American Heart Association, Dallas, Texas 1982.
- B. Chensue, S.W., Kunkel, S.L., Higashi, G.I., and Ward, P.A.: Regulation of granuloma formation by exogenous prostaglandin. Clin. Res., 1982 30:1813.
- C. Kunkel, S.L., Chensue, S.W., Plewa, M.C. and Higashi, G.I.: Modulation of granulomatous macrophage Ia expression by arachidonic acid metabolites. FASEB. Chicago 1983.
- D. Chensue, S.W., Kunkel, S.L., Higashi, G.I., and Boros, D.L.: Macrophage arachidonic acid metabolism and superoxide production is altered during the spontaneous modulation of the schistosome egg granuloma. FASEB Chicago, 1983.
- E. Glovsky, M.M., Ryan, U., Quiroga, M., Hogg, J.C., Kunkel, S.L., and Ward, P.A.: Endothelial cell damage: a potential component of anaphylaxis and respiratory distress syndrome (ARDS). FASEB, Chicago, 1983.
- F. Kunkel, S.L., Chensue, S.W., Plewa, M.C., and Higashi, G.I.: Arachidonic acid metabolites as mediators of pulmonary granuloma formation. A.T.S., Kansas City, 1983.
- G. Park, S., Fantone, J.C., Kunkel, S.L., and Ward, P.A.: Acute lung injury in mice after vascular infusion of phorbol ester. A.T.S., Kansas City, 1983.

- H. Razma, A., Lynch, J., Wilson, B., Ward, P. and Kunkel, S.L.: Expression of Ia-like (DR) antigen on human alveolar macrophages from patients with pulmonary sarcoidosis, A.T.S. Kansas City, 1983.
- I. Campbell, D.A., Wiggins, R.L., Kunkel, S.L., and Niederhuber, J.E.: Chronic intrarenal delivery of PGE₁ using an implantable drug delivery system. American Society for Artificial Internal Organs. Toronto, Canada 1983.
- J. Razma, A., Lynch, J., Wilson, B., Ward, P. and Kunkel, S.L.: Human alveolar macrophage activation and DR antigen expression in cigarette smokers. Aspen Lung Meeting, Aspen, CO 1983.

VI. PUBLICATIONS:

1. Kunkel, S.L., Zanetti, M., Sapin, C.: Suppression of Nephrotoxic Serum Nephritis in Rats by Prostaglandin E₁. *Am. J. Path.*, 108:240-245, 1982.
2. Manderino, G.L., Suarez, A.F., Kunkel, S.L., Ward, P.A., Hirata, A.A.: Purification of Human C5a Des Arg by Immunoabsorbent and Molecular Sieve Chromatography. *J. Immunol. Methods*, 53:41-50, 1982.
3. Fantone, J.C., Weingarten, B., Kunkel, S.L.: Inhibition of Carrageenin-Induced Rat Footpad Edema by Systemic Treatment With Prostaglandins of the E Series. *Biochem. Pharm.*, 31:3126-3127, 1982.
4. Kunkel, S.L., Kaercher, K., Plewa, M., Fantone, J.C., Ward, P.A.: Production of Cyclooxygenase Products and Superoxide Anion by Macrophages in Response to Chemotactic Factors. *Prostaglandins*, 24:789-799, 1982.
5. Chensue, S.W., Kunkel, S.L., Ward, P.A., Higashi, G.I.: Modulation of Pulmonary *Schistosoma Mansoni* Egg Granuloma in Mice by Prostaglandin. *Am. J. Path.*, 111:78-87, 1983.
6. Romson, J.L., Hook, B.G., Kunkel, S.L., Abrams, G.D., Lucchesi, B.R.: Reduction in the Ultimate Extent of Ischemic Myocardial Injury by Neutrophil Depletion in the Dog. *Circulation*, 67:1016-1023, 1983.
7. Wolter, N.J., Kunkel, S.L., Lynch, J.P., Ward, P.A.: Production of Cyclooxygenase Products by Alveolar Macrophages in Pulmonary Sarcoidosis. *Chest*, 83:79S-81S, 1983.
8. Kunkel, S.L.: The Generalized Shwartzman Reaction: An Enigmatic Model for Therapeutic Agents. *Lab. Invest.*, 1983.
9. Kunkel, S.L., Ward, P.A.: The Complement System. In, "Immunology III", by Bellanti, Editor. W.B. Saunders Company Philadelphia.
10. Kunkel, S.L., Chensue, S.W.; Prostaglandins and the Regulation of Immune Responses. *Adv. Inflam. Res.*, In Press.
11. Campbell, D., Wiggins, R., Kunkel, S., Neiderhuber, J.: Chronic Intrarenal Delivery of PGE₁ Using an Implantable Drug Delivery System. *Int. J. Artificial. Organs*, In Press.
12. Wolter, J.R., Kunkel, S.L.: Adherence of Mouse Macrophages to Plastic Lens Implants: Resulting in the Formation of a Cellular Membrane. In Press.
13. Kunkel, S.L., Manderino, G., Marasco, W.A., Kaercher, K., Hirata, A.A., Ward, P.A.: A Specific Enzyme-Linked Immunosorbent Assay (ELISA) for the Determination of Human C5a Antigen. *J. Immunol. Method*, In Press.

14. Razma, A., Lynch, J.P., Wilson, B.S., Ward, P.A., Kunkel, S.L.: Human Alveolar Macrophage Activation and DR Antigen Expression in Cigarette Smokers. Chest, In Press.
15. Wolter, J.R., Kunkel, S.L.: Formation of Proteinaceous Capsules on Plastic Lens Implants: by Mouse Macrophages Under Tissue Culture Conditions. Ophth. Surg., In Press.
16. Wolter, J.R., Kunkel, S.L.: Cellular Membranes on Glass Lens Implants: Formed in Tissue Culture by Mouse Macrophages. Ophth. Surg., In Press.
17. Wolter, J.R., Kunkel, S.L.: Abdominal Implantation of Intraocular Lenses: Resulting in the Formation of Reactive Membranes. Graefe's Arch. Ophth., In Press.
18. Wolter, J.R., Kunkel, S.L.: Artificial Anterior Chamber for the Growing of Membranes on Lens Implants. Graefe's Arch. Ophth., In Press.

THOMAS LANDEFELD, PH.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

None

II. TEACHING ACTIVITIES:

- A. Pharmacology 626: Anterior Pituitary Control Lectures
- B. Pharmacology 500: Endocrine Pharmacology

III. RESEARCH ACTIVITIES:

The research in my laboratory deals with the regulation and mechanisms involved in pituitary gonadotropin biosynthesis. Currently, recombinant DNA methods are being utilized to examine transcriptional events in this process. These are collaborative studies involving Drs. Fred Karsch (Physiology), John Marshall (Internal Medicine) and Rick Lloyd (Pathology).

SPONSORED SUPPORT:

- A. NIH HD 12016 8/1/81 - 7/31/84
"Gonadotropin Biosynthesis" (P.I.)
Annual Direct Costs: \$79,092
- B. NIH HD 07048 7/1/80-6/30/85
"Training in Reproductive Endocrinology" (Program Coordinator)
Annual Direct Costs: \$124,984

PROJECTS UNDER STUDY:

- A. NIH HD 11489 Pending
"Role of GnRH in Gonadotropin and Steroid Secretion (Co-
Investigator)
Annual Direct Costs: \$124,134

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL SCHOOL/HOSPITAL:

- A. Member, Advisory Committee on Primary Research Appointments,
Promotions and Titles

REGIONAL AND NATIONAL:

- A. Reviewer, Endocrinology journal
- B. Abstract Presentation, The Endocrine Society, San Antonio TX

V. OTHER RELEVANT ACTIVITIES:

- A. Member, Cancer Research Committee
- B. Program Coordinator, Reproductive Endocrinology Training Program
- C. Member, Molecular Genetics Faculty

VI. PUBLICATIONS:

1. Landefeld, T.D., Kepa, J., Karsch, F.J.: Regulation of Alpha Subunit RNA by Gonadal Steroid Feedback in Sheep Anterior Pituitary. J. Biol. Chem., 258:2390-2393, 1983.
2. Landefeld, T.D., Kepa, J., Karsch, F.J.: Effects of Estradiol Feedback on Alpha Subunit mRNA in the Sheep Pituitary Gland: Correlation with Serum and Pituitary LH Concentrations." Proc. Natl. Acad. Sci. Submitted.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Surgical Pathology - five months
- B. Necropsy Pathology - one month
- C. Consultant for soft tissue lesions - 12 months
- D. Consultant for endocrine lesions - 12 months
- E. Consultant to Veterans Administration Medical Center, Ann Arbor
- F. Immunoperoxidase Diagnostic Service - 12 months
- G. Electron Microscopy of tumors - 12 months

II. TEACHING ACTIVITIES:

- A. Pathology 600 for Sophomore Medical Students - 4 months
- B. Lectures to Sophomore Medical Students
- C. Fourth Year Medical Student Rotation in Pathology - 1 month
- D. Postgraduate Teaching - Towsley Seminars in Anatomic Pathology -
Lectures on Immunoperoxidase and on Pathology of the Adrenal Gland
- E. Course in Basic Histology and Pathology for Histotechnologist - 5
months
- F. Lectures to Pathology House Officers
- G. House Officer Elective in Endocrine and Soft Tissue Pathology - 1
month
- H. Electron Microscopy Conference - monthly

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Regulation of Rat Pituitary Hyperplasia and Neoplasia - (Bio-
medical Research Support Grant - 11/30/82 to 11/30/83 and Insti-
tutional Research Grant from Am Cancer Society - 1/1/83 to
12/31/83).
- B. Immunohistochemical Evaluation of Monoclonal Antibodies: Stauffer
Chemical Co.

PROJECTS UNDER STUDY:

- A. Development of monoclonal antibodies as diagnostic aids in surgi-
cal pathology with Dr. Barry Wilson.
- B. Histopathological diagnosis and clinical correlation of pituitary,
thyroid and adrenal neoplasms.
- C. Diagnostic immunocytochemical techniques for light and electron
microscopy.

- D. In situ DNA-RNA hybridization histochemistry with rat prolactin complimentary DNA with Dr. Tom Landefeld.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Coordinator of Immunoperoxidase Service
- B. Coordinator of Anatomic Pathology Journal Club
- C. Counselor to Pathology House Officers

MEDICAL SCHOOL/HOSPITAL:

- A. Thyroid Therapy Conference - weekly
- B. Pituitary Study Group - monthly
- C. Medical School Admissions Committee - weekly

REGIONAL AND NATIONAL:

- A. Michigan Thyroid Association
- B. Invited Lecturer, American Society of Clinical Pathology Course in Breast Pathology in Florida, December 1982
- C. Abstract Presentations, The International Academy of Pathology in Atlanta Georgia, February 1983

V. OTHER RELEVANT ACTIVITIES:

- A. University Student Relations Committee - 8/82 to 6/85
- B. Faculty Advisor to Freshman Medical Students

VI. PUBLICATIONS:

1. Lloyd, R.V., Fruhman, J.: Comparison of Peroxidase-Antiperoxidase and Avidin Biotin Complex Methods With Radioimmunoassay Antibodies. Am. J. Clin. Path., 78:795-796, 1982.
2. Lloyd, R.V., Rosen, P.P., Sarkar, N.H., Jimenez, D., Kinne, D.W.: Murine Mammary Tumor Virus Related Antigen in Human Male Mammary Carcinoma. An Immunohistochemical Study. Cancer, 51:654-661, 1983.
3. Lloyd, R.V., Sisson, J.D., Marangos, P.J.: Calcitonin Carcinoembryonic Antigen and Neuron Specific Enolase in Medullary Thyroid Carcinoma. An Immunohistochemical Study. Cancer, 51:2234-2239, 1983.
4. Lloyd, R.V., Gikas, P.W., Chandler, W.F.: Prolactin and Growth Hormone Producing Adenomas. An Immunohistochemical and Ultrastructural Study. Am. J. Surg. Path., 7:251-260, 1983.
5. Kalff, V., Shapiro, B., Lloyd, R.V., Sisson, J.C., Holland, K., Nakajo, M., Bierwaltes, W.H.: The Spectrum of Pheochromocytoma in Hypertensive Patients With Neurofibromatosis. Arch. Intern. Med., 142:2092-2098, 1982.
6. Shapiro, B., Sisson, J.C., Lloyd, R.V., Satterlee, W., Beierwaltes, W.H.: Malignant Pheochromocytoma: Clinical, Biochemical and Scintigraphic Characterization. Clin Endocrinol, In Press.

7. DeStephano, D.B., Lloyd, R.V., Schteingart, D.E.: Cushing's Syndrome Produced by a Bronchial Carcinoid Tumor. *Human Pathology*, In Press.
8. Warner, T.F., Black, M., Hafez, R., Mack, E., Lloyd, R.V., Blood, S.R.: Glucagonomas: Ultrastructural Immunohistochemistry. *Cancer*, 51:1091-1096, 1983.
9. Lloyd, R.V., Beierwaltes, W.H.: Occult Sclerosing Carcinoma of the Thyroid: Potential for Aggressive Biological Behavior. *South. Med. J.*, 76:437-439, 1983.
10. Marks, W.H., Strodel, W.E., Lloyd, R.V., Eckhauser, F.B., Thompson, N.W., Vinik, A.I.: Cervical Metastases From Bowel Carcinoid Tumors. *J. Surg. Oncol.*, In Press.
11. Zarbo, R.J., Lloyd, R.V., Beals, T.F., McClatchey, K.D.: Gingival Granular Cell Tumor (Congenital Epulis). A Histochemical, Immunohistochemical and Ultrastructural Study. *Oral Surg. Oral Pathol.*, In Press.
12. Kalff, V., Frolich, J.W., Lloyd, R.V., Thrall, J.H.: Predictive Value of an Abnormal Hepatobiliary Scan in Patients With Severe Intercurrent Illness. *Radiol.*, 146:191-194, 1983.
13. Gundry, S.R., Burney, R.E., Thompson, N.W., Lloyd, R.V.: The Importance of Total Thyroidectomy for Hurthle Cell Neoplasm of the Thyroid. *Arch. Surg.*, 118:529-532, 1983.
14. Grossman, H.B., Sander, L.P., Lloyd, R.V., Gikas, P.W.: Carcinosarcoma of the Bladder: Evaluation by Electron Microscopy and Immunohistochemistry. *Urology*. In Press.
15. Kalff, V., Shapiro, B., Lloyd, R.V., Nakajo, M., Sisson, J.C., Beierwaltes, W.H.: Bilateral Pheochromocytomas. In Press.
16. Warner, T.F., Uno, H., Hafez, R., Burgess, J., Bolles, C., Lloyd, R.V., Masamichi, O.: Merkel Cells and Merkel Cell Tumors. Ultrastructure, Immunocytochemistry and Review of the Literature. *Cancer*, 52:238-245, 1983.
17. McCoy, J.P., Lloyd, R.V., Wicha, M.S., Varani, J.: Identification of a Laminin-Like Substance on the Surface of High-Malignant Murine Fibrosarcoma Cells. *J. Cell Sci.* In Press.
18. Lloyd, R.V., Hajdu, S.I., Knappe, W.H.: Embryonal Rhabdomyosarcoma in Adults. *Cancer*, 51:557-565, 1983.
19. Lloyd, R.V.: Estrogen Induced Hyperplasia and Neoplasia in the Rat Anterior Pituitary Gland. An Immunohistochemical Study. *Am. J. Pathol.* In Press.
20. Simpson, S., Lloyd, R.V., Vinik, A.I., Marangos, P.J.: Immunohistochemical Demonstration of Neuron-Specific Enolase in Neuroendocrine Tumors. Correlation With Serum and Tissue Levels of Neuron-Specific Enolase. In Press.
21. Lloyd, R.V., Shapiro, B., Sisson, J.D., Kalff, V., Thompson, N.W., Beierwaltes, W.A.: A Histopathological and Histochemical Study of Benign and Malignant Pheochromocytomas. In Press.
22. Lloyd, R.V.: Ultrastructural Study of Estrogen Induced Pituitary Tumors and of the Transplantable Rat Pituitary MtT/W15 Tumor. Effects of Bromocriptine. Submitted to Lab Investigation.
23. Lloyd, R.V., Foley, J., Judd, J.: Peanut Agglutinin Lectin Binding and Immunohistochemical Localization of Alpha Lactalbumin in Breast Tissues. Submitted to *Cancer*.

24. Schaldenbrand, J., Lloyd, R.V., Khazaeli, M.B.: A Comparative Immunohistochemical Study of Monoclonal Antibodies Against BhCG. Submitted to J. Histochem. Cytochem.
25. Lloyd, R.V., Wilson, B.S.: Specific Endocrine Tissue Marker Defined by a Monoclonal Antibody. Science. In Press.
26. Simpson, S., Lloyd, R.V., Vinik, A.I., Marangos, P.J.: Immunohistochemical Demonstration of Neuron-Specific Enolase and S-100 Protein in Neuroendocrine Tumors. Correlation With Serum and Tissue Levels of Neuron-Specific Enolase. Lab Invest, 48:79A, 1983.
27. Lloyd, R.V., Shapiro, B., Sisson, J.C., Kalff, V., Thompson, N.W., Beierwaltes, W.A.: Pheochromocytoma and Intraabdominal Paraganglioma. A Histological and Immunohistochemical Study. Lab. Invest., 48:52A, 1983.
29. Lloyd, R.V., Varani, J., Masler, I.: Estrogen-Induced Hyperplasia and Neoplasia in the Rat Pituitary. Comparison with Human Prolactinomas. Lab. Invest., 48:52A, 1983.
30. Schaldenbrand, J., Lloyd, R.V., Khazaeli, M.B.: A Comparative Immunohistochemical Study of Monoclonal Antibodies Against BhCG. Lab. Invest., 48:74A, 1983.
31. Burgess, J., Hafez, G.R., Lloyd, R.V., Warner, T.F.: Immunocytochemistry of Neurotropic Melanoma. Lab Invest., 48:11:A, 1983.
32. Shapiro, B., Sisson, J.C., Lloyd, R.V., Thompson, N.W., Coran, A.G., Kelsch, R.C., Beierwaltes, W.H.: A Newly Described Type of Familial Pheochromocytoma: Fulfilling the Possibilities. Central Society for Clinical Research. Midwest Meeting, Chicago, Ill., 1982.
33. Shapiro, B., Sisson, J.C., Lloyd, R.V., Thompson, N.W., Coran, A.G., Kerloch, R.C.: Renal Hilar Pheochromocytoma: A Newly Described Familial Disorder. Amer. Fed. Clin. Res., April 29 - May 2, 1983.
34. Zarbo, R.J., Lloyd, R.V., Beals, T.F., McClatchey, K.D.: Histogenesis of Congenital Granular Cell Tumor: Ultrastructural Smooth Muscle Cytodifferentiation and Immunohistochemical Lack of S-100 Protein. Am. Acad. Oral Path., pp 15-20, 1983, Orlando, Florida.
35. Wilson, B.S., Lloyd, R.V.: Immunoperoxidase Staining of Formalin-Paraffin Section of Non-Lymphoid Tumors With a Monoclonal Antibody to Human Ia-Like Antigens. 5th Int. Congress of Immunology Japan, 1983.
36. Warner, T.F., Lloyd, R.V.: Pathology of the APUDomas, In, "Endocrinology of Cancer Vol. III", D. Rose, editor, CRC Press, Inc. Florida, 1982, pp 19-54.
37. Vinik, A.I., Strodel, W.E., Lloyd, R.V., Thompson, N.W.: Unusual Gastroenteropancreatic (GEP) Tumors and Their Hormones. In, "Surgical Endocrinology". N.W. Thompson and A.I. Vinik, editors. Grune and Stratton, NY, 1983.
38. Coon, W.W., Lloyd, R.V., Nishiyama, R.H., Schnitzer, B., Thompson, N.W.: Primary Lymphomas of the Thyroid Gland. In, "Surgical Endocrinology". N.W. Thompson and A.I. Vinik, editors. Grune and Stratton, NY, 1983.
39. Lloyd, R.V.: Pathology of the Adrenal Gland. In, "Scintigraphic Imaging of the Adrenal Gland". M.D. Gross, B. Shapiro, W.A. Beierwaltes, editors. Appelton-Century Crofts, NY, 1983.

40. Lloyd, R.V., Warner, T.F.: Immunohistochemistry of Neuron Specific Enolase. In, "Advances in Immunohistochemistry"³. R.A. DeLellis, editor. Masson Monograph Series. Masson Press, NY, 1983.
41. Lloyd, R.V., Warner, T.F.: Pathology of Neuroendocrine Tumors. CRC Press, Inc., Florida. In preparation (1984).

VII. HONORS:

Pathology Professor of the Year, Class of 1985.

EDMUND J. LOVETT III, PH.D.
ASSISTANT PROFESSOR OF IMMUNOLOGY
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Director of the Flow Cytometry Clinical Laboratory.
- B. I have participated in Grand Round in the Departments of Medicine, Surgery, Pediatrics and Infectious Diseases, and in the Monday Cytometry Conference given by the Department of Pathology.
- C. Department of Pathology Cell Identification Center.

II. TEACHING ACTIVITIES:

- A. Departmental: several lectures were given to faculty, staff and house officers on Flow Cytometry.
- B. Medical School/Hospital/University: Lectures given to Departments of Medicine, Surgery, Pediatrics, and Bioengineering, and the Medical Technologists rotation in the Flow Cytometry Laboratory.
- C. Continuing Medical Education - "Flow Cytometry and Cell Cycle Analysis Applications" - in 5th Annual Spring Conference a Clinical Chemistry and Immunology, 23-25 May 1983.

III. RESEARCH ACTIVITIES:

Eight students, Medical, dental, and undergraduate, have conducted research projects in my laboratory. I have reviewed journal articles for the Journal of Immunologic Methods, Cytometry and Cancer Research.

SPONSORED SUPPORT:

1. Principal Investigator, with B. Schnitzer, M.D., D. Shapiro, M.D., and J.L. Hudson, Ph.D. - "Detection of ALL Relapse by Flow Cytometry", Children's Leukemia Foundation, 1 July 1983 - 30 June 1984, \$15,000.
2. Co-Investigator with M. Mutchnick, M.D. - "Clinical and Immunologic Evaluation of Thymosin in Alcoholic Hepatitis, Veteran's Administration, 1982 - 1985, \$246,900.
3. Co-Investigator, with J.L. Hudson, Ph.D., and K.D. McClatchey, M.D. - "Cytometry Research and Development Project", Coulter Electronics, Inc. and Department of Pathology, University of Michigan, 1 April 1983 - 31 March 1984.

PROJECTS UNDER STUDY:

My research activities fall into three categories: 1) development of new assays and technologies in flow cytometry; 2) basic science projects utilizing flow cytometry in tumor biology and immunology, and 3) working with other investigators utilizing flow Cytometry as a clinical and basic science research tool.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Director, Flow Cytometry Clinical Laboratory

MEDICAL SCHOOL/HOSPITAL:

- A. Direct the research service component of the Flow cytometry Laboratory.
- B. CYPERNET Image Analysis Committee
- C. Grant proposal reviewer for BMRC and Rackham Graduate School.

REGIONAL AND NATIONAL:

- A. Chairman, Committee on standards in Flow Cytometry, Society of Analytical Cytology.

V. OTHER RELEVANT ACTIVITIES:

A. Invited Lectures:

1. Immunologic Associates, Denver, Colorado.
2. Immunology Seminar Series, Indiana University.
3. Pathology Symposium, Medical College of Ohio, Toledo, Ohio.
4. Annual Meeting, National Committees on Clinical Laboratory Standards, Cherry Hill, New Jersey.
5. Colorado Association for continuing Medical Education, Boulder, Colorado.
6. Panel Discussion, Annual Meeting, society of Analytical Cytology, Mittenwald, Germany.
7. Clinical Flow Cytometry Symposium, Coulter Electronics, Hialeah, Florida.

- B. Consulting Positions: Coulter Electronics, Inc., Stauffer Chemical Co., Inc.
- C. Named to "Who's Who in the Frontiers of Science and Technology."

VI. PUBLICATIONS:

1. Varani, J., Lovett, E.J., McCoy, J.P., Shibata, S., Maddox, D.E., Goldstein, I.J., Wicha, M.: Differential Expression of a Laminin-Like Substance by High and Low Metastatic Tumor Cells. *Am. J. Pathol.*, 111:27-34, 1983.
2. McCoy, J.P., Schrier, D., Lovett, E.J., Judd, W.J., Varani, J.: Hyperimmune Human ABO Blood Typing Sera: Reactivity With Murine Laminin and Cytotoxicity for Metastatic Murine Tumor Cells. *J. Cell Sci.*, 59:245-256, 1983.
3. Varani, J., Lovett, E.J.: Phenotypic Stability of Tumor Cells In Vitro and In Vivo. *J. Nat. Cancer Inst.* 68:957-962, 1982.
4. Lovett, E.J., Varani, J., Lundy, J.: Suppressor Cells and Increased Primary Tumor Growth Rate Induced by Thiopental. *J. Surg. Oncol.* 22:26-32, 1983.
5. Lovett, E.J., III, Bahn, C.F., Dickinson, R.W., Meyer, R.F., MacCallum, D.K., Lillie, J.H.: Cellular Immune Response to Cultured Bovine Corneal Endothelial Cell Lined Corneal Transplants. *Proc. of the International Symposium on Immunology and Immunopathology of the Eye*, 1982.
6. Lovett, E.J., III, Dickinson, R.W., Varani, J.: Metastatic Variants From a Methylcholanthrene Induced Syngeneic Murine Fibrosarcoma Produce Immunosuppression Proportional to the Metastatic Potential of the Variant. *Proceedings of VI Congress of European Association for Cancer Research*. R. Lapis, and S. Jeney, Editors. Markel Press, 1982.
7. Varani, J., Lovett, E.J., III, Fantone, J.C.: Stimulated Adherence of Tumor Cells: Relationship to Metastases. *Proceedings of VI Congress of European Association for Cancer Research*. R. Lapis, and S. Jeney, Editors. Markel Press, 1982.
8. Bahn, C.F., Meyer, R.F., MacCallum, D.K., Lillie, J.H., Lovett, E.J., Sugar, A., Martonyi, C.L.: Penetrating Keratoplasty in the Cat. *Ophthalmology*, 89:687, 1982.
9. Bahn, C.F., MacCallum, D.K., Lovett, E.J., Varani, J., Meyer, R.F., Lillie, J.H., Martonyi, C.L.: Corneal Homograft Rejection in the Cat. *Cornea*. In press.
10. Lovett, E.J., III, Bahn, C.F., Dickinson, R.W., Meyer, R.F., MacCallum, D.K.: Feline Keratoplasty as a Model for the Study of Occular Transplantation Immunity. In, "Immunology and Immunopathology of the Eye". Karger Press.
11. Bahn, C.F., Meyer, R.F., MacCallum, D.K., Lillie, J.H., Lovett, E.J., Sugar, A., Martonyi, C.L.: Penetrating Keratoplasty in the Cat: A Clinically Applicable Animal Model, *Proceedings of the Annual Meeting of ARUO*, 1982.
12. Bahn, C.F., MacCallum, D.K., Lovett, E.J., Robinson, B., Martonyi, C.L.: Endothelial Rejection in the Feline Model of Keratoplasty. *Proceedings of the Annual Meeting of AAO*, 1982.
13. Bahn, C.F., MacCallum, D.K., Lovett, E.J., Dickinson, R.W., Meyer, R.F., Lillie, J.H.: Corneal Transplantation in the Cat: Cellular Immune Mechanisms in Graft Survival and Rejection. *Ophthalmology*. In Press.
14. Bahn, C.F., MacCallum, D.K., Lovett, E.J., Varani, J., Meyer, R.F., Martonyi, C.L.: Corneal Homograft Rejection in The Cat. *Amer. J. Ophthalmology*. In Press.

15. Varani, J., Lovett, E.J., Wicha, M., Malinoff, H., McCoy, J.P.: Cell Surface α -D-Galactopyranosyl End Groups: Use as a Marker in the Isolation of Murine Tumor Cell Lines With Varying Malignant Potential. In Press.
16. Lovett, E.J., Schnitzer, B., Keren, D.F., Flint, A., Hudson, J.L., McClatchey, K.D.: Applications of Flow Cytometry to Diagnostic Pathology. Lab Investigation. In Press.
17. Schnitzer, B., Lovett, E.J., III, Flint, A., Hudson, J.L., Kahn, L.E., Bricker, L.J., Griffin, J.D.: Microgranular Acute Progranulocytic Leukemia Diagnosed by Flow Cytometry. N. Engl. J. Med. In Press.
18. Schnitzer, B., Lovett, E.J., III, Hudson, J.L., McClatchey, K.D., Keren, D.F., Dabich, L., Mitchell, B.F.: Adult T-Cell Leukemia-Lymphoma With Unusual Phenotype. Lancet 2:1273, 1982.

WAYNE A. MARASCO, PH.D.
RESEARCH INVESTIGATOR
DEPARTMENT OF PATHOLOGY

Annual Department Report
1 July, 1982 - 30 June, 1983

I. DIAGNOSTIC SERVICE ACTIVITIES: None

II. TEACHING ACTIVITIES:

- A. I am jointly responsible for the training of two postdoctoral fellows who are working in the laboratories of both Dr. Peter A. Ward and Dr. Roderick Nairn in the Department of Microbiology/Immunology. In addition, one graduate student from the Department of Microbiology/Immunology is working on her doctoral thesis under the joint direction of Dr. Nairn and myself.
- B. Presented research/teaching seminar in Department of Microbiology/Immunology for Immunology Forum Lecture Series.

III. RESEARCH ACTIVITIES:

- A. The experimental research in our laboratories is aimed at achieving detailed structural knowledge about the receptor on leukocyte for the chemotactic N-formylated peptides, which have now been identified as the major peptide leukotactic agents produced by bacteria. We are using a wide combination of membrane receptor purification techniques to achieve this goal including subcellular fractionation and plasma membrane purification, detergent solubilization, photoaffinity labeling, autoradiography, affinity chromatography and high-pressure liquid chromatography. Protein sequencing is being accomplished by using radiochemical microsequencing followed by immunoprecipitation of purified receptor material, HPLC and other peptide mapping techniques. Detailed molecular information about this chemotaxis receptor is of direct health-relatedness. The information gained could aid in designing novel anti-inflammatory reagents which might be applicable to the large number of patients with hypersensitivity and inflammatory diseases.
- B. Our laboratory is also interested in the mechanisms of neutrophil activation primarily by understanding the events that follow receptor-ligand binding. To this end, we have developed and implemented several computer programs to analyze ligand binding to multiple populations of receptors. We have been able to demonstrate that the anti-inflammatory properties of prostaglandin E may, in part, be due to a decreased binding affinity of radio-labelled formyl peptide for its receptor on leukocytes recovered from animals treated in vivo with prostaglandin E. In contrast,

PGF_{2α} which is not known to have anti-inflammatory properties, does not alter the binding affinity of the formyl peptide receptor.

- C. The following graduate students and fellows have been actively involved in our research efforts.
1. Ms. Kathy Becker - second year graduate student, Department of Microbiology/Immunology. Characterization of the murine macrophage formyl peptide receptor.
 2. Ms. Kathy Laybourn - master's candidate, Department of Epidemiology. Genetic control of the antibody response in mice to an NH₂-formylated chemotactic peptide.
 3. Mr. Doug Feltner - research assistant, Department of Pathology. Modulation of rat neutrophil formyl peptide receptors by prostaglandins.
 4. Dr. Susan Brown - postdoctoral fellow, Departments of Pathology and Microbiology/Immunology. Soluble formyl peptide receptor assay by competitive radioimmunoassay inhibition.
 5. Dr. Richard Smith - postdoctoral fellow, Departments of Pathology and Microbiology/Immunology. Structural characterization of the rabbit neutrophil formyl peptide receptor.
- D. Our laboratory has established collaborative ties with the faculty from the following departments.
1. Dr. Roderick Nairn - Department of Microbiology/Immunology. Study of Chemotaxis Receptor Structure and Function.
 2. Dr. John E. Niederhuber - Departments of Surgery and Microbiology/Immunology. Influence of the Major Histocompatibility Complex on the Expression of Murine Neutrophil Formyl Peptide Receptors and on the Antibody Response to an N-formylated Chemotactic Peptide.

SPONSORED SUPPORT:

1. National Institute of Health - Study of chemotaxis receptor structure and function. Co-Principal Investigator (pending).
2. National Institute of Health - Modification of immune complex lung injury by prostaglandins. Co-Investigator (pending).
3. National Institute of Health - Lung injury produced by oxygen metabolites. GM29507 Co-Investigator.

IV. ADMINISTRATIVE ACTIVITIES:

- A. Scientific presentations at the following regional and national meetings.
1. Federation of American Society for Experimental Biology. Chicago, Ill. 1983.
 2. Workshop on Immune Responses to Cell Membrane Receptors and Their Ligands as Causes of Neurological Diseases. Palm Springs, Calif. 1983.
 3. McNeal Symposium on Drug Development. Ann Arbor, MI 1983.

V. PUBLICATIONS:

1. Marasco, W.A., Fantone, J.C., Ward, P.A.: Spasmogenic Activity of Chemotactic N-Formylated Oligopeptides; Identity of Structure-Function Relationships for Chemotactic and Spasmogenic Activities. Proc. Natl. Acad. Sci. 79:7470-7473 (1982).
2. Marasco, W.A., Fantone, J.C., Freer, R.J., Ward, P.A.: Characterization of the Rat Neutrophil Formyl Peptide Chemotaxis Receptor. Am. J. Pathol. 111:273-281 (1983).
3. Fantone, J.C., Marasco, W.A., Elgas, L.J., Ward, P.A.: Anti-Inflammatory Effects of Prostaglandin E₁: In Vivo Modulation of the Formyl Peptide Chemotactic Receptor on the Rat Neutrophil. J. Immunol. 130:1495-1497 (1983).
4. Kunkel, S.L., Manderino, G.L., Marasco, W.A., Kaercher, K., Hirata, A.A., Ward, P.A.: A Specific Enzyme-Linked Immunosorbent Assay (ELISA) for the Determination of Human C5a Antigen. J. Immunol. Methods, 1983. In Press.
5. Fantone, J.C., Marasco, W.A., Elgas, L.J., Ward, P.A.: Stimulus Specificity of Prostaglandin Inhibition of Rabbit Polymorphonuclear Leukocyte Lysosomal Enzyme Release and Superoxide Anion Production. Am. J. Pathol. In Press.
6. Marasco, W.A., Phan, S.H., Krutzsch, H., Showell, H.J., Feltner, D.E., Nairn, R., Becker, E.L., Ward, P.A.: Formyl-Methionyl-Leucyl-Phenylalanine: A Naturally Occurring Chemotactic Peptide Produced by Escherichia Coli. Proc. of Symposium on Chemical Mediators of Inflammation. Fifth International Congress of Immunology. In Press.
7. Marasco, W.A., Ward, P.A., Feltner, D.E., Varani, J.: Chemotactic Factor Binding by Metastatic Tumor Cells: Evidence for a Formyl-Peptide Receptor on a Non-Myelogenous Cell.
8. Marasco, W.A., Phan, S.H., Krutzsch, H., Showell, H.J., Feltner, D.E., Nairn, R., Becker, E.L., Ward, P.A.: Purification and Identification of Formyl-Methionyl-Leucyl-Phenylalanine (f Met-Leu-Phe) as The Major Peptide Neutrophil Chemotactic Factor Produced by Escherichia Coli.
9. Marasco, W.A., Niederhuber, J.E., Ward, P.A.: Murine Neutrophil Formyl Peptide Receptors: Effects of the Major Histocompatibility Complex on Receptor Number, Affinity and Biological Response.
10. Marasco, W.A., Laybourn, K.A., Ward, P.A., Niederhuber, J.E.: Genetic Control of the Immune Response in Mice to an NH₂-formylated Chemotactic Peptide. I. More than One Gene in H-2 Controls the Antibody Response.
11. Zoghbi, S.S., Marasco, W.A., Becker, E.L., Thakur, M.L.: Selective Radiolabeling of Human Neutrophil Through Internalization of the Formyl Peptide Receptor Complex.
12. Plewa, M.C., Higashi, G.I., Chensue, S.W., Marasco, W.A., Ward, P.A., Kunkel, S.L.: Regulation of Ia Antigen Expression on Granulomatous Macrophages by Prostaglandins.
13. Marasco, W.A., Niederhuber, J.E., Ward, P.A.: Influence of the Major Histocompatibility Complex on Expression of Murine Neutrophil Formyl Peptide Receptors. Fed. Proc. 41:272, 1982.

14. Marasco, W.A., Niederhuber, J.E., Ward, P.A.: Murine Neutrophil Formyl Peptide Receptors: Effects of the Major Histocompatibility Complex on Receptor Number, Affinity and Biological Response. University of Michigan Biomedical Research Council. 1982.
15. Marasco, W.A., Ward, P.A., Nairn, R.: Identification and Preliminary Molecular Characterization of the Rabbit Neutrophil Formyl Peptide Receptor. Fed. Proc. 42:697, 1983.
16. Fantone, J.C., Marasco, W.A., Elgas, L., Ward, P.A.: Anti-Inflammatory Effects of Prostaglandin E₁: In Vivo Modulation of the Formyl Peptide Chemotactic Receptor on the Rat Neutrophil. Fed. Proc. 42:694, 1983.
17. Becker, K.M., Marasco, W.A., Ward, P.A., Nairn, R.: Murine Macrophage Formyl Peptide Receptors: Comparison of Binding of Two Radiolabelled Peptides by Resident and Inflammatory Macrophages. Fed. Proc. 42:694, 1983.
18. Marasco, W.A.: Substance P Binding to an Inflammatory Chemotaxis Receptor: Consequences Regarding Tissue Injury and Neurological Disease. Workshop on Immune Responses to Cell Membrane Receptors and Their Ligands as Causes of Neurological Diseases. Palm Springs, Calif. 1983.
19. Marasco, W.A., Phan, S.H., Krutzsch, H., Showell, H.J., Feltner, D.E., Nairn, R., Becker, E.L., Ward, P.A.: Formylmethionyl Peptides are the Major Peptide Leukotactic Factors Produced by Bacteria. McNeal Symposium on Drug Development. Ann Arbor, MI, 1983.
20. Marasco, W.A., Phan, S. H., Krutzsch, H., Showell, H.J., Feltner, D.E., Nairn, R., Becker, E.L., Ward, P.A.: Purification and Identification of Formyl-Methionyl-Leucyl-Phenylalanine (f Met-Leu-Phe) as the Major Peptide Neutrophil Chemotactic Factor Produced by Escherichia Coli. Symposium on Chemical Mediators of Inflammation. Fifth International Congress of Immunology. Kyoto, Kapan, 1983.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE 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 (which includes Adult Virology in the School of Public Health)
- E. Medical Director of Clinical Toxicology Laboratory (in Pharmacy area)
- F. Medical Director of Medical Technology Program - Eastern Michigan University
- G. Ann Arbor Veterans Administration Medical Center - monthly consultant
- H. Coordinator of Cytometry Program - The University of Michigan, Department of Pathology

II. TEACHING ACTIVITIES:

- A. Pathology 630, 631 - Course Director
 - 1. 6 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. Clinical Studies 510 (Inteflex) - Lecturer, Head and Neck Pathology
- E. Microbiology 521 Introductory Diagnostic Microbiology - participant
- F. Coordinator of resident teaching in the clinical laboratories under my direction (Microbiology, Flow Cytometry)

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Co-Investigator with Betty Forbes, Ph.D., Antimicrobial Removal Device. Marion Laboratories, Inc., 1982-83, \$25,000

- B. Cytometry Research and Development Project, Coulter Electronics, Inc. and Department of Pathology, The University of Michigan (J.L. Hudson, principal investigator, E.J. Lovett III and K.D. McClatchey, Co-investigators), 1 July 1983 - 30 June 1984.
- C. Consultant, CHD Risk Factor Study, Millicent Higgins M.D. (principal investigator), NIH pending, 1983.

PROJECTS UNDER STUDY:

See laboratories under my direction

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Medical Service Plan Executive Committee, Department of Pathology, The University of Michigan, 1979-
- B. Hospital Replacement Project (Pathology Group) Laboratory Planning Committee, 1980-
- C. Director, Residency Program, Department of Pathology, The University of Michigan, 1982-

MEDICAL SCHOOL/HOSPITAL:

- A. Infection Control Committee, The University of Michigan Hospitals, 1978-
- B. Scientific Advisory Committee, Dental Research Institute, The University of Michigan, School of Dentistry, 1980-1983
- C. Laboratory Committee, The University of Michigan Hospitals, 1978-
- D. Ambulatory Care Committee, The University of Michigan Hospitals, 1980-
- E. Medical, Surgical and Psychiatric Hospital Planning Committee, 1982-
- F. Doctoral Committee, Rackham Graduate School, The University of Michigan, Steven Smith, 1981-
- G. Committee on Educational Affairs, School of Dentistry, The University of Michigan, 1981-1983
- H. Committee on Sophomore Student Promotions, School of Dentistry, The University of Michigan, 1982-
- I. Clinical Chairmen's Council, The University of Michigan Hospitals, 1982-
- J. Dean's Advisory Committee, The University of Michigan Medical School, 1982-

REGIONAL AND NATIONAL:

- A. Council of the National Reference System in Clinical Chemistry of the National Committee for Clinical Laboratory Standards, 1983-
- B. Southwestern Oncology Group (SWOG), member, 1982-
- C. Governing Committee of the College of American Pathologists, Task Force on Analytical Goals, 1983-

- D. Commission on Scientific Resources of the College of American Pathologists, Committee to the National Bureau of Standards, 1983-
- E. Commission on Scientific Resources, College of American Pathologists, 1982-
- F. Standards Committee, Chairman, College of American Pathologists, 1982-
- G. American National Metric Council, member 1982-
- H. National Committee for Clinical Laboratory Standards, Committee on Reference Laboratory Standards, 1983-
- I. Survey's Committee, College of American Pathologists, member 1982-
- J. Council on Quality Assurance, College of American Pathologists, 1982-

V. OTHER RELEVANT ACTIVITIES:

Seminars and Presentations:

- A. New Technology in the '80's: Flow Cytometry. College of American Pathologists Annual Meeting, October 16, 1982
- B. Carcinoma of the Nose and Nasal Cavity, American College of Surgeons Annual Meeting, October 25, 1982
- C. Physiology of Tissue Expansion, presented at Soft Tissue Expansion in Reconstructive Surgery, Plastic Surgery Educational Foundation, Towsley Center, The University of Michigan, November 19, 1982
- D. Major & Minor Salivary Gland Cysts, Coeles and Tumors: Classification & Histogenesis, Batsakis JG, McClatchey, KD. Short Course for International Academy of Pathology, 71st Annual Meeting, Atlanta, GA., March, 1983
- E. Evaluation of Two Rapid Neisseria Identification Systems: Poster presentation: Kronholm LM, Kloosterman RE, McClatchey, KD. American Society for Microbiology Annual Meeting, New Orleans, LA., March, 1983
- F. Head and Neck Oncology: Salivary Gland Tumors, The Department of Otolaryngology, The Towsley Center for Continuing Education, The University of Michigan, May, 1983
- G. Computers in the Clinical Microbiology Laboratory, at Current Concepts in Clinical Microbiology, The Towsley Center for Continuing Education, The University of Michigan, June 7, 1983

VI. PUBLICATIONS:

1. McClatchey, K.D., Langin, J.L., Appelblatt, N.H.: Carcinoma in Papillary Cystadenoma Lymphomatosum. Laryngoscope, 92:98-99, 1982.
2. Baker, H.L., Baker, S.R., McClatchey, K.D.: Manifestations and Management of Laryngoceles. Head and Neck Surg., 4:450-56, 1982.
3. Pasyk, C., McClatchey, K.D., Cherry, G., Austad, E.: An Electron-Microscopy on Normal and Expanded Skin With Self-Inflating Implant. J. Plast. Recon. Surg., 70:37-45, 1982.

4. Polomski, J., McClatchey, K.D.: Evaluation of Minitex System for Direct Identification of Anaerobic Rods From Positive Blood Cultures. *J. Clin. Microbiol.*, 16:673-675, 1982.
5. Rosset, J., McClatchey, K.D., Higashi, H., Knisely, A.S.: Anisakis Larvae Type I in Fresh Salmon: A Clinicopathologic Study. *Am. J. Clin. Path.*, 78:54-57, 1982.
6. Lulenski, G., McClatchey, K.D., Kemink, J.L.: Carcinoid Tumor Metastatic to the Submandibular Salivary Gland. *Ear, Nose & Throat*, 61:549-551, 1982.
7. Austad, E.D., McClatchey, K.D., Pasyk, C., Grabb, W.C.: Histomorphologic Evaluation of Guinea Pig Skin and Soft Tissue After Controlled Tissue Expansion. *Plast. Recon. Surg.*, 70:704-710, 1982.
8. Appleblatt, N.H., McClatchey, K.D.: Olfactory Neuroblastomas: A Retrospective Clinicopathologic Study. *Head and Neck Surg.*, 5:108-113, 1982.
9. Hubbard, W.A., Shalis, P.J., McClatchey, K.D.: Evaluation of the BD Urine Culture Kit With a Standard Culture Method and M5-Urine Screen. *J. Clin. Microbiol.*, 17:327-331, 1983.
10. Cherry, G.W., Phil, D., McClatchey, K.D.: The Effect of Closed Wound Suction on Healing Wounds: A Comparison of Low and High Pressure Drain Systems. *Infect. in Surg.*, 2:243-247, 1983.
11. Zarbo, R.J., McClatchey, K.D., Areen, R., Baker, S.: Thymopharyngeal Duct Cysts: A Clinicopathologic Study. *Ann. Otolaryng.*, 92:284-289, 1983.
12. Falck, F.Y., Jr, Fine, L.J., Smith, R.G., McClatchey, K.D., Annesley, T., England, B.G., Schork, A.M.: Occupational Cadmium Exposure and Renal Status. *Am. J. Indust. Med.*, 4:541-549, 1983.
13. Zarbo, R.J., McClatchey, K.D., Cohen, A.R.: Nasopharyngeal Hamartoma. Review of Literature and Report of Case. *Laryngoscope*, 93:494, 1983.
14. Polomski, J.C., Bauer, S.H., McClatchey, K.D.: Micro-Media Systems Anaerobe Panel Versus Broth Disk Method in Anaerobe Antimicrobial Testing. *J. Clin. Microbiol.*, 17:949-952, 1983.
15. Schnitzer, B., Lovett, E.J., Hudson, J.R., McClatchey, K.D., Keren, D.F., Dabich, L., Mitchell, B.F.: Adult T/Cell Leukemia-Lymphoma With Unusual Phenotype. *Lancet*, 2:1273-1274, 1983.
16. Pierson, C.L., Reynolds, S.R., McClatchey, K.D.: Relative Susceptibility of Moxalactam-Resistant *Pseudomonas Aeruginosa* to Selected Anti-*Pseudomonas* Antibiotics in Various Test Media. *Antibiotic Agents Chemotherapy*, 1983.
17. Forbes, B.A., McClatchey, K.D., Schaberg, D.R.: Subinhibitory Concentrations of N-Formenidoyl Thienamycin (MK 0787) Induce Increased Resistance to Methicillin and MK0787 *In Vitro* in Methicillin-Resistant *Staphylococcus Aureus*. *Antimicrobial Agents and Chemotherapy*, 1983.
18. Cohen, B.J., Chrisp, C.E., McClatchey, K.D., Anver, M.R.: Age and Strain - Associated Dysplasia of Mouse Maxillary Incisor Teeth. *Gerodontology*, 1983.
19. McClatchey, K.D., Zarbo, R.J.: Salivary Gland Cysts. *MD Anderson Cancer Bulletin*, 1983.
20. Falck, F.Y., Jr, Fine, L.J., Smith, R.G., McClatchey, K.D., Annesley, T., England, B.G.: Protein Excretion Patterns in Cadmium-Exposed Individuals: High Level Electrophoresis. *Arch. Environ. Health*, 1983.

21. Vernick, D.M., Graham, M.D., McClatchey, K.D.: Intralabyrinthine Schwannoma. Arch. Otolaryn., 1983.
22. Kemink, J.L., Graham, M.D., McClatchey, K.D.: Hemangioma of the External auditory canal. Am. J. Otol., 1982.
23. Zarbo, R.J., Lloyd, R.V., Beals, T.F., McClatchey, K.D.: Gingival Granular Cell Tumor (Congenital) Epulis: A Histochemical, Ymmunohistochemical and Ultrastructural Study). Oral Surg, Oral Med., Oral Path., 1982.
24. McClatchey, K.D., Zarbo, R., Appelblatt, N.H., Merrell, D.: Plunging Ranula: A Clinopathologic Study. Oral Surg, Oral Med., Oral Path., 1982.
25. Amendola, B.E., LaRouere, J., Amendola, M.A., McClatchey, K.D., Han, I.H., Morley, G.W.: Adenocarcinoma of the Fallopian Tube: Treatment Results in 34 patients. Obstet., Gynec. & Surg., 1982.
26. McClatchey, K.D.: Maxillary Ameloblastoma. Amer. Soc. of Clin. Pathol. - Check Sample, 1983.
27. Batsakis, J.G., McClatchey, K.D.: Ameloblastoma of the Maxilla and Peripheral Ameloblastoma. Ann. Otorhinolaryng., 1982.
28. McClatchey, K.D., Green, T.G.: Gross and Microscopic General Pathology for Dental Students. The University of Michigan Dental Publications. Revised 1983.

J. PHILIP MCCOY JR, PH.D.
RESEARCH INVESTIGATOR
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

Participation in the development of the new immunohistology (immunoperoxidase) laboratory. Activities include ordering equipment, trouble shooting technical problems, devising new assays, and overseeing the physical establishment of the laboratory.

II. TEACHING ACTIVITIES:

None

III. RESEARCH ACTIVITIES:

During the previous year research projects have been conducted in conjunction with other members of the Department of Pathology and with members of the Departments of Dermatology, Biochemistry, Internal Medicine, and Ophthalmology. Additionally research has been performed under contract for Stauffer Chemical Company.

SPONSORED SUPPORT:

1. Michigan Cancer Research Institute Grant \$5,000 2/28/82-5/28/83, "Immunocharacterization of IB₄ Receptor Related to Metastasis."
2. Department of Dermatology \$15,000 5/1/83-4/30/84, "Characterization of Immune responses Generated by Intradermal Implantation of Bovine Collagen."
3. Stauffer Chemical Co. Contract \$43,180 4/1/83-3/30/84, "In vitro and in vivo Investigations of the Makari Phenomenon."

PROJECTS UNDER STUDY:

1. Investigation of the role of laminin in the metastatic ability of murine fibrosarcoma cells.
2. Development of ELLA (Enzyme-linked-lectin assay) techniques for the detection of carbohydrate end units.
3. Study of the immune responses induced in patients by intradermal injections of bovine collagen suspensions.
4. Characterization of a tumor polysaccharide substance (TPS) and corresponding monoclonal anti-TPS antibodies developed by Stauffer Chemical Co.

5. Describing humoral immune responses following corneal injury.
6. Purification and characterization of entactin and determination of its relationship to laminin.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: None

V. OTHER RELEVANT ACTIVITIES:

Participation in the "Extracellular Matrix Group", a group of UM researchers who meet to exchange information concerning basement membranes and related topics.

VI. PUBLICATIONS:

1. McCoy, J.P., Michaelson, J.H., Bigazzi, P.E.: Anti-Idiotypic Immunity and Autoimmunity. Investigations by ELISA in Human Autoimmune Thyroiditis. *Life Sci.*, 32:109-118, 1983.
2. McCoy, J.P., Schrier, D., Lovett, E.J., Judd, W.J., Varani, J.: Hyperimmune Human ABO Blood Typing Sera: Reactivity with Murine Laminin and Cytotoxicity for Metastatic Murine Tumor Cells. *J. Cell Sci.*, 59:245-256, 1983.
3. Varani, J., Lovett, E.J., McCoy, J.P., Shibata, S., Maddox, D., Goldstein, I.J., Wicha, M.: Differential Expression of a Laminin-Like Substance by High and Low Metastatic Tumor Cells. *Am. J. Path.*, 111:27-34, 1983.
4. McCoy, J.P., Varani, J., Goldstein, I.J.: Enzyme-Linked-Lectin Assay (ELLA): Use of Alkaline Phosphatase-Conjugated *G. Simplicifolia* B₄ Isolectin for the Detection of α -D-Galactopyranosyl End Groups. *Anal. Biochem.*, 130:437-444, 1983.
5. Varani, J., McCoy, J.P., Ward, P.A.: The Attraction of Wandering Metastatic Cells. In, "Progressive Stages of Neoplastic Growth", H. Kaiser, editor.
6. McCoy, J.P., Lloyd, R., Wicha, M.S., Varani, J.: Identification of a Laminin-Like Substance on the Surface of High Malignant Murine Fibrosarcoma Cells. *J. Cell Sci.* In Press.
7. Siegle, R.J., McCoy, J.P., Schade, W., Swanson, N.A.: Humoral Immune Responses Associated with Clinical Reactions Following Intradermal Implantation of Bovine Collagen. *Arch. Dermatol.* In Press.
8. Varani, J., Lovett, E.J., Wicha, M., Malinoff, H., McCoy, J.P.: Cell Surface α -D-Galactopyranosyl End Groups: Use as a Marker in the Isolation of Murine Tumor Cell Lines with Varying Cancer-Causing Potential. *J. Natl. Cancer Inst.* In Press.
9. McCoy, J.P., Varani, J., Goldstein, I.J.: Enzyme-Linked-Lectin Assay (ELLA) II. Detection of Carbohydrate Groups on the Surface of Unfixed Cells. *Exp. Cell Res.* Submitted.

10. Malinoff, H., McCoy, J.P., Varani, J., Wicha, M.: Metastatic Potential of Murine Fibrosarcoma Cells Correlates with Endogenous Surface Receptor-bound Laminin. Submitted.
11. McCoy, J.P., Michaelson, J.H., Bigazzi, P.E.: Anti-Idiotypic Immunity and Autoimmunity. III. Investigations by ELISA Methodology. Ann NY Acad. Sci., 392:399-400, 1982.
12. Malinoff, H., McCoy, P., Varani, J., Wicha, M.: Metastatic Potential of Murine Fibrosarcoma Cells Correlates with Endogenous Surface Receptor-bound Laminin. J. Cell Biol., 95(2):126a, 1982.
13. McCoy, J.P., Varani, J., Goldstein, I.J.: Enzyme-Linked-Lectin Assay (ELLA): Specific Enzyme Assay for Detection and Quantitation of Terminal Carbohydrate Groups. Fed. Proc., 42(4):933, 1983.
14. Varani, J., McCoy, J.P.: Variants of Murine Tumors Lacking Surface α -D-Galactopyranosyl End Groups: Selection and Characterization. Presented at the 36th Annual Symposium Fundamental Cancer Research, Houston, Texas, March, 1983.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES: None.

II. TEACHING ACTIVITIES:

- A. Occasional Lectures
- B. Supervision of 2-3 graduate students
- C. Supervision of 1 postdoctoral fellow
- D. Supervision of 3 premedical students

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. NIH-P50-HL11311, Specialized Population Research Center, 1979-1984, \$2,050,959 (5 years).
- B. Mellon Foundation Grant (with Population Studies Center), 1982-1985, \$250,000.
- C. Ford Foundation Training Grant, 1981-1983, \$92,000.
- D. NIH-HD07048, Predoctoral and Postdoctoral Training Grant, 1983-1985, \$687,480.

PROJECTS UNDER STUDY:

- A. Hormone-receptor interactions in granulosa cells.
- B. Development and utilization of a computer controlled perfusion system for on-line analysis of pulsatile signalling.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: None

MEDICAL SCHOOL/HOSPITAL:

- A. Director, Reproductive Endocrinology Program.
- B. Director, Center for Human Growth and Development (July and August)

REGIONAL AND NATIONAL:

- A. President-Elect, Society for the Study of Reproduction.
- B. Member of Council of the Endocrine Society.
- C. Member of Medical Advisory Board, National Hormone and Pituitary Program.

V. PUBLICATIONS:

1. Midgley, A.R., Jr.: Ovarian Communication and Control. In, "Factors Regulating Ovarian Function". G. Greenwald, and P. Terranova, Editors, Raven Press, New York, pp. 1-10, 1983.
2. Sanders, M.M., Midgley, A.R., Jr.: Cyclic Nucleotides Can Induce Luteinizing Hormone Receptor in Cultured Granulosa Cells. Endocrinology, 112:1382-1388, 1983.
3. Bagavandoss, P., Midgley, A.R., Jr., Wicha, M.: Developmental Changes in the Ovarian Follicular Basal Lamina Detected by Immunofluorescence and Electron Microscopy. J. Histochem. Cytochem., 31:633-640, 1983.
4. Sanders, M.M., Midgley, A.R., Jr.: Rat Granulosa Cell Differentiation: An In Vitro Model. Endocrinology, 111:614-624, 1982.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Cytopathology - 6 1/2 months
- B. Director, Cytopathology Laboratory - full time
- C. Cytopathology, pulmonary pathology, and gynecologic pathology consultation service - 12 months

II. TEACHING ACTIVITIES:

- A. Pathology 600 - Sophomore medical students, class lectures - 2 contact hours
- B. Pathology residents - supervision and teaching during cytopathology rotation
- C. Pathology residents biweekly cytopathology conferences

III. RESEARCH ACTIVITIES:

Cytopathology, with particular reference to serous fluids

SPONSORED SUPPORT:

None

PROJECTS UNDER STUDY:

- A. Charcot-Leyden crystals in serous fluids
- B. Aspiration cytology of pulmonary Hodgkin's disease
- C. Cross contamination in the cytologic staining circuit

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. President-Elect, American Society of Cytology
- B. Chairman, Budget and Finance Committee, American Society of Cytology
- C. Chairman, Editorial and Publications Committee, American Society of Cytology

V. OTHER RELEVANT ACTIVITIES:

- A. Editorial Advisory Board, Acta Cytologica
- B. Editorial Board, The Cytotechnologist's Bulletin
- C. Cytopathology Subcommittee, American Board of Pathology
- D. Invited presentation. Naylor, B.: Cytologic manifestations of non-neoplastic entities. Guest lecture, Postgraduate Course in Diagnostic Cytopathology, Memorial Sloan-Kettering Cancer Center, New York, New York, September, 1982.
- E. Invited presentation. Naylor, B.:
 - a) Aspiration Biopsy: Intrathoracic Lesions. (lecture)
 - b) Panel discussion on patient management, aspiration technique, indications, complications and future of aspiration biopsy (moderator)
 - c) Pulmonary aspiration cytology, with Beals, TR. (workshop). Seminar and workshop on Aspiration Needle Biopsy: A Team Approach. Henry Ford Hospital, Detroit, Michigan, September, 1982.
- F. Invited presentation. Naylor, B.: Rare and unusual non-neoplastic entities manifested in routine cytologic preparations. Postgraduate seminar, Selected Short Subjects in Anatomic Pathology, The University of Michigan, Ann Arbor, Michigan, October, 1982.
- G. Novak, P.M., Kumar, N.B., Naylor, B.: Curschmann's spirals in cervicovaginal smears: prevalence, significance and origin. Presentation, Annual Scientific Meeting, American Society of Cytology, Chicago, Illinois, November, 1982.
- H. Invited presentation. Naylor, B.: Cytologic manifestations of non-neoplastic entities. Guest lecture, Diagnostic and Therapeutic Institute of Piraeus, Piraeus, Greece, May, 1983.
- I. Invited presentation. Naylor, B.: Cytologic manifestations of non-neoplastic entities. Guest lecture, Hellenic Society of Pathologists, Athens, Greece, May, 1983.

VI. PUBLICATIONS:

1. Choo, Y.C., Naylor, B.: Multiple Primary Neoplasms of the Ovary and Uterus. Int. J. Gynaecol. Obstet., 20, 327-334, 1982.
2. McDonald, T.W., Morley, G.W., Choo, Y.C., Shields, J.J., Cordoba, R.B., Naylor, B.: Fine Needle Aspiration of Para-Aortic and Pelvic Lymph Nodes Showing Lymphangiographic Abnormalities. Obstet. Gynecol., 61, 383-388, 1983.

3. Naylor, B.: Dr. Papanicolaou as I Knew Him. The Cytotechnologist's Bulletin, 3, 38, 1983.

HAROLD A. OBERMAN, M.D.
PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Director, Clinical Laboratories, University Hospitals
- B. Director, Blood Bank, University Hospitals
- C. Diagnosis of surgical pathology consultation cases

II. TEACHING ACTIVITIES:

- A. Responsible for Laboratory Section, Sophomore Pathology course
- B. Lectures on breast pathology and transfusion medicine to sophomore class
- C. Lectures on clinical laboratory medicine to Interphase Program
- D. Presentation of monthly Conference on Surgical Pathology to Section of General Surgery
- E. Organization of weekly Clinical Pathology Grand Rounds
- F. Postgraduate course - "Current Topics in Blood Banking" - Planning Committee
- G. Course on Transfusion Medicine presented to Pathology and Hematology/Oncology House Officers
- H. Presentation of seminars on Pathology of Breast to Pathology House Officers

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. Plasmapheresis in the treatment of chronic relapsing polyradiculoneuropathy (in cooperation with Department of Neurology - Dr. J. Albers)
- C. Neonatal neutropenia and infection: randomized trial of therapeutic granulocyte transfusion (in cooperation with Department of Pediatrics, Sections of Neonatology and Hematology)

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Executive Committee, Departmental Medical Service Plan
- B. Resident Selection Committee
- C. Medical Director, Medical Technology Program

MEDICAL SCHOOL/HOSPITAL:

- A. Executive Committee on Clinical Affairs, University Hospitals
- B. New Hospital Planning Committee
- C. Medical School Task Force
- D. Laboratories Committee, Chairman
- E. Transfusion Committee, Chairman
- F. Interdepartmental Coordinating Committee, Medical Service Plans
- G. Professional Fee Policy Committee, Vice-Chairman
- H. Medical Service Plans Executive Board
- I. Director's Advisory Council, Chairman
- J. Unit Representative, Medical School Faculty

REGIONAL AND NATIONAL:

- A. American Association of Blood Banks
 - 1. Committee on Standards
 - 2. Transfusion Transmitted Diseases (AIDS) Task Force
 - 3. Committee on Standards Deviations, Chairman
- B. American Society of Clinical Pathologists
 - 1. Council on Anatomical Pathology
 - 2. Director, Check Sample Program, Anatomical Pathology
- C. Michigan Society of Pathologists
 - 1. Medical Care Insurance Committee
- D. Health Care Finance Administration (Department of Health and Human Services)
 - 1. Task Force for Competitive Bidding for Clinical Laboratories in United States
- E. International Academy of Pathology
 - 1. Organization of Annual "Long Course"
- F. Arthur Purdy Stout Society of Surgical Pathologists
 - 1. Program Chairman
- G. Detroit Red Cross
 - 1. Medical Advisory Committee
 - 2. Blood Operations Committee
- H. Breast Cancer Detection Demonstration Project, National Cancer Institute - Consultant
- I. Wayne County General Hospital - Consultant
- J. Veterans Administration Hospital, Ann Arbor - Consultant

V. OTHER RELEVANT ACTIVITIES:

EDITORIAL ACTIVITIES:

- A. Associate Editor, TRANSFUSION
- B. Co-Editor, The Breast (International Academy of Pathology)
- C. Editorial Board, American Journal of Surgical Pathology
- D. Associate Editor, Critical Reviews in Clinical Laboratory Sciences
- E. Editor, General Principles of Blood Transfusion (AMA)

PRESENTATIONS AT NATIONAL MEETINGS:

1. Infarction and Squamous Metaplasia of Intraductal Papillomas. Flint, A. and Oberman, H.A. Annual Meeting, International Academy of Pathology. Atlanta, GA, March, 1983.
2. Benign Breast Lesions Confused with Carcinoma. Oberman, H.A. Invited address, International Academy of Pathology. Atlanta, GA, March, 1983.
3. Short Course, "Decision-Making in the Blood Bank". Annual Meeting of American Society of Clinical Pathologists. Miami, FL, October, 1982.
4. Short Course, "Surgical Pathology of the Breast". Annual Meeting of American Society of Clinical Pathologists. Miami, FL, October, 1982.
5. Postgraduate course, "Pathology of the Breast" (ASCP). Orlando, FL, December, 1982.
6. Annual lectureship, Houston Society of Pathologists: "Unusual Lesions of the Breast". March, 1983.
7. Hemotherapy Symposium: "Emergency Transfusion". Mid-American Red Cross, Chicago, IL, June, 1983.

VI. PUBLICATIONS:

1. Oberman, H.A.: Abbreviation or Elimination of the Crossmatch. Clin. Lab. Med., 2:181, 1982.
2. Oberman, H.A.: Editorial: Microaggregate Filtration. Transfusion, 23:89, 1983.
3. Trudeau, L.R., Judd, W.J., Butch, S.H., Oberman H.A.: Is a Room Temperature Crossmatch Necessary for the Detection of ABO Errors? Transfusion, 23:237, 1983.
4. Oberman, H.A.: Standard Versus Abbreviated Compatibility Tests. In: "Safety and Transfusion Practices". H. Plesky, and R. Walker, Editors. College of American Pathologists, 1982. Pp. 107-112.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Angiotension converting enzyme assays
- B. Consultant to the VA Hospital

II. TEACHING ACTIVITIES:

- A. Lectured in ICS course
- B. Laboratory instructor for Pathology P600 course
- C. Dr. Ricardo E. Duque, post-doctoral fellow

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Research Associate of the Veteran's Administration and Merit Review Grant Awardee (7/1/1980 - 6/30/1983, \$70,000 annually).
- B. Principal investigator of NIH grant entitled "Mechanisms and Genetic Regulation of Pulmonary Fibrosis". (7/1/1982 - 6/30/1985, \$65,000 annually).

PROJECTS UNDER STUDY:

- A. The effects of genetic influences on pulmonary fibrosis were examined in terms of a) mutations impairing the inflammatory and immune systems, and b) H-2 composition in mice.
- B. The role of autoimmunity to lung collagen type I in bleomycin-induced pulmonary fibrosis was examined.
- C. Regulation of fibroblast chemotaxis, proliferation and protein synthesis by lung derived factors is an ongoing study.
- D. Studies on the regulation of monocyte/alveolar macrophage activation, recruitment and their regulation of fibroblast function is currently being initiated.
- E. The effects of thermal injury on the impairment of alveolar macrophage function were examined with respect to the appearance of fluorescent compounds separable by HPLC, in the serum of burnt animals.
- F. The roles of serine dependent esterases/proteases and phospholipase A₂ in stimulated neutrophil transmembrane potential changes were examined, and radiolabelled site-specific inhibitors for these enzymes have been synthesized.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: None
MEDICAL SCHOOL/HOSPITAL: None

REGIONAL AND NATIONAL:

A. Ad hoc member of Pathology A Study Section, NIH, USPHS.

V. OTHER RELEVANT ACTIVITIES: None

VI. PUBLICATIONS:

1. Schrier, D.J., Phan, S.H., Ward P.A.: Cellular Sensitivity to Collagen in Bleomycin-Treated rats. *J. Immunol.*, 129:2156-2159, 1982.
2. Phan, S.H., Armstrong, G., Sulavik, M.C., Schrier, D., Johnson, K.J., Ward, P.A.: A Comparative Study of Pulmonary Fibrosis Induced by Bleomycin and an O₂ Metabolite Producing Enzyme System. *Chest*, 835:445-455, 1983.
3. Schrier, D.J., Kunkel, R.G., Phan, S.H.: The Role of Strain Variation in Murine Bleomycin-Induced Pulmonary Fibrosis. *Am. Rev. Resp. Dis.*, 127:63-66, 1983.
4. Phan, S.H., Schrier, D., McGarry, B., Duque, R.E.: Effect of the Beige Mutation on Bleomycin-Induced Pulmonary Fibrosis in Mice. *Am. Rev. Resp. Dis.*, 127:456-459, 1983.
5. Schrier, D.J., Phan, S.H., McGarry, B.M.: The Effects of the Nude (nu/nu) Mutation on Bleomycin-Induced Pulmonary Fibrosis. *Am. Rev. Resp. Dis.*, 127:614-617, 1983.
6. Duque, R.E., Phan, S.H., Sulavik, M.C., Ward, P.A.: Inhibition by Tosyl-L-phenylalanyl Chloromethyl Ketone of Membrane Potential Changes in Rat Neutrophils. *J. Biol. Chem.*, 1983.
7. Phan, S.H.: Fibrotic Mechanisms in Lung Disease. In, *Immunology of Inflammation, Handbook of Inflammation Vol. 4.* P.A. Ward, Editor. Elsevier Science Publishers, 1983.
8. Duque, R.E., Phan, S.H., Sulavik, M.C., Ward P.A.: Effect of Protease Inhibitors of Depolarization of the Transmembrane Potential in Rat Neutrophils. Correlation With Superoxide Generation and Enzyme Release. *Fed. Proc.*, 42:385, 1983.
9. Phan, S.H., Duque, R.E.: Irreversible Inhibition of Neutrophils Membrane Potential Depolarization by a Phospholipase A₂ Inhibitor. *Fed. Proc.*, 42:1035, 1983.
10. Phan, S.H., McGarry, B.: Effect of Bronchoalveolar Lavage Fluid from Bleomycin Treated Animals on Fibroblast Collagen Synthesis. *Am. Rev. Resp. Dis.*, 127:68, 1983.
11. Duque, R.E., Phan, S.H., Sulavik, M.C., Ward, P.A.: Injury to the Plasma Membrane of Rat Pulmonary Alveolar Macrophages Following Remote Thermal Injury. *Am. Rev. Resp. Dis.*, 127:275, 1983.

CARL L. PIERSON, PH.D.
ASSISTANT PROFESSOR OF PATHOLOGY
ASSOCIATE DIRECTOR, CLINICAL MICROBIOLOGY LABORATORY
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

Associate Director of Clinical Microbiology Laboratory

II. TEACHING ACTIVITIES:

- A. Director, Postgraduate Medicine symposium. "Current Concepts in Clinical Microbiology", June 6, 7, 1983, The Towsley Center.
- B. Clinical Pathology Conference Didactic Lecture Series Presentation. "Isolation and Identification of Mycobacteria". Oct. 22, 1982.
- C. Coordinator - Pathology House Officer Microbiology rotation.
- D. Coordinator - Postdoctoral Training Program in Public Health and Medical Laboratory Microbiology. Program Director: E.M. Britt, St. Joseph Mercy Hospital, Ann Arbor, Michigan. Sponsor: American Academy of Microbiology, American Society for Microbiology.
 - 1. Stephen Cavaleri - August, September, 1982.
 - 2. James Rudrik - January, February, 1983.
- E. Lecturer - Medical Technology Program (Pathology 410).
 - 1. "Sexually Transmitted Diseases". February 28, 1983.
 - 2. "Antimicrobial Susceptibility Testing". March 2, 3, 1983.
- F. Coordinator - Microbiology Journal Club (monthly).
- G. Guest Lecturer - "The Activity of the New Cephalosporins in Respiratory Tract Infections", Flint Society for Medical Technologists, Flint, Michigan. October 26, 1982.
- H. Lecturer - "Infection Control" in Postgraduate program. "Care of the Burned Patient", the Towsley Center. December 3, 1982.
- I. Lecturer - "Immunodeficiencies of Burned Patients and Infection Control" in the Burn Nurse Specialist Education Program, National Institute for Burn Medicine, Ann Arbor, Michigan. December 8, 1982.
- J. Pathology Research Seminar presentation - "In Vitro Susceptibility Testing". May 5, 1983.
- K. Doctoral Thesis Committee - Edwards Linn, School of Pharmacy.
- L. Project Advisor - B Kailani, Epidemiology, School of Public Health.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Co-Investigator: "Bactericidal Activity of Trimethoprim/Sulfamethoxazole," Hoffmann-LaRoche, Inc., \$15,541, 1983 (6 mo.).
Principal Investigator: H. Isenberg, Long Island Jewish Medical Center, New York, New York.
- B. Principal Investigator: "In Vitro Activity of CI-919 Against Clinical Isolates of Mycoplasma and Ureaplasma", Warner-Lambert (Parke-Davis), \$4,336, 1983 (2.5 mo.).
- C. Co-Investigator: "A Survey of Cefoxitin Resistance in Bacteroides fragilis", Merck Institute for Therapeutic Research, \$4,500, 1981-1983 (3 yrs.). Principal Investigator: F. Tally, Tufts Medical Center, Boston, Massachusetts.

PROJECTS UNDER STUDY: (not currently sponsored with outside funding)

- A. "Methicillin-Resistant Staphylococcus aureus: Effects of Test Media on Minimal and Bactericidal Concentration Endpoints and Correlation with Therapeutic Results".
- B. "Detection of Circulating Pseudomonas exotoxin by micro-ELISA".
- C. "Correlation of Histologic and Microbiologic Techniques for the Detection of Chlamydia trachomatis" with Drs. Kumar (Pathology), Menon (Obstetrics) and Elliott (Population Planning).
- D. "Flow Cytometric Analysis of Macrophage Function", with Drs. Hudson and Lovett (Pathology).
- E. "The Tzank Prep in the Diagnosis of Varicella-Zoster with Drs. Varani (Pathology) and Rasmussen (Dermatology).
- F. "Correlation of Clinical Diagnosis of Viral Respiratory Infections with Virus Recovery by Culture" with Drs. Varani (Pathology) and Knight (Anesthesiology).
- H. "Use of Gas-Liquid Chromatography for the Rapid Detection and Isolation of Microorganisms".

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Associate Director - Clinical Microbiology Laboratory.
- B. Alternate - Clinical Laboratories Directors' Committee.
- C. Coordinate weekly laboratory senior staff meetings.
- D. Coordinate clinical and research activities in the School of Public Health Laboratory.

MEDICAL SCHOOL/HOSPITAL:

- A. Alternate - Infection Control Committee.
- B. Consultant - Burn Unit Infection Control.

REGIONAL AND NATIONAL:

- A. Consultant, National Institute for Burn Medicine, Ann Arbor, Michigan.
- B. Review of manuscripts for Infection and Immunity.

V. PUBLICATIONS:

1. Tally, F.P., Cucharal, G.J., Jacobus, N.V., Gorbach, S.L., Aldrich, K.E., Iannini, P.B., McCloskey, R.V., O'Keefe, J.P., Pierson, C.L.: Susceptibility of Bacteroides fragilis Group in the United States in 1981. Antimicrob. Agents Chemother., 23:536-540, 1983.
2. Behl, C.R., Linn, E.E., Flynn, G.L., Pierson, C.L., Higuchi, W.I., Ho, N.F.H.: Permeation of Skin and Eschar by Antiseptics. I. Baseline Studies with Phenol. J. Pharmaceutical Sci., 72:391-397, 1983.
3. Behl, C.R., Linn, E.E., Flynn, G.L., Ho, N.F.H., Higuchi, W.I., Pierson, C.L.: Permeation of Skin and Eschar by Antiseptics. II. Influence of Controlled Burns on the Permeation of Phenol. J. Pharmaceutical Sci., 72:397-400, 1983.
4. O'Connor-Scarlet, M., Pierson, C.L.: "Susceptibility Differences Among Different Colony Morphologies within the Same Species". Abstracts, 83rd Annual Meeting of the American Society for Microbiology, 1983, Abstract No. C353.
5. Pierson, C.L., Reynolds, S.R., McClatchey, K.D.: Relative Susceptibility of Moxalactam-Resistant Pseudomonas Aeruginosa to Selected Anti-Pseudomonas Antibiotics in Various Test Media. Submitted to Antibiotic Agents Chemotherapy.
6. Solomon, A.R., Rasmussen, J.E., Varani, J., Pierson, C.L.: The Tzank Prep in the Diagnosis of Cutaneous Herpes simplex. Accepted for publication in the JAMA.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. CLINICAL ACTIVITIES:

- A. Oral Pathology biopsy service: 4 months/year (5,000 biopsies/yr)
- B. Patient consultations: on call at the School throughout the year and scheduled consultations 4 months/year for one afternoon per week.

II. TEACHING ACTIVITIES:

- A. Lectures in Graduate Oral Pathology #696.
- B. Lecturer and laboratory instructor in Sophomore Oral Pathology #'s 626 and 627.
- C. Laboratory instructor in General Pathology for Dental Students #631.
- D. General pathology resident training in Oral Pathology (1 month)
- E. Lecturer (x2) to Dermatology residents.
- F. Lecturer (x3) to Oral Surgery residents.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. "Longitudinal" Histologic and Histometric Evaluation of Peri-odontal Implants in Dogs. M.E. Krause and J.A. Regezi. Sponsor: BMRS at \$4,900.00 1982-1984.

ALSO UNDER CONSIDERATION:

- A. Immunogold staining of dermal and submucosal macrophages (dendri-cytes).

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

Faculty advisor to Student Council

DENTAL SCHOOL:

- 1. Member of Executive Committee 1982-1985
- 2. School representative to University Senate Assembly.

NATIONAL:

1. Member of Executive Committee of American Academy of Oral Pathologists 1982-1985.
2. Chairman, Finance Committee, American Academy of Oral Pathologists.
3. National Consultant in Oral Pathology to the American Dental Association.
4. Member of Editorial Board for Oral Surgery, Oral Medicine and Oral Pathology.

V. OTHER RELEVANT ACTIVITIES:

Paper in preparation: Minor Salivary Gland Tumors: A Histopathologic and Immunohistologic Study by J. Regezi, R. Lloyd, R. Zarbo, and K. McClatchey.

VI. PUBLICATIONS:

1. Regezi, J.A., Zarbo, R.J., Keren, D.: Plasma Cell Lesions of the Head and Neck: Immunofluorescent Determination of Clonality from Formalin-Fixed, Paraffin-Embedded Tissue. Oral Surg., Oral Med., Oral Pathol. In Press.
2. Batsakis, J.G., Regezi, J.A., Soloman, A.R., Rice, D.J.: The Pathology of Head and Neck Tumors: Mucosal Melanomas. Head and Neck Surg., 4:404, 1982.
3. Fodor, M.A., Regezi, J.A.: Labial Salivary Glands: Comparison of Regional Pathology and Normal Ultrastructure. Abstract #131, American Association for Dental Research, March, 1983, Cincinnati, Ohio.
4. Regezi, J.A., Courtney, R.M., Passo, S.A., Hanks, C.T.: Oral Pathology: Clinical-Microscopic Correlations. (Laboratory Manual for Sophomore Dental Students) 116 pages, copyright 1982, University of Michigan Dental School.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. CLINICAL ACTIVITIES:

Responsible for biopsy service 4 mos/yr.
Responsible for clinical patient diagnostic problems and management thereof 4 mos/yr.

II. TEACHING ACTIVITIES:

- A. *Oral Pathology to Freshman Dental Students, Course #516.
- B. Oral Pathology to Sophomore Dental Students, Course #624 and 625.
- C. Oral Pathology to Senior Dental Students, Course #816 and 818.
- D. Oral Pathology Seminar to graduate Students in operative Dentistry, Course #691.
- E. *Oral Pathology Seminar to Graduate Students in Periodontics, Course #781.
- F. *Course Director.

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. A study of the analgesic efficacy of sodium meclufenamate in the treatment of acute surgical dental pain. Coprincipal Investigator. Sponsor: Warner Lambert/Parke Davis Co.
- C. A pilot study of the analgesic efficacy of isoxicam versus a known analgesic agent and a placebo. Coprincipal Investigator. Sponsor: Warner Lambert/Parke Davis Co.

PROJECTS UNDER STUDY:

- A. Dental health manpower utilization in New Zealand, a pilot study with possible pertinence to the State of Michigan. Coprincipal Investigator.

IV. ADMINISTRATIVE ACTIVITIES:

MEDICAL/DENTAL SCHOOL:

- A. Associate Director of the Dental Research Institute. Activities include:
 - 1. Chairman, Committee responsible for the exhibit at the Michigan Technology Fair.
 - 2. Chairman, Planning Committee for Symposium on Dental Pulp: Reactions to Restorative Materials in the Presence or Absence of Infection. October 29 and 30, 1982.
 - 3. Chairman, Planning Committee for Symposium on Herpes, Hepatitis and AIDS: Concerns for the health practitioner. To be held November 16, 1983.
 - 4. Participate in deliberation of various other committees such as the Scientific Advisory Committee of the Institute and the Policy Committee of the Institute.

REGIONAL AND NATIONAL:

- A. Chairman, Committee on Cancer Control, Hospital and Institutional Dentistry, Michigan Dental Association.
- B. Member, Executive Committee, Michigan Division, American Cancer Society.
- C. Chairman, Annual Regional Oral Cancer Symposium, Jackson, Michigan, 1982. Cosponsored by:
 - 1. Michigan Dental Association
 - 2. Michigan Nurses Association
 - 3. Michigan Association of Dental Hygienists.
 - 4. Michigan Division of The American Cancer Society.
 - 5. Michigan Medical Society.
- D. Member, Board of Appeals, Committee on Accreditation, Graduate Specialty Education Programs, American Dental Association.
- E. Consultant, Committee on Hospital and Institutional Dentistry, American Dental Association.
- F. Consultant to the Office of the Surgeon, 5th United States Army.

V. OTHER RELEVANT ACTIVITIES:

Lecturer to various groups including:

- 1. The University of Otago, Dunedin, New Zealand.
- 2. The University of Malaysia, Kuala Lumpur, Malaysia.
- 3. The University of Athens, Athens, Greece.
- 4. The Stomatological Society of Greece, Athens, Greece.
- 5. The Michigan Dental Association, Annual Session.
- 6. Miscellaneous civic clubs, component dental societies and study clubs.

VI. PUBLICATIONS:

1. Rowe, N.H., ed.: Trends in the Prevention and Treatment of Periodontal Disease: Proceedings of Symposium, The University of Michigan Press, Ann Arbor, 1983.
2. Rowe, N.H., Heine, C.S., Kowalski, C.J.: Herpetic Whitlow: An Occupational Disease of Practicing Dentists. J. Am. Dent. Assoc., 105:471-473, 1982.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Director, Clinical Hematology Laboratory
- B. Director, University of Michigan Health Services Laboratories
- C. Diagnostic Surgical Pathology, Hematopathology
- D. Diagnostic Surgical Pathology, V.A. Hospital (weekly)
- E. Diagnostic Hematopathology, V.A. Hospital
- F. Diagnostic Clinical Flow Cytometry
- G. Consultation of Hematopathology Cases
- H. Review of Southwest Oncology Group (SWOG) cases (circa 200/year)
- I. Diagnostic electron microscopy of lymphoreticular and hemato-
pathology cases

II. TEACHING ACTIVITIES:

- A. Medical Students
Pathology 600 - whole class lecture
- B. House Officers
 - 1. Daily review of blood smears and body fluids in Hematology
Laboratory
 - 2. Daily review of in-house and consultation hematopathology
cases and correlation with flow cytometry data and immuno-
peroxidase studies
 - 3. House Officer Conference in hematopathology
 - 4. Affiliated Hospitals
 - a. Veterans Administration Hospital
 - b. Wayne County General Hospital
- C. Hospital
Flow Cytometry Conference

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. V. Dabich).
- B. Southwest Oncology Group (SWOG). Combination chemotherapy of
unfavorable histology non-Hodgkin's lymphomas with alternating
regimens of CHOPP and CVB (with Dr. Dabich).

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. Hematology Laboratory, Hospital
- B. University of Michigan Health Services Laboratory
- C. Clinical Pathology Committee

MEDICAL SCHOOL/HOSPITAL:

- A. Flow Cytometry Conference

REGIONAL AND NATIONAL:

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

V. OTHER RELEVANT ACTIVITIES:

- A. Editorial Board, American Journal of Clinical Pathology
- B. Invited Speaker
 - 1. Blue Ridge Society of Pathologists, Roanoke, Virginia. Lecture and slide seminar.
 - 2. Seventh Annual Hematopathology Course, Electron Microscopy as an Aid in Hematologic Disorders. Armed Forces Institute of Pathology, Washington, D.C.
 - 3. Biological Applications of Flow Cytometry. The Comprehensive Cancer Center of Metropolitan Detroit. Detroit, Michigan. Comparison of morphologic features and mitotic rate to flow analysis of DNA content of poorly-differentiated lymphocytic lymphomas.
 - 4. Biologic Applications of Flow Cytometry. The Comprehensive Cancer Center of Metropolitan Detroit. Detroit, Michigan. Flow Cytometric Analysis of Granulocytic Leukemia.
 - 5. Sixth Veterans Administration Diagnostic Electron Microscopy Conference. Ann Arbor, Michigan. Lymphocyte Markers.
 - 6. National Society of Histotechnologists, Region IV. First Annual Symposium. Ann Arbor, Michigan. Immunomorphologic Classification of Lymphomas.
- C. Rodolfo Rasche, M.D. spent three months as Visiting Professor in Pathology. Most of his time was spent working in hematopathology.

VI. PUBLICATIONS:

1. Schnitzer, B., Lovett, E.J., III, Hudson, J.L., et al.: Acute T-cell Lymphoma-Leukemia With Unusual Phenotype. Lancet, 2:1273-1274, 1983.
2. Schnitzer, B., Lovett, E.J., III, Flint, A., et al.: Acute Microgranular Progranulocytic Leukemia Diagnosed by Flow Cytometry. N. Engl. J. Med., #):435, 1983.
3. Palutke, M., Schnitzer, B., et al.: Comparison of Morphologic Features and Mitotic Rate to Flow Analysis of DNA Content of Poorly-Differentiated Lymphocytic Lymphomas. Lab. Invest., 48:66-67A, 1983 (abstract).
4. Coon, W.W., Lloyd, R.V., Nishiyama, R.H., Schnitzer, B., Thompson, N.W.: Primary Lymphomas of the Thyroid Gland. In, "Endocrine Surgery Update". Ch. 7. N. Thompson and A.I. Vinik, Editors. Grune & Stratton, pp. 59-66. In Press.
5. Schnitzer, A., Schnitzer, B.: Is Running an Analogue of Anorexia Nervosa. N. Engl. J. Med., 309:47, 1983.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Pathologist-Wayne County General Hospital.
- B. Responsibilities for Surgical Pathology, Cytology, Autopsy Pathology with other Pathologists.
- C. Responsible for Microbiology Laboratories.

II. TEACHING ACTIVITIES:

Medical Technology Program - 12 Lectures. Resident Teaching in Surgical Pathology and Autopsy Pathology

III. RESEARCH ACTIVITIES:

None.

IV. ADMINISTRATIVE ACTIVITIES:

- A. President of Medical Staff - Wayne County General Hospital
- B. Chairman - Tissue Committee, Wayne County General Hospital

MEDICAL SCHOOL/HOSPITAL:

- A. UM - UMAPC - Liaison Committee

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

Annual Departmental Report
July 1, 1982 - June 30, 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Clinical Immunopathology Laboratory; Flow Cytometry Laboratory

II. TEACHING ACTIVITIES:

- A. Resident training in immunology and immunopathology
B. Postgraduate course in clinical chemistry and immunology

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Co-investigator on the following research grants:
1. NIH, GM 28499, Thermal Injury
2. Stauffer Chemical Company, Makari Phenomenon

PROJECTS UNDER STUDY:

- A. Experimental thermal injury, complement and leukocyte dysfunctions.
B. Serological reactivity of human serum with tumor polysaccharide substances (TPS).
C. Pathomechanism of acute tissue injury following activation of complement and neutrophils in vivo.
D. Protection from oxygen free radical-induced tissue damage.
E. Side effects of radiographic contrast media: effects on leukocyte functions.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: See above

MEDICAL SCHOOL/HOSPITAL:

- A. Member Microbiology and Immunology External Review Committee

REGIONAL AND NATIONAL:

- A. Member NIH Special Study Section
B. Member Editorial Advisory Board, Immunobiology

- C. Editor, Leukocyte Locomotion and Chemotaxis. Birkhauser Verlag, Basel, 1983.
- D. Editor, The Complement System, Springer Verlag, Berlin, 1984.

VI. PUBLICATIONS:

1. Till, G.O., Ward, P.A.: Lung Injury Secondary to Chemotactic Factor-Induced Leukocyte Activation. In, "Leukocyte Locomotion and Chemotaxis". H.U. Keller and G.O. Till, Editors. Agents and Actions Suppl. 12:383-396. Birkhauser Verlag, Basel, 1983.
2. Till, G.O., Beauchamp, C., Menapace, D., Tourtellotte, W., Kunkel, R., Johnson, K.J., Ward, P.A.: Oxygen Radical Dependent Lung Damage Following Thermal Injury of Rat Skin. J. Trauma, 23:269-277, 1983.
3. Fantone, J.C. Johnson, J.K., Till, G.O., Ward, P.A.: Acute and Progressive Lung Injury Secondary to Toxic Oxygen Products From Leukocytes. Chest, 835:46-48, 1983.
4. Ward, P.A., Till, G.O., Kunkel, R., Beauchamp, C.: Evidence for Role of Hydroxyl Radical in Complement and Neutrophil Dependent Tissue Injury. J. Clin. Invest. In Press.
5. Till, G.O., Ward, P.A.: Altered Inflammatory Mechanisms in Thermal Injury. In, "Handbook of Inflammation, Vol. IV" P.A. Ward, Editor. In Press.
6. Till, G.O.: Inflammatory Mechanisms in Thermal Injury. In, "Clinics in Laboratory Medicine". P.A. Ward, M.D., Editor. In Press.
7. Till, G.O.: Chemotaxis and Cell Activation. In, "The Complement System". K.O. Rother and G.O. Till, Editors. Springer-Verlag, Heidelberg. In Press.
8. Till, G.O. Ward, P.A.: Role of Hydroxyl Radical in Neutrophil Chemotaxis. Submitted to the J. Immunol.
9. Fligiel, S.E.G., Ward, P.A., Johnson, K.J., Till, G.O.: Evidence for Role of Hydroxyl Radical in Immune Complex Induced Vasculitis. Submitted to the J. Immunol.

JAMES VARANI, PH.D.
ASSISTANT PROFESSOR OF PATHOLOGY
DEPARTMENT OF PATHOLOGY

Annual Department Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. My service activity is in the Clinical Virology Laboratory.

II. TEACHING ACTIVITIES:

Two post-doctoral students worked in my laboratory during this period. One of the students spent the summer of 1982 in the laboratory. The other began in the fall of 1982 and his work is ongoing. During the same period one medical student and four undergraduate students worked in the laboratory under my supervision.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. National Cancer Institute, "Tumor Cells with Varying Degrees of Malignancy".
B. National Cancer Institute, "Immunopathology of Complement-Mediated Tumor Cell Chemotaxis".
C. Milheim Foundation for Cancer Research, "Modification of Metastatic Potential by Laminin".
D. KMS Fusion Inc., Ann Arbor, MI, "Growth of Anchorage-Dependent Cells on Glass Microcarriers".
E. Stauffer Chemical Co., Westport, CT, "In vitro and In vivo Investigations of the Makari Phenomenon".

PROJECTS UNDER STUDY:

The major focus of the work conducted during this period was on the biology of tumor metastasis. Additionally, research projects were undertaken to investigate the ability of experimental substrates to support the growth of cultured cells and to examine the production of clinically-useful markers by malignant tumor cells.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

I participated in the administration and operation of the clinical virology laboratory. I handled the laboratory's involvement in several clinical research studies.

V. OTHER RELEVANT ACTIVITIES:

- A. Manuscript review consultant for the following journals:
 - 1. Journal of the National Cancer Institute
 - 2. Cancer Research
 - 3. Laboratory Investigation
 - 4. Journal of Laboratory and Clinical Medicine
 - 5. Invasion and Metastasis
- B. Grant review consultant for the Veteran's Administration.
- C. Co-chaired a symposium on tumor metastasis at this year's FASEB meeting.

VI. PUBLICATIONS:

- 1. Varani, J., Lovett, E.J.: Phenotypic Stability of Tumor Cells In Vitro and In Vivo. J. Nat. Cancer Inst., 68:957-962, 1982.
- 2. Varani, J.: Chemotaxis of Metastatic Tumor Cells. Cancer Metastasis Review, 1:17-28, 1982.
- 3. Lovett, E.J., Varani, J., Lundy, J.: Suppressor Cells and Increased Primary Tumor Growth Rate Induced by Thiopental. J. Surg. Oncol., 22:26-32, 1983.
- 4. Varani, J., Grimstad, I.A., Wass, J.A., Spirnak, J., Fantone, J.C.: Chemotactic Factor-Induced Adherence of Tumor Cells. Invasion and Metastasis, 2:274-288, 1982.
- 5. Rao, K.M.K., Varani, J.: Actin Polymerization Induced by Chemotactic Peptide and Concanavalin A in Rat Neutrophils. J. Immunol., 129:1605-1607, 1982.
- 6. Varani, J., Lovett, E.J., McCoy, J.P., Shibata, S., Maddox, D.E., Goldstein, I.J., Wicha, M.: Differential Expression of a Laminin-Like Substance by High and Low Metastatic Tumor Cells. Am. J. Pathol., 111:27-34, 1983.
- 7. McCoy, J.P., Schrier, D., Lovett, E.J., Judd, W.J., Varani, J.: Hyperimmune Human ABO Blood Typing Sera: Reactivity With Murine Laminin and Cytotoxicity for Metastatic Murine Tumor Cells. J. Cell Sci., 59:245-256, 1983.
- 8. Varani, J., Wass, J.A., Rao, K.M.K.: Actin Changes in Normal Lymphocytes and Transformed Lymphoid Cells. J. Nat. Cancer Inst., 70:805-809, 1983.
- 9. Varani, J., Dame, M., Beals, T.F., Wass, J.A.: Growth of Three Established Cell Lines on Glass Microcarriers. Biotechnology Bioengineering, 25:1359-1372, 1983.

10. McCoy, J.P., Varani, J., Goldstein, I.J.: Enzyme-Linked Lectin Assay: (ELLA): Use of Alkaline-Phosphate-Conjugated G: Simplicifolia B₄ Isolectin for the Detection of α -D-Galactopyranosyl End Groups. *Analyt. Biochem.*, 130:437-444, 1983.
11. Orr, F.W., Varani, J.: Chemotactic Mechanisms and Cancer Metastasis. *Pathology Annual* (part 2), 17:307-330, 1982.
12. Varani, J., Lovett, E.J., Fantone, J.C.: Stimulated Adherence of Tumor Cells: Relationship to Metastasis. In, "Tumor Progression and Markers". K. Lapis, A. Jeney and M.R. Price, Editors. Kugler Publications, Amsterdam. 1982. p. 131-135.
13. Lovett, E.J., Dickinson, R.W., Varani, J.: Metastatic Variants From a Methylcholanthrene Induced Syngeneic Murine Fibrosarcoma Produce Immunosuppression Proportional to the Metastatic Potential of the Variant. In, "Tumor Progression and Markers". K. Lapis, A. Jeney and M.R. Price, Editors. Kugler Publications. Amsterdam. 1982. p. 145-153.
14. Varani, J., Ward, P.A.: Chemotaxis of Tumor Cells. In, *Leukocyte Locomotion and Chemotaxis. Agents and Actions Supplements Vol. 12.* H.U. Keller and G.O. Till, Editors. Birkhauser Verlag, Basel, 1983, p. 134-153.
15. Varani, J., Ward, P.A.: Tumor Cell Chemotaxis, In, *Tumor Invasion and Metastasis*". L.A. Liotta and I.R. Hart, Editors. Martinus Nijhoff, Publishers. The Hague, 1982, p. 99-112.
16. Bahn, C.F., MacCallum, D.K., Lovett, E.J., Varani, J., Meyer, R.F., Lillie, J.H., Martonyi, C.L.: Corneal Homograft Rejection in the Cat. *Cornea*. In Press.
17. Fantone, J.C., Kunkel, S.L., Weingarten, L., Varani, J.: Modulation of Tumor Cell Adherence by Prostaglandins: Correlation With Intracellular Cyclic Adenosine 3':5' Monophosphate Levels. *Oncology*. In Press.
18. McCoy, J.P., Lloyd, R., Wicha, M.S., Varani, J.: Identification of a Laminin-Like Substance on the Surface of High Malignant Murine Fibrosarcoma Cells. *J. Cell Sci.* In Press.
19. Varani, J., McCoy, J.P., Ward, P.A.: The Attraction of Wandering Metastatic Cells. In, "Progressive Stages of Neoplastic Growth". H. Kaiser, Editor.
20. Varani, J., Lovett, E.J., Wicha, M., Malinoff, H., McCoy, J.P.: Cell Surface α -D-Galactopyranosyl End Groups: Use as a Marker in the Isolation of Murine Tumor Cell Lines with Varying Malignant Potential. *J. Nat. Cancer Inst.* In Press.
21. McCoy, J.P., Varani, J., Goldstein, I.J.: Enzyme-Linked-Lectin Assay (ELLA) II. Detection of Carbohydrate Groups on the Surface of Unfixed Cells.
22. Malinoff, H., McCoy, J.P., Varani, J., Wicha, M.: Metastatic Potential of Murine Fibrosarcoma Cells Correlates with Endogenous Surface Receptor-Bound Laminin.
23. Malinoff, H., McCoy, P., Varani, J., Wicha, M.: Metastatic Potential of Murine Fibrosarcoma Cells Correlates with Endogenous Surface Receptor-Bound Laminin. *J. Cell Biol.*, 95(2):126a, 1982.
24. McCoy, J.P., Varani, J., Goldstein, I.J.: Enzyme-Linked-Lectin Assay (ELLA): Specific Enzyme Assay for Detection and Quantitation of Terminal Carbohydrate Groups. *Fed. Proc.*, 42(4):933, 1983.

25. Varani, J., McCoy, J.P.: Variants of Murine Tumors Lacking Surface α -D-Galactopyranosyl End Groups: Selection and Characterization. Presented at the 36th Annual Symposium Fundamental Cancer Research, Houston, Texas, March, 1983.
26. Johnson, K., Varani, J.: Interaction Between Oxygen Radicals and Proteases in Substrate Hydrolysis. Fed. Proc., 42(4), 1983.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

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 sessions to Sophomore Medical Students
 - 3. Lecture in the Sophomore Pathology Course
- B. Graduate Students
 - 1. Supervision of one postdoctoral students, Dr. Wayne Marasco

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. Thermal Injury Complement and Leukocyte Dysfunction, NIH GM28499; \$66,295/year (\$353,456/five years)
- B. Lung Immunopathology (Training), NIH HL07517; \$111,324/year (\$577,952/five years)
- C. Leukocyte Chemotaxis, NIH HL28442; \$63,552/year (\$340,327/five years)
- D. Immune Complex Injury of Oxygen Metabolites, NIH HL26809; \$79,228/year (\$245,309/three years)
- E. Pathogenesis of Targeted Lung Injury, NIH HL26498; \$62,565/year (\$204,145/three years)
- F. Lung Injury Produced by Oxygen Metabolites, NIH GM29507; \$89,136/year (\$507,078/five years)
- G. Oxygen-derived Free Radicals, Immune Complexes and Tissue Injury, Tobacco Research Council Grant #1550; \$70,000/year
- H. In Vitro and In Vivo Investigations of the Makari Phenomenon, Stauffer Chemical Co.; \$141,838/year (\$300,000/two years)

TOTAL DIRECT COSTS
(July 1, 1982 - June 30, 1983) = \$ 683,938

TOTAL DIRECT COSTS
(July 1, 1981 - March 31, 1984) \$ 2,598,267

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

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

MEDICAL SCHOOL/HOSPITAL:

- A. Interim Dean, Medical School
- B. Member, Clinical Chairmen's Council
- C. Chairman, Dean's Advisory Council
- D. Member, Director's Advisory Council
- E. Director, Feasibility Study for Multifloor Medical Research Facility Attached to Medical Science II Committee
- F. Chairman, Medical Sciences Research Building (MSRB) Task Force
- G. Member, Michigan Eye Bank Research Review Committee
- H. Member, Michigan Diabetes Research and Training Center Policy Committee
- I. Chairman, Psychiatry Search Committee, Chairman
- J. Member, Wayne County General Hospital/University of Michigan Liaison Committee
- K. Member, Review and Search Committee for a Permanent Section Head of General Surgery
- L. Chairman, Medical School Executive Committee
- M. Chairman, Joint Staff Committee
- N. Member, Dental Research Institute Policy Committee
- O. Chairman, Henry Ford Hospital Liaison Committee
- P. Member, St. Joseph Mercy Hospital Liaison Committee
- Q. Chairman, Inteflex Policy Committee, Chairman
- R. Chairman, VA/Dean's Committee
- S. Member, Clinical Laboratory Directors
- T. Member, Joint Conference Committee
- U. Member, Hospital Executive Board
- V. Member, Financial Development Committee
- W. Member, Academic Affairs Advisory Council
- X. Member, Michigan Medical School Council of Deans
- Y. Member, Medical Service Plan Executive Board
- Z. Chairman, Expanded Medical School Task Force
- AA. Member, Clinical Research Council Policy Committee

REGIONAL AND NATIONAL:

- A. Member, Universities Associated for Research and Education in Pathology, Inc.
- B. Member, Advisory Council, Johns Hopkins Center for Alternatives to Animal Experiments
- C. Member, Review Committee A (Program Project Study Section), National Institutes of Health

- D. Immunopathology Test Committee, The American Board of Pathology
- E. Chairman, Program Committee, American Association of Pathologists
- F. Member of 8 site visit teams (National Institutes of Health)
- G. Scientific Advisory Board, Armed Forces Institute of Pathology,
- H. Consultant, Upjohn Company
- I. Consultant, Schering Corporation
- J. Consultant, Cytogen Corporation
- K. On editorial board of 15 national journals

V. OTHER RELEVANT ACTIVITIES:

- A. Approximately 20 lectures and seminars during the 1982/1983 academic year, including:
 - 1. the NIH Symposium on Chemotaxis (Sept, 1982), Washington, D.C.
 - 2. Second International Colloquium on Pulmonary Fibrosis (October, 1982), London, England
 - 3. Visiting Professor at the University of New Mexico (November, 1982), Albuquerque, New Mexico

VI. PUBLICATIONS:

- 1. Johnson, K.J., Ward, P.A.: Biology of Disease. Newer Concepts of the Pathogenesis of Immune Complex-Induced Tissue Injury Lab. Invest., 47:218-226, 1982.
- 2. Kunkel, S.L., Kaercher, K., Plewa, M., Fantone, J.C., Ward, P.A.: Production of Cyclooxygenase Products and Superoxide Anion by Macrophages in Response to Chemotactic Factors. Prostaglandins., 24:789-799, 1982.
- 3. Marasco, W.A., Fantone, J.C., Ward, P.A.: Spasmogenic Activity of Chemotactic N-Formylated Oligopeptides: Identity of Structure-Function Relationships for Chemotactic and Spasmogenic Activities. Proc. Natl. Acad. Sci., 79:7470-7473, 1982.
- 4. Schrier, D.J., Phan, S.H., Ward, P.A.: Cellular Sensitivity to Collagen in Bleomycin-Treated Rats. J. Immunol., 129:2156-2159, 1982.
- 5. Varani, J., Ward, P.A.: Tumor Cell Chemotaxis (Chap. 7). In, "Tumor Invasion and Metastasis." L.A. Liotta and I.R. Hart, Editors. Martinus Nijhoff Publishers, The Netherlands, pp. 99-112, 1982.
- 6. Ward, P.A.: New Concepts About Immune Complex Injury. Resident & Staff Physician, 28:28s-30s, 1982.
- 7. Ward, P.A., Fantone, J.C. Johnson, K.J.: Lung Injury Produced by Oxygen Metabolites. Immunopathology: VIIIth International Symposium, 1980. Academic Press, Inc., New York, pp. 459-473, 1982.
- 8. Weiss, S.J., Ward, P.A.: Immune Complex Induced Generation of Oxygen Metabolites by Human Neutrophils. J. Immunol., 129:309-313, 1982.
- 9. Chensue, S.W., Kunkel, S.L., Ward, P.A., Higashi, G.I.: Exogenously Administered Prostaglandins Modulate Pulmonary Granulomas Induced by Schistosoma Mansoni Eggs. Am. J. Pathol., 111:78-87, 1983.

10. Cole, S.R., Johnson, K.J., Ward, P.A.: Pathology of Sarcoidosis, Granulomatous Vasculitis, and Other Idiopathic Granulomatous Diseases of the Lung. Chapter 6, In, "Sarcoidosis and Other Granulomatous Diseases of the Lung", B.L. Fanburg, Editor. Vol. 20. Lung Biology in Health and Disease, C. Lenfant, Executive Editor. Marcel Dekker, Co., New York, pp. 149-202, 1983.
11. Duque, R.E., Phan, S.H., Sulavik, M.C., Ward, P.A.: Inhibition by Tosyl-L-Phenylalanyl Chloromethyl Ketone of Membrane Potential Changes in Rat Neutrophils. Correlation With the Inhibition of Biological Activity. J. Biol. Chem., 258:8123-8128, 1983.
12. Fantone, J.C., Johnson, K.J., Till, G.O., Ward, P.A.: Acute and Progressive Lung Injury Secondary to Toxic Oxygen Products From Leukocytes. Chest, 83S:46S-48S, 1983.
13. Fantone, J.C., Marasco, W.A., Elgas, L.J., Ward, P.A.: Anti-Inflammatory Effects of PGE₁: In Vivo Modulation of the Formyl Peptide Chemotactic Receptor on the Rat Neutrophil. J. Immunol., 130:1495-1497, 1983.
14. Fantone, J.C., Ward, P.A.: Chemotactic Mechanisms in the Lung (Chapter 9). In, "Immunopharmacology of the Lung". Harold H. Newball, Editor; Vol. 19 in the series, "Lung Biology in Health and Disease", Claude Lenfant, editor. Marcel Decker, Inc. (New York), pp. 243-272, 1983.
15. Till, G.O., Beauchamp, C., Menapace, D., Tourtellotte, W., Jr., Kunkel, R., Johnson, K.J., Ward, P.A.: Oxygen Radical Dependent Lung Damage Following Thermal Injury of Rat Skin. J. Trauma, 23:269-277, 1983.
16. Varani, J., Ward, P.A.: Chemotaxis of Tumor Cells. In, "Agents and Actions Supplements", Vol. 12, H.U. Keller and G.O. Till, Editors. Birkhauser Verlag, Basel, pp. 134-151, 1983.
17. Ward, P.A.: Role of Toxic Oxygen Products From Phagocytic Cells in Tissue Injury. Advances in Shock Research, 10:27-34, 1983.
18. Ward, P.A., Duque, R.E., Sulavik, M.C., Johnson, K.J.: In Vitro and In Vivo Stimulation of Rat Neutrophils and Alveolar Macrophages by Immune Complexes. Production of O₂ and H₂O₂. Am. J. Pathol., 110:297-309, 1983.
19. Chensue, S.W., Kunkel, S.L., Ward, P.A., Higashi, G.I.: Exogenously Administered Prostaglandins Modulate Pulmonary Granulomas Induced by Schistosoma Mansoni Eggs. Amer. J. Pathol. In Press.
20. Fantone, J.C., Ward, P.A.: Mechanisms of Neutrophil Dependent Lung Injury. In, "Handbook of Inflammation", Vol. 4., P.W. Ward, Editor. Elsevier/North Holland Biomed. Press. In Press.
21. Johnson, K.J., Ward, P.A.: Immune Complexes (Chapter 8). In, "Immunology of the Lung." J. Bienenstock, Editor. McGraw-Hill Book Co. In Press
22. Kunkel, S.L., Fantone, J.C., Ward, P.A.: Role of Prostaglandins in Macrophage Cell Function. In, "The Reticuloendothelial System: A Comprehensive Treatise. Vol. VI." J.A. Bellanti and H. B. Herscovitz, Editors. Plenum Publishing Co., New York. In Press.
23. Kunkel, S.L., Ward, P.A.: Bacterial Virulence and the Inflammatory System. Symposium on Bacterial Pathogenesis. Rev. Infec. Dis. In Press.
24. Kunkel, S.L., Ward, P.A.: The Complement System. In: "Immunology", 3rd Edition. J.A. Bellanti, Editor. In Press.

25. Maderazo, E.G., Ward, P.A.: Increased Susceptibility to Infection in the Surgical Patient: II. Polymorphonuclear Leukocyte Dysfunction Secondary to Changes in Microenvironment. *Infections in Surgery*. In Press (January, 1983).
26. Maderazo, E.G., Ward, P.A.: Phagocytic Cells. Polymorphonuclear Cells and Monocytes. Chapter 40. In, "Clinical Diagnosis and Management of Laboratory Methods", 17th edition. J.B. Henry, Editor. W.B. Saunders Co. (Philadelphia), publishers. In Press.
27. Manderino, G.L., Suarez, A.F., Kunkel, S.L., Ward, P.A., Hirata, A.A.: Purification of Human C5a Des Arg by Immunoabsorbent and Molecular Sieve Chromatography. *J. Immunol. Methods*. In Press.
28. Marasco, W.A., Fantone, J.C., Freer, R.C., Ward, P.A.: Characterization of the Rat Neutrophil Formyl Peptide Receptor. *Am. J. Pathol.* In press.
29. Showell, H.J., Glovsky, M.M., Ward, P.A.: Morphological Changes in Human Polymorphonuclear Leukocytes (PMNs) Induced by C3a in the Presence and Absence of Cytochalasin B. *Int. Arch. Allergy Appl. Immunol.* In Press.
30. Till, G.O., Ward, P.A.: Altered Inflammatory Mechanisms in Thermal Injury. In, "Handbook of Inflammation, Vol. IV", P.A. Ward, Editor. Excerpta Medica, Elsevier Publishing Co. In Press.
31. Varani, J., McCoy, J.P., Ward, P.A.: The Attraction of Wandering Metastatic Cells. In, "Progressive Stages of Neoplastic Growth", H.E. Kaiser, Editor. Chapter in book. In Press.
32. Varani, J., Ward, P.A.: The Immunobiology of Tumor Cell Chemotaxis and Metastasis. In, "Handbook of Cancer Immunology", H. Waters, Editor. Garland STPM Press. In Press.
33. Ward, P.A., Kunkel, S.L.: Bacterial Virulence and the Inflammatory System. In, "Conference on Bacterial Virulence and Pathogenesis". In Press.
34. Ward, P.A., Till, G.O., Kunkel, R., Beauchamp, C.: Evidence for Role of Hydroxyl Radical in Complement and Neutrophil Dependent Tissue Injury. *J. Clin. Invest.* In Press.
35. Wolter, N.J., Kunkel, S.L., Lynch, J.P., Ward, P.A.: Production of Cyclooxygenase Products by Alveolar Macrophages in Pulmonary Sarcoidosis. *Chest*. In Press.
36. Maderazo, E.G., Ward, P.A.: Mediators of Chemotaxis. In, 1983 Clinical Immunology Check Sample Program. ASCP, Chicago, Illinois.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Chief, Laboratory Service, VAMC-
- B. Consultant for referred orthopedic cases at U of M.
- C. Overviews clinical pathology, particularly Blood Bank.
- D. Reviews all autopsies performed, Surgical Pathology.

II. TEACHING ACTIVITIES:

- A. Three days per week read out surgical cases on one to one basis with first year residents.
- B. Oversee surgical diagnosis teaching activities of staff pathologists and consultant pathologist.
- C. Read out or oversee all autopsies by resident staff as teaching activity.
- D. Supervise conference on all autopsies - residents.
- E. Participate in weekly Medicine conference, tumor board (VAMC).
- F. Lecture (Bone and Joint) - Second year medical students.
- G. Seminar - Orthopedic Department. U of M. (Soft Tissues).
- H. Seminar - Pathology Residents - Gross Surgical Pathology - May 1983.
- I. Seminar - Pathology Residents - Bone Lesions - June 1983.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

No sponsored support at this time.

PROJECTS UNDER STUDY:

- A. Myositis ossificans circumscripta.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL:

- A. General administrative responsibility for Service at VAMC and VA Outpatient Clinic, Toledo, Ohio (FTE 56.6 plus 3.5 residents in training).
- B. Resident selection committee (U of M).

MEDICAL SCHOOL/HOSPITAL:

- A. Executive faculty. U of M Medical School.
- B. Professional Standards Board (VAMC) Major trouble shooting board for Chief of Staff consists of selected Chiefs of Services
- B. Clinical Executive Board (VAMC). Consists of all Chiefs of Services - advisor to Chief of Staff.
- C. Transfusion Committee. Chair. (VAMC).
- D. Audit Committee. (VAMC).
- E. Isotope Committee. (VAMC).
- F. Pharmacy and Therapeutic Agents. (VAMC).
- G. Library Committee. (VAMC).

REGIONAL AND NATIONAL:

- A. Red Cross Medical Advisory Board, Southeastern Michigan Region.
- B. VA Central Office - Quality Assurance in Anatomic Pathology.

V. OTHER RELEVANT ACTIVITIES:

- A. College of American Pathologists Inspector: Bay City Hospital 1/11/83.
- B. Deputy Medical Examiner, Washtenaw County.

VI. PUBLICATIONS:

- 1. Farooq Agha, et al: Pseudolymphoma of Colon. Gastrointest. Radiol., 8:81-83, 1983 (Farooq Agha, et al.).
- 2. Armin Good, et al.: Duodenal Ulcer, Hepatic Abscesses, and Fatal Hemobilia with Behcet's Syndrome. American Journal Gastroenterology. Vol. 77 #12, 1982.

BARRY S. WILSON, PH.D.
ASSISTANT PROFESSOR OF MICROBIOLOGY AND IMMUNOLOGY
DEPARTMENT OF PATHOLOGY

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES: None

II. TEACHING ACTIVITIES:

- A. Lectured on monoclonal antibody hybridoma methodology to:
 - 1. Senior Medical Technology Class.
 - 2. Medical School Interphase Program.
- B. Invited speaker, Department of Microbiology and Immunology - Immunology Research Forum.
- C. Supervised research projects for two students (Michael Herzig and Michael Chiu) participating in the Medical Student Summer Research Program. A fourth-year medical student (Peter Clark) also trained for several months in my laboratory.

III. RESEARCH ACTIVITIES:

SPONSORED SUPPORT:

- A. USPHS-NCI Research Career Development Award, "Monoclonal Antibodies to Melanoma - Associated Antigens", \$39,204/year (156,816/4 years), Principal Investigator.
- B. Rackham School of Graduate Studies and Phoenix Project Award, "Monoclonal Anti-idiotypic Antibodies and Self-MHC Receptors", \$10,000, Principal Investigator.
- C. American Tobacco Council, "Oxygen-Derived Free Radicals, Immune Complexes and Tissue Injury", \$78,532, Co-investigator.
- D. Stauffer Chemical Co., "In Vitro Investigations of the Makari Phenomenon", \$141,838, Co-investigator.

PROJECTS UNDER STUDY:

The emphasis of my research activities is to exploit hybridoma-cell fusion technology to develop highly specific monoclonal antibodies that identify unique cell surface molecules or tissue antigens. Ultimately, the goal is to use such well-defined immunological probes to further elucidate disease processes and to develop new methods for diagnostic pathology. A wide range of studies employing monoclonal antibodies developed in my laboratory are discussed separately below.

- 1. A monoclonal antibody that reacts with neurosecretory granules in endocrine tissues of human and some animal species was

developed in collaboration with Dr. Riccardo Lloyd in Pathology. The monoclonal antibody reacts with human chromogranin which is the major soluble protein of neurosecretory granules. Analysis of formalin-fixed and paraffin-embedded tissue sections stained by an immunoperoxidase technique strongly supports the use of this monoclonal antibody for rapidly identifying human tumors of endocrine origin.

2. In collaboration with Dr. Kent Johnson and Dr. Peter Ward, we are investigating the role of immune complexes in tissue injury. Monoclonal antibodies of the IgG, IgM and IgA class that react with dinitrophenol are being tested for their ability to form immune complexes mediating lung damage in rats. Present data suggests that immune complexes containing IgA can mediate tissue injury.

3. Use of monoclonal antibodies to identify and subdivide populations of lymphocytes and macrophages has had a profound effect on our present understanding of immune-deficiency diseases and lymphoid neoplasms. Using a monoclonal antibody to human Ia-like antigens developed in my laboratory, Dr. Steven Kunkel from Pathology and Dr. Joseph Lynch of Internal Medicine have been able to correlate the expression of Ia-like antigens on human alveolar macrophages with disease activity in pulmonary sarcoidosis patients.

In another investigation, I am studying the biochemical characteristics and functional properties of a cell surface molecule expressed exclusively on human B lymphoid cells. This marker, defined by a monoclonal antibody developed in my laboratory, is unique among other reported B cell markers in that it is undetectable on non-lymphoid tissues. The antibody is capable of identifying the origin of many B cell neoplasms and when added to B cells can induce proliferation.

4. In collaboration with Dr. Roger Wiggins of Internal Medicine, we have developed monoclonal antibodies to purified human glomeruli to define new components characteristic of this organ. Two antibodies of interest have been developed which identify connective tissue antigens apparently different from any previously described. One such antibody reacts exclusively with basement membranes, especially those associated with blood vessels, while the other reacts with basement membranes and connective tissue stroma. In another study with Dr. Wiggins, we have developed a panel of monoclonal antibodies to various determinants of human albumin which have proven useful to examine structural alterations in albumin from the urine of patients with glomerulonephritis.

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: None

MEDICAL SCHOOL/HOSPITAL: None

REGIONAL AND NATIONAL:

- A. Member, American Association of Immunologists.
- B. Outside reviewer for Veteran's Administration research grants.

V. OTHER RELEVANT ACTIVITIES:

Attended the 13th International Cancer Congress in Seattle, WA and the Federation of American Societies for Experimental Biology meeting held in Chicago.

VI. PUBLICATIONS:

1. Wilson, B.S., Kay, N.E., Imai, K., Ferrone, S.: Heterogeneity of Human Melanoma Associated Antigens Defined by Monoclonal Antibodies and Conventional Xenoantisera. *Cancer, Immunol. and Immunother.*, 13:69-74, 1982.
2. Imai, K., Pellegrino, M.A., Wilson, B.S., Ferrone, S. A Higher Cytolytic Efficiency of an IgG 2a Than of an IgG 1 Monoclonal Antibody Reacting With the Same (or Spatially Dose) Determinant on a Human High Molecular Weight Melanoma-Associated Antigen. *Cell Immunol.*, 72:239-247, 1982.
3. Wilson, B.S., Ruberto, G., Ferrone, S.: Immunochemical Characterizations of a High Molecular Weight Melanoma-Associated Antigen Identified by Monoclonal Antibodies. *Cancer, Immunol. Immunother.*, 14:196, 1983.
4. Wilson, B.S., Imai, K., Natali, P.G., Kay, N.E., Cavaliere, R., Pellegrino, M.A., Ferrone, S.: Immunochemical Analysis of the Antigenic Profile of Human Melanoma Cells with Monoclonal Antibodies. In, "Melanoma Antigens and Antibodies". R.A. Reisfeld and S. Ferrone, Editors. Plenum Press, New York, pp. 401-433, 1982.
5. Razma, A.G., Lynch, J.P., Wilson, B.S., Ward, P.A., Kunkel, S.L.: Human Alveolar Macrophage Activation and DR Antigen Expression in Cigarette Smokers. *Chest*, 1983. In Press.
6. Razma, A.G., Lynch, J.P., Wilson, B.S., Ward, P.A., Kunkel, S.L.: Expression of Ia-like Antigen on Human Alveolar Macrophages Isolated by Bronchialveolar Lavage. Submitted to American Review of Respiratory Disease.
7. Lloyd, R.V., and Wilson, B.S. Specific Endocrine Tissue Marker Defined by a Monoclonal Antibody. *Science*. In Press.
8. Razma, A., Lynch, J., Wilson, B., Ward, P.A., Kunkel, S.: Expression of Ia-Like (DR) Antigen on Human Alveolar Macrophages from Patients With Pulmonary Sarcoidosis. American Thoracic Society, 1983. In Press.
9. Wilson, B.S., Kay, N.E.: A Monoclonal Antibody to a Human B Cell Subpopulation. Federation of American Societies for Experimental Biology, 1983.
10. Wilson B.S., Lloyd, R.V.: Immunoperoxidase Staining of Formalin-Paraffin Sections of Non-Lymphoid Tumors with a Monoclonal Antibody to Human Ia-like Antigens. 5th International Congress of Immunology, 1983.

11. Kshirsayer, B., Wilson, B.S., Kosserek, L.M., Kelsch, R.C., Wiggins, R.C.: Structural Modification of Albumin in Urine of Individuals with Glomerulonephritis. American Federation of Clinical Research, 1983.

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

Annual Departmental Report
1 July 1982 - 30 June 1983

I. DIAGNOSTIC SERVICE ACTIVITIES:

- A. Under the direct supervision of Robert C. Hendrix, M.D. the histopathologic examination, description, diagnosis, and preparation of reports was completed in 720 cases. Most of the material comes from the Ophthalmology Department of this University Hospital, but additional material is sent in from ophthalmologists and hospitals outside of this University. This "outside material" has an unusually high percentage of cases with value for teaching and research.

II. TEACHING ACTIVITIES:

- A. Teaching of Ophthalmic Pathology to the residents of the Eye Department. Ophthalmic Pathology is essential for an understanding of the causes, mechanism, processes, and results of disease entities. Ophthalmic Pathology is an important part of the oral and written examination of The American Board of Ophthalmology.

III. RESEARCH ACTIVITIES:

- A. This Ophthalmic Pathology Laboratory has its 30th birthday late in 1983. More than 300 publications have originated in this Laboratory during that time and almost all of them are based on observations in Ophthalmic Pathology. This Laboratory has had the support of The Research To Prevent Blindness, Inc., New York, N.Y. for many years. Some of the projects under study in this Laboratory are:

1. The Pathology of Intraocular Lens Implantation.
2. Actions and Reactions of Macrophages In and Around the Eye.
3. Melanoma Extension from the Eye.
4. The Prognosis of Conjunctival Melanomas (R.C. Hendrix).

IV. ADMINISTRATIVE ACTIVITIES:

DEPARTMENTAL: None

MEDICAL SCHOOL/HOSPITAL:

- A. Member, Tissue Committee, University of Michigan Hospital

- B. Member, Committee of Medical Student Research, University of Michigan Medical School
- C. Director, General Ophthalmology Clinic, University of Michigan Hospital
- D. Chief, Eye Service, VA Hospital, Ann Arbor, Michigan
- E. Member, President's Club, University of Michigan

REGIONAL AND NATIONAL:

- A. Member, Editorial Board, Graefe's Archive of Ophthalmology.
- B. Member, Review Board, American Journal of Ophthalmology.
- C. Listed in Who's Who
- D. Honorary Member, Association Pediatric Ophthalmology
- E. Member, Association of Ophthalmic Pathologists
- F. Member, American Academy of Ophthalmology
- G. Member, American Ophthalmological Society
- H. Member, German Ophthalmological Society
- I. Member, Michigan Ophthalmological Society
- J. Member, Detroit Ophthalmological Club

V. PUBLICATIONS:

1. Wolter, J.R.: Concentric Microwaves of Henle's Fiber Layer in Association With Cystoid Macular Edema. Graefe's Arch. Opth., 219:1-9, 1982.
2. Wolter, J.R.: Leaky Cystoid Macular Edema Attracting Vitreous Macrophages. Opth. Surg., 13:568-561, 1982.
3. Seigel, R.S., William, A.G., Hutchinson, J.W., Wolter, J.R., Carlow, T.J., Rogers, D.E.: Subperiosteal Hematomas of the Orbit: Angiographic and Computed Tonography Diagnosis. Radiology, 143:711-714, 1982.
4. Wolter, J.R., Schut, A.L., Dorovini-Zis, K.: Massive Ocular Astrocytoma in a Congenitally Deformed Eye. Brit. J. Opth., 66:583-588, 1982.
5. Wolter, J.R.: Foreign Body Giant Cells on Intraocular Lens Implants. Graefe's Arch. Opth., 219:103-111, 1982.
6. Wolter, J.R.: Pigment in Cellular Membranes on Intraocular Lens Implants. Opth. Surg., 13:726-732, 1982.
7. Wolter, J.R.: Expulsive Hemorrhage: A Study of Histopathological Details. Graefe's Arch. Opth., 219:155-158, 1982.
8. Wolter, J.R.: Lens Implant Cytology. Opth. Surg., 13:939-942, 1982.
9. Wolter, J.R., Felt, D.P.: Proliferation of Fibroblast-Like Cells on Failing Intraocular Lenses. Opth. Surg., 14:57-64, 1983.
10. Wolter, J.R.: Foreign Body Reaction to Firm Nuclear Lens Substance. Opth. Surg., 14:135-138, 1983.
11. Wolter, J.R.: Reactive Membrane on a Lens Implant: Three Months After Implantation. Graefe's Arch. Opth., 220:53-57, 1983.
12. Wolter, J.R.: Morphology of the Capsule-Like Portion of the Reactive Membranes on Intraocular Lens Implants. Graefe's Arch. Opth., 220:58-65, 1983.
13. Wolter, J.R.: Direct Vitreous Reaction to Intraocular Lens Implants. Graefe's Arch. Opth., 229:110-116, 1983.

14. Wolter, J.R.: Pseudophaco-Anaphylactic Endophthalmitis. Graefe's Arch. Opth. In Press.
15. Wolter, J.R.: Quick-Staining of Whole Retina for Pathological Demonstration of Cystoid Macular Edema. Graefe's Arch. Opth. In Press.
16. Wolter, J.R., Lichter, P.R.: Fibroblast-Like Cells on Intraocular Lens Implants: Phagocytizing Erythrocytes. Brit. J. Opth. In Press.
17. Wolter, J.R.: Orbital Extension of Choroidal Melanoma Within a Long Posterior Ciliary Nerve. Transactions Amer. Opth. Soc. In Press.
18. Wolter, J.R.: Syneresis and Vitreous Hemorrhage in Pseudophacia. Graefe's Arch. Opth. In Press.
19. Wolter, J.R.: Foreign Body Giant Cells Selectively Covering Haptics of Intraocular Lens Implants: Indicators of Poor Toleration? Opth. Surg. In Press.
20. Wolter, J.R., Kunkel, S.L.: Adherence of Mouse Macrophages to Plastic Lens Implants Resulting in the Formation of a Cellular Membrane. Opth. Surg. In Press.
21. Wolter, J.R., Kunkel, S.L.: Formation of Proteinaceous Capsules on Plastic Lens Implants By Mouse Macrophages Under Tissue Culture Conditions. Opth. Surg. In Press.
22. Wolter, J.R., Kunkel, S.L.: Cellular Membranes on Glass Lens Implants Formed in Tissue Culture by Mouse Macrophages. Opth. Surg. In Press.
23. Wolter, J.R., Kunkel, S.L.: Abdominal Implantation of Intraocular Lenses Resulting in the Formation of Reactive Membranes. Graefe's Arch. Opth. In Press.
24. Wolter, J.R., Kunkel, S.L.: Artificial Anterior Chamber for the Growing of Membranes on Lens Implants. Graefe's Arch. Opth. In Press.
25. Wolter, J.R.: Cystoid Macular Edema Associated With Limbal Melanoma. Graefe's Arch. Opth. In Press.
26. Wolter, J.R.: Fusion of Macrophages on Lens Implants Resulting in the Formation of Giant Cells. Graefe's Arch. Opth. In Press.
27. Wolter, J.R., Kunkel, S.L.: Healon Effect on the Reactions of Macrophages to a Clear Plastic Surface., Opth. Surg.
28. Wolter, J.R.: Subfoveal Giant Cell Reaction in Advanced Retinoblastoma. Amer. J. Opth.
29. Wolter, J.R.: The Eye. In, "Histology and Histopathology of the Nervous System". Haymaker, W. and Adams, R.D., Editors. Charles C. Thomas, Springfield, Ill., pp. 2236-2395 1982.
30. Wolter, J.R.: The Significance of Cellular Membranes on Intraocular Lens Implants. Mich. Opth. Soc. Meeting, Mackinac Island, 7.7.1982.
31. Wolter, J.R.: Intraocular Lens Pathology. 54 Annual Spring Conf. in Opth., Ann Arbor, 4-26, 1983.
32. Wolter, J.R.: Orbital Extension of Choroidal Melanoma Within a Long Ciliary Nerve. Amer. Opth. Soc., Homestead, Hot Springs, Virginia, 5-23, 1983.
33. Wolter, J.R.: Malignant Melanoma Differential diagnosis. Symposium on Ocular Cancer, Medical College of Ohio, Toledo, 6-24, 1983.
34. Wolter, J.R.: Malignant Melanoma Differential Diagnosis. Symposium Ocular Cancer, Medical College of Ohio, Toledo, 6-24, 1983.

Program and Section Reports

EDUCATIONAL ACTIVITIES

DEPARTMENT OF PATHOLOGY ANNUAL REPORT

JULY 1, 1982 - JUNE 30, 1983

The Department continues to occupy a unique educational niche in the institution, serving as it does, several schools within the University; and simultaneously providing instruction in a Basic Science as well as teaching specialized Pathology and Laboratory Medicine over a broad range of clinical disciplines. Within the confines of the Medical Center itself, departmental teaching activities not only encompass the undergraduate medical curriculum, but also reach the staff and house officers of many departments in the context of formal clinical conferences. The department continues to offer formal courses within the Rackham School of Graduate Studies to meet the needs of many other programs. Our teaching efforts also extend to practitioners in the region and the nation through courses given in the Towsley Center.

The traditional enthusiasm and dedication of our Departmental Faculty to classroom teaching continues, and there is a high level of interest in refining our courses, especially within the medical curriculum. These efforts are well recognized and appreciated by the student body. Long range efforts continue in collaboration with the staff of the Learning Resource Center in the development of computer-interactive teaching programs in Histology and Pathology. During the past year, we accomplished the amalgamation of the Inteflex Pathology courses with the M-1 and M-2 offerings, thus utilizing our teaching resources with maximal efficiency.

Formal courses given within the Department include:

1. A. ICS 500: 20 contact hours - introductory lectures on General Pathology
- B. ICS 600: 17 contact hours - Immunopathology sequence (11 hours) and selected topics in special pathology of various systems.
- C. NBS 600: 18 contact hours - Neuropathology
- D. Pathology 600: 120 contact hours - 30 hours of whole-class lecture, 90 hours of laboratory (in each of 5 sections).
- E. Pathology Clerkships: Elected by 37 students at University Hospital and 5 additional students elsewhere.

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

II. Courses in the Dental Curriculum

- A. Pathology 630: General Pathology lectures - 45 contact hours
- B. Pathology 631: Pathology Laboratory _ 90 contact hours, each of 3 sections (assisted by Oral Pathology staff).

III. Courses for Graduate School/Allied Health

- A. Pathology 859: General Pathology for Biological Scientists, lecture - 42 contact hours.
- B. Pathology 860: General Pathology Laboratory - 28 contact hours.
- C. Pathology 858: Neuropathology - 23 contact hours.
- D. Pathology-Physiology 581: Mammalian Reproductive Endocrinology _ 45 contact hours.

IV. Postgraduate Medicine/Continuing Medical Education

- 1. "Selected Short Subjects in Anatomic Pathology"
October, 1982 - 1 day; April, 1983 - 1 day
- 2. "The Phlebotomy Team. 3rd Annual Spring Conference"
May, 1983 2 days
- 3. "Clinical Chemistry and Immunology"
May, 1983 3 days
- 4. "Current Topics in Blood Banking"
June, 1983 3 days
- 5. "Current Concepts in Clinical Microbiology"
June, 1983 2 days
- 6. "Clinical Laboratory Computers. Symposium 1983"
June, 1983 2 days

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 10 regular weekly conferences and 13 additional conferences at bi-weekly, and monthly intervals. The units served include:

Internal Medicine

Gastroenterology
Nephrology
Hematology/Oncology
Nuclear Medicine
Pulmonary Medicine
Arthritis
Cardiology
General (Death Conference, CPC)

Pediatrics

Cardiology
Oncology
Gastroenterology
General (Death Conference, CPC)

Obstetrics and Gynecology

Oncology

Dermatology

Oral Surgery

Neurosurgery

General Surgery

Otorhinolaryngology

Urology

Gerald D. Abrams, M.D.
Director, Educational Activities

DIVISION OF ANATOMIC PATHOLOGY

DEPARTMENT OF PATHOLOGY

ANNUAL REPORT

JULY 1, 1982 - JUNE 30, 1983

I. Professional Staff and Workload

- A. The roster of faculty members in the Division of Anatomic Pathology is much the same as it was in the previous fiscal year.

Full Time

1. H. D. Appelman, M. D., Director: general, gastrointestinal and hepatic.
2. G. D. Abrams, M.D.: general, gastrointestinal and hepatic, autopsy, cardiovascular, and comparative.
3. A. Flint, M.D.: general, cytopathology, pulmonary, lympho-reticular.
4. P. W. Gikas, M.D.: general, renal, genitourinary, diagnostic electron microscopy.
5. J. T. Headington, M.D.: dermal
6. K. P. Heidelberger, M.D.: pediatric.
7. R. C. Hendrix, M.D.: general, forensic, autopsy.
8. S. P. Hicks, M.D.: neuropathology.
9. N. B. Kumar, M.D.: general, cytopathology, gynecologic.
10. R. V. Lloyd, M.D.: general, endocrine, soft tissue, tumor markers.
11. B. Naylor , M.D.: general, cytopathology, pulmonary.
12. K. D. Zis, M.D.: neuropathology, muscle.

Consultants

1. K. Johnson, M.D.: renal.

2. K. D. McClatchey, M.D.: otorhinolaryngologic.
3. H. A. Oberman, M.D.: mammary.
4. B. Schnitzer, M.D.: hemato and lymphoreticular.
5. A. Solomon, M.D.: dermatopathology

B. Past Year's Activities

This has been a year when the entire faculty was present full-time, and, as a result, there was continued improvement in diagnostic services and teaching. The workload in surgical pathology increased about 6% (800 cases) and most of these were of the complex biopsy type. There was expansion of the cell and tumor marker facility under the direction of Dr. Lloyd which allowed for more and better antibody staining techniques enlarging the department's diagnostic armamentarium. At the same time there was improvement in the diagnostic tumor capabilities by electron microscopy as a result of the additional training received by Dr. Gikas during his sabbatical the previous year.

The renovation in the department was almost completed. The new diagnostic rooms have been in use for the past five months. These rooms and the new clerical area are in immediate proximity to the tissue accessioning area and the tissue preparation laboratory. This allows for easier flow of slides and paper work as well as people. The new reading areas make more efficient use of space and are currently arranged around a central secretarial focus. Two multiple headed microscopes were bought so that all three diagnosing rooms now contain such microscopes, increasing the capabilities of teaching of house officers, students, and clinicians.

C. Projects and Plans, 1983 1984

It is assumed that there will be continued improvement in diagnostic services, especially in regard to immunohistochemistry, but also as a result of gradually improving diagnostic sophistication by the subspecialists in the department.

Expansion of a fine needle aspiration cytopathology service is underway with a new facility to become available in the hospital. This service will be under the supervision of Drs. Naylor, Kumar and Flint. Fine needle aspiration is a technique which is gaining great favor in medical centers throughout this country as well as in the rest of the world. It should offer greatly expanded diagnostic capabilities for the clinical services.

A new computer software package, mentioned in the report last year has not yet been implemented, but should go into operation within the next six months. This will allow for immediate computer accessioning when the

specimens first arrive in the department, immediate recall of prior specimens from the same patients at the time of gross cutting, direct typing and diagnosis in the computer system, and generation of reports by the system as well. This should also allow the clerical people to identify the location of a specimen anywhere during its travels through the department and including any special handling applied to a specimen.

A full day postgraduate course in October 1983 is planned for the Towsley Center. If the course has a successful turnout a second one will occur in April, 1984.

A huge void in the departmental activities will be created by the retirement of Dr. Hendrix on July 1, 1983. He is an outstanding, widely recognized forensic pathologist and a new forensic pathologist will not be recruited. Dr. Hendrix has also run the autopsy service for many years and, in his place, Dr. Gikas will assume this function. Dr. Hendrix also handled a myriad of teaching, conference, and administrative activities, and all of these will have to be split among the remaining members of the Division. Dr. Alvin Solomon, our backup in skin pathology, will leave as of July 1, 1983. As a result, all support for Dr. Headington in dermatopathology will have to come from the remaining members of the Division.

II. Histology Laboratory

The Histology Laboratory also has had a year of stability. The laboratory staff has remained constant during this period and there were no unusual prolonged absence. There was very little change in equipment except for the purchase of a new microtome and a new pH meter for the special stain lab, and both of these purchases were for the replacement of old worn out equipment. No major plans in terms of equipment or space are underway for the current histology laboratory because of the new hospital facilities, described below.

III. New Hospital Planning

During the past spring, it was felt that the University Hospital-related functions of anatomic pathology should move to the new hospital to be in close contact with the clinicians, especially the surgeons in the operating rooms. As a result, all such functions will be moving, including the entire surgical pathology diagnostic area, autopsy pathology, cytopathology, including the aspiration facilities, and all the related clerical and technical functions as well. A frozen section room and gross cutting area for operating room-related specimens is planned for space adjacent to the operating rooms. The research and outside consultation activities of the department will remain in the present building. As of June 30, 1983, architectural plans for the new hospital facilities are in the process of being completed.

IV. Summary of Anatomic Pathology During the Past Fiscal Year:

This has been a year of entrenchment and stability, especially in terms of staffing, including technical, clerical and professional. This has allowed the service aspects of anatomic pathology to improve both diagnostically and technically. It has been a year when the members of the faculty were able to practice a brand of outstanding pathology for which they had all hoped.

Henry D. Appelman, M.D.
Director, Anatomic Pathology

NECROPSY SERVICE

DEPARTMENT OF PATHOLOGY ANNUAL REPORT JULY 1, 1982 - JUNE 30, 1983

During the past year 364 necropsies were performed as "hospital" cases. This compares with 339 necropsies for the previous year. In addition, seven necropsies were performed on patients from Ypsilanti Regional Psychiatric Hospital. This compares with six being performed from that institution during the previous year. One necropsy was performed on a patient from Northville State Hospital. There were no necropsies on patients from Hillcrest Regional Center for Developmental Disabilities during the past year and the contract with that institution terminated September 30, 1982. In addition to the above-mentioned necropsies performed in our Department, there were approximately 80-90 performed by Dr. Mason Barr of the Pediatric Department on stillborn infants and malformed infants whose bodies were released to Anatomy. Thirteen of our faculty and 21 of our house officers were involved in the performance of necropsies during the past year. Of the 364 hospital cases, 79 (22%) were Medical Examiner cases. For these cases the County pays \$250.00 per necropsy. Seventy five dollars of this fee goes to the Department to help defray clerical and technical costs and \$175.00 is apportioned to the staff person and house officer who performed the necropsy. It should be emphasized that the Medical Examiner cases are utilized in the training of our house officers.

Pituitary glands were being collected for studies by a member of our Department; however, this project has terminated and we will now resume collecting glands for the National Pituitary Agency as we have done for many years in the past.

Three full-time technicians are assigned to the Necropsy Service and they also perform other departmental duties as needed.

An analysis of the relationship of clinical and necropsy diagnosis from 200 cases was performed by Robert C. Hendrix, M.D., former Director of the Necropsy Service, and the results of this study are appended to this report.

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

RELATIONSHIP OF CLINICAL AND AUTOPSY DIAGNOSES
200 CASES

I.	Principal diagnosis incorrect	8.0%
II.	Refinement, modification, increase in specificity of principal diagnosis	38.0%
III.	Unlisted or unconfirmed complicatins of principal diagnosis or complication of treatment of principal diagnosis	24.0%
IV.	Incorrect or unlisted major diagnoses other than principal diagnosis	16.5%
V.	Minor additions or deletions	12.0%
VI.	Substantial confirmation of clinical problems by autopsy	29.0%
VII.	Failure of autopsy to resolve unsolved clinical problems	4.0%
VIII.	A. Unrecognized iatrogenic problems	2.0%
	B. Clinical recognized iatrogenic problems	1.0%

The total exceeds 100% because more than one modification was recorded for many autopsies.

Robert C. Hendrix, M.D.

ELECTRON MICROSCOPY SERVICE
DEPARTMENT OF PATHOLOGY
ANNUAL REPORT
JULY 1, 1982 - JUNE 30, 1983

During the twelve month period of June 1, 1982, through May 31, 1983, a total of 531 specimens were processed by the Electron Microscopy Service. This represents a marked increase over last year when 391 specimens were submitted. Of this total, 491 were clinical specimens and 40 were research cases.

During this past year the Department's Electron Microscopy Service was greatly expanded and improved with the addition of a new Phillips 401 electron microscope. This microscope is housed in a newly renovated laboratory in the Pathology Building and is under the able supervision of Ms. Robin Kunkel. This new facility should allow us to greatly expand our research activities in this area which up until now has been somewhat limited because of the extensive use of the other two electron microscopes for clinical specimens.

New projects for the upcoming year being developed by the electron microscopy staff will include decreasing the turnover time of biopsies with the use of new rapid processing techniques being developed by Ms. Branka Baic as well as exploring the use of negative staining techniques for the identification of viral particles in fluids and tissue.

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

NEUROPATHOLOGY SERVICE
DEPARTMENT OF PATHOLOGY
ANNUAL REPORT
JULY 1, 1982 - JUNE 30, 1983

The Laboratory of Neuropathology continues to have three interrelated functions: Laboratory Diagnostic Service, Teaching, and Research in experimental animal work and human disease.

The faculty this year were Katerina Dorovini-Zis, M.D., Assistant Professor, Constance J. D'Amato, B.S., Assistant Professor, and Samuel P. Hicks, M.D., Professor.

It is a pleasure to know that Paul Edward McKeever, M.D., Ph.D. will join the Department of Pathology as the new Director of the Neuropathology Laboratory in the fall of 1983. He brings extensive experience and new ideas to our Department.

I. 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. Autopsies, or selected tissues from autopsies, at this medical center, Ypsilanti State Hospital, state centers for the developmentally disabled (neurologically and mentally), other state institutions and other hospitals.
2. Neurosurgically and surgically removed tissue from this Medical Center, and others in and out of the state from whom consultation is sought.
3. Operating and maintaining the Neuropathology Laboratory to carry out these clinically related functions, teaching, and research.

II. Teaching Activities:

1. Medical Students. This year the faculty taught the regular Neuropathology sequence to our medical students (20 hr) in the Neural and Behavioral Sciences 600 curriculum plus 10 extra hours (Ms. D'Amato) to accommodate the last step in phasing in our Inteflex students.

NBS Neuropathology consists of lectures and laboratories for all 237 students. Our students are provided with an elaborate set of microscopic sections representing nervous disease, and comprehensive handouts. Posters and Kodachrome slides derived from the rich diversity of material available from this medical center and

the others it serves are abundantly used. The course is one of the more elaborate ones in this country, as a check with numerous house officers from other schools shows.

2. House officers, graduate students, postgraduate and other students, and faculty. All of the Service Activities are integrated appropriately into teaching. Specific exercises include:
 - a. Weekly Brain Cutting Conference where Pathology house officers present especially interesting cases and, with the help of the Neuropathology staff and visitors, demonstrate disease, pertinent normal anatomy, and diagnostic pathologic principles, for themselves and the audience.
 - b. Individual instruction chiefly in the form of detailed reviews and writing final reports on autopsies and biopsy material.
 - c. Neuropathology 858, an intensive laboratory-lecture course (18 hours) serving: a) to prepare house officers for various Specialty Board examinations, and b) introduce other students and faculty in the cognate neurosciences to the viewpoint of Pathology.
 - d. Informal elective periods for house officers and others from various departments, in the Neuropathology Laboratory for study of general neuropathology, surgical neuropathology, and diseases of muscle.
 - e. Biweekly conference for Neurosurgery house officers and staff in which all neurosurgically removed material in this hospital is reviewed and discussed. (Dr. Zis).
 - f. Monthly conference for Neurology house officers and staff in which muscle and nerve biopsies performed in this medical center are reviewed and discussed. (Dr. Zis).
 - g. Post-graduate teaching-Towsley Seminar on Selected short subjects in Anatomical Pathology - Lecture on Brain Tumors (Dr. Zis).

III. Research Activities:

1. Dr. Zis' experimental work concerns morphology and barrier properties of brain capillary endothelium in vivo and in vitro. Effects of hyperosmotic solutions on the permeability of brain endothelial cells in rats and on brain capillary endothelial cultures. Significance of tight-junction opening and the role of pinocytosis. The Pathogenesis of Coxsackie virus-induced murine polymyositis, with Dr. T. Schnitzer, Internal Medicine, is another experimental project. Also with Dr. T. Schnitzer, and with Dr. J. Albers, Neurology, are clinical electrophysiological and morphological studies of patients with polymyositis and dermatomyositis.
2. Dr. Hicks and Ms. D'Amato's experimental work continues on the ability of the mammalian fetus to reconstitute extensive destruction

of its primitive cells so well at certain stages as sometimes to recover virtually completely or to show only relatively minor malformations. The highly reproducible cell-killing effect of x-rays is used to produce the injury. When it exceeds a certain limit, the fetus' capacity to regulate its development by regenerative adjustments fails, and malformation results. Two models are now being used, both discovered independently by D'Amato. In the radiation model, 175-225R on the 11th fetal day, leads to overgrowth of the midbrain-thalamic junction (MTJ) toward the end of gestation with resulting prenatal stenosis of the aqueduct and hydrocephalus. After 150R, despite nearly as much cell-killing, the MTJ syndrome does not develop, certain eye defects being evidence of regulative failure. In the other model, a recessive mutation in the homozygous state produces a very similar MTJ syndrome (and often eye defects), beginning about the 11th fetal day. Dr. Roy A. Glover, Department of Anatomy and Cell Biology, joined in this work last year and discovered by electron microscopy that the basal lamina (BL) is defective in the MTJ region in the mutant fetus. He then found that it is defective in the 225R rats, but not the 150R. Such BL abnormalities allow abnormal contacts between neuroepithelium and mesenchyme in the early fetus, a situation known to disturb development in other epithelial-mesenchyme models. It is our fortune, that several colleagues, Dr's James Varani, J. Phillip McCoy, and Ricardo Lloyd in Pathology, and Dr. Susan O'Shea in Anatomy and Cell Biology, have expressed an interest in examining possible differences in laminin, collagen IV, fibronectin, and glycosaminoglycans in the extracellular matrix regions in the MTJ of normal fetuses and mutant fetuses. Considering that there is a third way to produce the MTJ syndrome, depriving rats of dietary folic acid in early pregnancy up to the 11th fetal day, this region of the neural tube should be an ideal place to examine how the nervous system manages to go right, or go wrong, as it regulates its development.

In two other studies of these animals, Dr. Lloyd is examining the development of glial fibrillary acidic protein in astrocytes in juvenile rats around the time that these cells become capable of reacting by gliosis; and Dr. Kent Johnson, Pathology, and Dr. James Varani are devising ways to see whether macrophages reacting to injury in the fetal nervous system, as after x-irradiation, add to the injury by producing oxygen free-radicals, as macrophages do in other organs in adults.

3. Ms. D'Amato and Dr. Hicks continue their study, with Dr. F. Dewolfe Miller and Dr. Kelley A. Brix, School of Public Health, of neurofibrillary tangles and neuritic plaques in an autopsy population. Tangles and plaques in the brain characterize Alzheimer's Presenile and Senile Brain Disease, and they have been stained for with silver in all autopsies of people who died in University Hospital during the past eight years, who were older than 64

years, who had dementia at any adult age, or had certain other encephalopathies and behavior disorders. Miller and Brix are analysing the population now for the frequency of occurrence of one or both of the lesions, age and sex distribution, exposure to certain environmental hazards, and the relation of numbers of lesions to dementia. There are very few populations, if any, like this one available for study.

Samuel P. Hicks, M.D.
Director, Neuropathology Laboratory

CLINICAL PATHOLOGY LABORATORIES

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Laboratory Computer Upgrade. The first phase of the installation of the new system was completed on June 28-29. The remainder of the system will be implemented in early 1984. The new system will provide for considerable flexibility of report generation, and also will incorporate all of the Hospital Laboratories, including the Limited Special Function Laboratories. While many individuals have played a significant role in planning for this new system, the leadership of Dr. Bruce Friedman and Mrs. Gloria Hauck Thiele was critical to its success.

Renovation of Laboratories in Main Hospital. The new Central Distribution and Laboratory Data Center areas were completed in advance of installation of the new computer, and the Hematology Laboratory was renovated with resultant modest space increase. In view of the impending occupancy of the RHP, the scope of renovation of the Chemistry Laboratory has been reduced, and the project should be completed in the first half of 1984.

Laboratories Handbook. The second edition of the Laboratories Handbook was printed in late 1982, and a supplemental "Mini-Handbook" was prepared by Mrs. Anita Liberman-Lampear. The latter has proven extremely popular, and likely will be adopted by other hospitals. Work has begun on the third edition of the Handbook, with plans for publication in 1984.

Replacement Hospital Project. Members of the Clinical Laboratories were active in planning for capital equipment, laboratory design, utilization and pneumatic tube system for the AGH, as well as for laboratory facilities in the Ambulatory Care Building. Surgical pathology and cytopathology were incorporated in the AGH, with the Ligand Assay Laboratory remaining in the Pathology Building.

Critical Values Reporting. A system for reporting critical values directly to the concerned physician was implemented. This program will rapidly provide the physician with those abnormal results requiring prompt attention.

Reference Values. Reference (normal) values for laboratory tests are being developed through assessment of samples obtained from individuals of varying sex and age, including pediatric patients. This will enhance interpretation of laboratory results, as it will permit designation of relevant ranges for each patient.

Educational Activities. Dr. William Muhrs, of Johns Hopkins University Medical School, was Visiting Professor in Clinical Pathology during the past year. Five postgraduate courses were presented by the respective Clinical

Laboratories at the Towsley Center. The weekly Clinical Pathology Conferences have continued to be highly successful, including the problem-solving session and the Grand Rounds. While there was token participation by Faculty in the Interphase Program for sophomore medical students, it should be recalled that 95% of the senior class surveyed in 1981 requested additional instruction in use of the Clinical Laboratories. This should be considered in the 1984 Interphase program.

Harold A. Oberman, M.D.
Director of Clinical Laboratories

UNIVERSITY HOSPITALS BLOOD BANK

DEPARTMENT OF PATHOLOGY ANNUAL REPORT JULY 1, 1982 - JUNE 30, 1983

Patient Care

While pretransfusion testing did not increase significantly over 1981-1982, a 10 per cent increase in issuance of Red Blood Cells was noted. The Hospital currently transfuses approximately 75 per cent of all blood as Red Blood Cells. There also was increased issuance of Single Donor Platelets, but this was associated with a decrease in utilization of Granulocyte Concentrates and Frozen Red Blood Cells. The therapeutic plasma exchange program continued to increase, especially with respect to patients with neurologic diseases. The Donor Room experienced a 15 per cent increase in outpatient transfusions, providing a convenience and cost-saving program for our patients.

During the past year the Blood Bank has made a major commitment to preparation for laboratory computerization. This should be implemented in September, 1983. Moreover, several procedural changes in patient pretransfusion testing have been implemented to reduce cost.

Because of concern for transmission of cytomegalovirus to neonatal patients, provision of blood tested for antibody to CMV has been implemented for all low birth weight patients in Holden. As a further convenience for transfusion of neonatal patients, a new procedure was instituted for issuing Red Blood Cells in syringes for transfusion to these patients.

The Reference Laboratory experienced a 10 per cent increase in antibody identification studies. Performance of these studies on-site expedites provision of blood for transfusion, and thereby potentially reduces duration of hospitalization.

Teaching Activities

The following instructional programs were provided by the Blood Bank:

- The 10th Annual postgraduate course, "Current Topics in Blood Banking" was held at the Towsley Center in June, 1983. Approximately 350 medical technologists and physicians from throughout the United States attended the program. This has become one of the most prominent postgraduate programs in Blood Banking held in the United States. Ms. Suzanne Butch, Chief Technologist, was Program Director.
- Two-Week introductory didactic course in Blood Banking for Pathology and Hematology House Officers.

- Two-week introductory individualized program in serologic techniques of Blood Banking for first-year Pathology House Officers (Ms. Barnes).
- Weekly in-service Continuing Education Conferences for Blood Bank staff. Speakers have included not only laboratory staff but also physicians and other representatives from Departments throughout the institution.
- Weekly Clinical Pathology Conferences: Blood Banking topics were presented both in the problem-solving and Grand Rounds Conferences.
- Instruction in practical aspects of Blood Banking for medical technology students (Ms. Barnes)
- Nursing personnel were instructed bi-weekly on transfusion policies and procedures through in-service programs by Ms. Butch and Mrs. Forshew.

Professional Activities

Members of the Staff have been active in a variety of Hospital, regional and national activities as follows. Many are detailed on the individual reports of Drs. Oberman and Friedman, Mr. Judd and Ms. Barnes. The following represent activities of the laboratory technologists.

- Hospital Committees: Deborah Williams serves on the Infection Control Committee, and Suzanne Butch is a member of the Transfusion and Disaster Committees.
- Ann Steiner gave formal presentations to the Southeastern Michigan Red Cross Continuing Educational Program and presented a lecture at the Continuing Education course, "Current Topics in Blood Banking".
- Four Staff members (Douville, Steiner, Butch and Barnes) have served as Inspectors for the Inspection and Accreditation Program of the AABB.
- Mrs. Forshew presented lectures at two regional nursing conferences covering Plasma Exchange and Transfusion Procedure. In addition, Mrs. Forshew and Ms. Butch participated in a Continuing Education Program for nurses from regional hospitals, held in Ann Arbor.

Ms. Butch and Mr. Judd served on the Scientific Workshop Committee of the American Association of Blood Banks.

- Ms. Butch served on the Program Committee of the Michigan Association of Blood Banks.

- Ms. Butch was President of the Michigan Society of Medical Technologists and was Chairman of the Council of Region 4 of the American Society of Medical Technologists.
- Ms. Trudeau served as Co-Editor of the Michigan Association of Blood Banks newsletter.
- Ms. Steiner was a consultant to the Medical Technology Program at Eastern Michigan University.
- Ms. Butch is on the Board of the Washtenaw County League for Planned Parenthood.
- Ms. Butch is Associate Editor for Immunohematology of the American Journal of Medical Technologists.
- Ms. Williams served on the faculty of the Michigan Association of Blood Banks Serologic Workshop.

Research Activities and Publication

Members of the faculty and staff of the Blood Bank presented papers at regional and national meetings, as indicated in their individual Annual Reports. In addition, the following activities of technologists are worthy of note:

- Mr. Salisbury devised programs and prepared a procedure manual for computerization of the Blood Bank.
- Mr. Salisbury and Ms. Steiner participated in the evaluation of SIMWASH, new solution for enhancement of pretransfusion serologic testing.
- The Reference Laboratory implemented use of chloroquine diphosphate and Z-ZAP techniques for improved antibody identification. The Laboratory also developed a simplified method for separating transfused and non-transfused red cells for auto-absorption procedures.
- Publications:
 1. Trudeau, L.R., Judd, W.J., Butch, S.H. and Oberman, H.A.: Is a room temperature crossmatch necessary for detection of ABO errors? Transfusion 1983:237-239.
 2. LaFerla, J.J. and Butch, S.H.: Fetal Rh blood group determination in pregnancy termination by dilatation and evacuation. Transfusion (in press).

- The laboratory is participating in the national study for usefulness of therapeutic plasma exchange in management of neurologic disorders (in cooperation with Department of Neurology).
- The laboratory is participating in a study of use of granulocyte transfusion for neonatal sepsis (in cooperation with Department of Pediatrics).

Goals for 1983 - 1984

Implementation of the laboratory computer should occur in the third quarter of the year, and will require considerable laboratory effort. Coincident with this program, the administrative portion of the laboratory, including offices and conference room, will be relocated and renovated to accommodate the CT Scanner. This will create some degree of disruption of function. At the same time, the laboratory will have its biannual inspection by the American Association of Blood Banks.

The Donor Room anticipates continued increase in activity of therapeutic plasma exchange, especially in view of the expanded use of the technique for myasthenia gravis and multiple sclerosis. Should this program and the outpatient transfusion program continue to increase, additional staffing will be necessary.

The orientation and examination program on transfusion practices for newly-hired nurses is near completion, and should be available early in 1984.

In view of the impending implementation of DRG, the laboratory will continue its efforts in cost containment by modifying procedures without compromising patient care. The laboratory has a longstanding national reputation as a leader in this area.

Harold A. Oberman, M.D.
Director of Clinical Laboratories

CLINICAL CHEMISTRY LABORATORY

DEPARTMENT OF PATHOLOGY ANNUAL REPORT

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During the past year there has been one major personnel addition. Dr. Donald Giacherio from the Mayo Clinic Program in Clinical Chemistry has joined our staff as a Clinical Chemist. He replaces Dr. Vasiliades.

Two Cobas Centrifugal Analyzers have been added to the Clinical Chemistry Laboratory during the past year. They are already capable of analyzing total iron binding capacity, leucine aminopeptidase and triglycerides. Shortly, we will perform urine protein by dye-binding on this instrument and will develop several other tests including HDL cholesterol, aldolase, ceruloplasmin and Ck isoenzymes by an immunoassay procedure.

The overall volume for the Clinical Chemistry Laboratory has increased at the rate of approximately 12% for the last year. This is similar to the preceding two years. Presently, the Clinical Chemistry Laboratory processes approximately 165,000 specimens per month.

Dr. Giacherio has taken over the role as Coordinator of the weekly teaching conferences for the House Officers and the Technologists. Conferences are set up on Wednesdays with the times alternating between 7:30 a.m. and 2:30 p.m. to allow different shifts to attend this continuing education meeting.

Dr. Annesley, together with Dr. Giacherio and myself set up and ran a successful Towsley Symposium on "Current Topics in Clinical Chemistry and Immunology". The reviews of this Symposium were quite good.

The Resident Training Schedule which incorporates the Veterans Administration Medical Center, The University Hospital Clinical Chemistry Laboratory, and special laboratories within the University such as Dr. Patel's in Pharmacy has been highly successful. The experience in Clinical Chemistry gives the residents a diverse training and contact with several excellent teachers such as Dr. Patel, Dr. Annesley, Dr. Hyder, Dr. Giacherio and the excellent medical technologists on our staff.

In-house orientation is coordinated by Ms. Thiessen for the residents.

A clinical chemistry supervisory staff meeting has been established during the year. This meeting allows for more direct communication of specific problems between the supervisory staff and the laboratory directors. It has been key in identifying many small problems which could mushroom.

The Medlab II computer system has been successfully interfaced with the chemistry automated equipment. Ms. Thiessen, together with Bruce Barnes, deserve considerable credit for developing the interface between these systems.

In the coming year, an HPLC assay for cyclosporine A will be established. Several procedures are planned for the new Cobas equipment. The laboratory space will be renovated in order to provide more appropriate working space for the laboratory and administrative staff.

David F. Keren, M.D.
Director, Clinical Chemistry Laboratory

CLINICAL IMMUNOPATHOLOGY LABORATORY

DEPARTMENT OF PATHOLOGY

ANNUAL REPORT

JULY 1, 1982 - JUNE 30, 1983

There have been no major staffing changes during the past year. The immunohistochemistry area is slated to separate from the Main Clinical Immunology Laboratory. Dr. Lloyd, together with Dr. Keren will serve as Co-directors at this facility. Technical Directorship will be provided by Dr. Phil McCoy.

Several new tests have been developed during the past year. High Resolution Electrophoresis of serum samples allows much finer distinction of early monoclonal gammopathies. Further, this technique can be modified to allow examination of cerebrospinal fluid for oligoclonal bands. Using this technique on urine, one can distinguish glomerular from tubular proteinuria. In addition to immunoelectrophoresis, by using high resolution electrophoresis together with immunoprecipitin methodology, we have established a sensitive immunofixation procedure for detecting and characterizing early monoclonal gammopathies. Together with Dr. Till and Dr. Terry Johnson, we have taken advantage of the immunofixation technique to develop methods to examine serum for evidence of in vivo activation of complement. A Clq ELISA procedure for immune complexes is being examined at the present time and compared to the present polyethyleneglycol precipitin method for circulating immune complexes.

The lymphocyte surface marker assay specimens are now entirely performed by the Flow Cytometry Laboratory and read out daily with a group including a representative from the Clinical Immunopathology Laboratory.

The intense in-service education with a weekly meeting of either Clinical Immunopathology or Immunohistochemistry has continued this year. The Immunohistochemistry meeting is under the direction of Dr. Lloyd. During that Conference he presents recent interesting cases and updates the group as to the availability of specific reagents. The alternating weeks consist of the Clinical Immunopathology Journal Club under the direction of Dr. Keren and Ms. Bordine. Usually, recent articles relating to the Diagnostic Immunopathology Laboratory are discussed at this Conference. Ms. Janet Fruhman has set up a file of these articles that will be available to the residents and technologists.

The Clinical Immunology Laboratory collaborated with the Clinical Chemistry Laboratory in the organization and presentation of the Towsley Center on "Current Topics in Clinical Chemistry and Immunology".

David F. Keren, M.D.
Director, Clinical Immunopathology
Laboratory

CLINICAL MICROBIOLOGY LABORATORY

DEPARTMENT OF PATHOLOGY

ANNUAL REPORT

JULY 1, 1982 - JUNE 30, 1983

Laboratory Activities

Work volume increased 12% over the previous year and several new tests and culture procedures were added, including: Chlamydia culture, Mycoplasma pneumoniae culture and adult viral antibody tests for Rubella, Toxoplasma, Herpes and CMV. All new tests were developed and are now offered through the new laboratory section of Adult Virology (serology). A Rubella Screening program was also developed for the Employee Health Service to test all current and new employees. Test volume is 850 per month.

Six new procedures have been evaluated and introduced to significantly decrease reporting time of patient results. Gram negative rod indentifications are now reported in 5, rather than 24 hours. Anaerobe and blood culture susceptibility results are now available 24 hours sooner. Twelve new tests and special techniques were also implemented to improve results and isolate fastidious organisms. Examples are: Acridine Orange stain for blood cultures, flagella stain, Yersinia agar, Gardenerella agar, CVP tip roll technique, Cryptosporidium stain and plated media for mycology cultures.

Two new programs were introduced in an attempt to control commodity expenses in a time of continued cost escalation. The media preparation area was reorganized, one position was upgraded from Lab Aide to Lab Assistant, and a new plate pouring instrument was set up to begin making some of the lab plated media rather than buying it commercially. The Susceptibility area developed a program to prepare MIC susceptibility panels in-house. The new panels are custom made for this tertiary care hospital, and test fifteen new antibiotics not previously available with commercial preparations.

Computer-related activities continue to be important. Considerable planning was needed for the Medlab upgrade since Microbiology converted most result reporting from "card entry" to "direct CRT" entry. A special weekly Reportable Diseases report was developed by Lab Data Center to support the Infectious Disease Service. A computer terminal for research and development and word processing needs was installed. Immediate computer needs for drug susceptibility data storage, blood culture data handling, epidemiology reports and lab management were assessed and are being implemented.

Teaching Activities

The Pathology House Officer Rotation was revised and formalized into a two month format. The first month includes an introduction to all lab

areas; the second month includes special research and/or study in a particular area of interest. Both months include participation in daily Infectious Disease lab rounds and in weekly administrative meetings. The laboratory was also involved in teaching two Microbiology Postdoctorate fellows (2 months each), Infectious Disease and Medical students, Medical Technology students (6 weeks each), OR nurses and the Brighton Health Clinic technologist.

Permanent laboratory staff participated in special "Train the Trainer" sessions to improve teaching skills. Staff participated in a wide variety of other continuing education presentations including monthly Microbiology Journal Club, monthly Pathology House Officer lectures and Infectious Disease case reports, 47 general medical or Infectious Disease lectures, 7 Human Resources programs, 8 regional meetings, 3 national meetings and 2 CDC training courses.

A two day symposium, "Current Concepts in Clinical Microbiology" was presented June 6-7 with very good attendance. Major topics included Blood Culture Update, Rapid Identification and New Techniques, Computer Applications in Microbiology.

Research and Development Activities

Three large development projects and numerous smaller evaluations were done in the clinical lab. An extensive evaluation of an antibiotic removal device is being completed by Dr. Betz Forbes and R. Kloosterman. K. Cullen is continuing with a nonfermenter identification study. J. Polomski completed direct anaerobe susceptibility and anaerobe MIC evaluations.

The new Viral/Parasitic Serology lab section added James Varani, Ph.D. to the clinical research staff. Current research projects include "Recovery of Respiratory Viruses", "Comparison of Histologic and Microbiologic Techniques for Detection of Chlamydia trachomatis", "Comparison of Histologic and Culture Techniques for the Detection of Cutaneous Varicella Zoster" and "Serologic Diagnosis of Toxocara".

Further clinical microbiology laboratory research efforts centered around the effect of various antimicrobics on the growth of bacteria in various in vitro situations. Several investigational antibiotics were also compared to available drugs for in vitro efficacy studies. Methicillin-resistant isolates of Staphylococcus aureus were studied for their ability to develop resistance to an investigational antibiotic, thienamycin, and to methicillin under altered testing conditions. Statistical information was obtained on bacterial strain differences in drug susceptibility. A complete clinical laboratory evaluation on the usefulness of a resin for adsorbing antibiotics from blood cultures was completed.

Additional projects in progress involve the application of flow cytometry for determining the phagocytic index, the use of an enzyme immuno-

assay for detecting circulating bacterial toxins. In addition, a collaborative clinical laboratory study to detect Chlamydia trachomatis in urogenital specimens is underway.

Papers and Presentations include:

1. "Evaluation of the Minitex System for Direct Identification of Anaerobic Rods from Positive Blood Cultures." JC Polomski, KD McClatchey (publ JCM 1982)
2. "Comparison of the B-D urine Culture Kit with a Standard Culture Method and with the MS-2." WA Hubbard, PJ Shalis, KD McClatchey (publ JCM 1983)
3. "Micro-Media Systems Anaerobe Panel Versus Broth Disk Method in Anaerobe Antimicrobial Testing." JC Polomski, SH Bauer, KD McClatchey (publ JCM 1983)
4. "Susceptibility Differences Among Different Colony Morphologies Within the Same Species." M O'Connor-Scarlet, CL Pierson (pres ASM 1983)
5. "Evaluation of Two Rapid Neisseria Identification Systems." LM Kronholm RE Kloosterman, KD McClatchey (pres ASM 1983)

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

FLOW CYTOMETRY LABORATORY
DEPARTMENT OF PATHOLOGY
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The Flow Cytometry Laboratory now has been accepting clinical and research specimens for more than one year. More than 25,000 clinical and research samples have been analyzed on an array of three instruments in the laboratory and adjoining computer analysis area. As part of the 25,000 samples, 651 patient samples with multiple analyses were performed. The total number of scientists, both inside and outside the department, that have had research samples analyzed to date is 29.

In addition to surface marker studies, the laboratory is investigating application of flow cytometry to immune cell response, cell surface receptor analysis, cell membrane electronic potential analysis, cell cycle analysis, cervical bladder cell and solid tumor neoplastic screening.

The teaching activities for the laboratory has increased logarithmically with the increasing knowledge of the facility by the Medical Center community. Lectures have been given to an array of audiences from second year medical students to Medicine and Surgery staff meetings to national and international presentations such as the Annual Meeting of the Society of Analytical Cytology, Mittenwald, Germany.

Sponsored research activities include:

1. Cytometry Research and Development Project, Coulter Electronics, Inc. and Department of Pathology, The University of Michigan (JL Hudson, principal investigator, EJ Lovett III and KD McClatchey, Co-investigators), 1 April 1983 - 31 March 1984.
2. Detection of Acute Lymphoblastic Leukemia Relapse by Flow Cytometry, Children's Leukemia Foundation of Michigan, (EJ Lovett III, project director; DN Shapiro, B Schnitzer, and JL Hudson, Co-investigators), 1 July 1983 - 30 June 1984.

Papers published or in press include:

1. Schnitzer B, Lovett III EJ, Hudson JL, McClatchey KD, Keren DF, Dabich L and Mitchell BF: Adult T-cell leukemia-lymphoma with unusual phenotype. *Lancet* 2:1273-1274, 1983.

2. Schnitzer B, Lovett III EJ, Flint A, Hudson JL, Kahn LE, Bricker LJ and Griffin JD: Microgranulocytic acute promyelocytic leukemia diagnosed by flow cytometry. (New England J Med, in press, 1983).

Kenneth D. McClatchey, M.D., D.D.S.
Coordinator, Flow Cytometry Program

CLINICAL HEMATOLOGY LABORATORY

DEPARTMENT OF PATHOLOGY
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Laboratory Activities:

1. During the past year the volume of laboratory tests has increased approximately 15 1/2% with the largest areas of increase being in differential white blood cell counts (19%), complete urinalyses (14%), and body fluids for differential counts and for cytologic examination (13%).
2. During the past year the implementation of the automated differential white blood cell counter (Diff 350) for routine use was established. The replacement of two Coulter S+'s with Coulter S+4's has provided more capabilities for data interpretation.
3. The remodeling of the Laboratory was finished in December, 1982. The remodeling created more work space allowing for a better work flow.

Teaching Activities:

House Officers

1. Daily review of abnormal blood smears.
2. Daily review of body cavity and cerebrospinal fluids.
3. Daily correlation of blood smears and fluids with bone marrow aspirates, biopsies and lymph node biopsies.
4. Daily examination of in-house lymph node biopsies, splenectomies, and bone marrow biopsies and aspirates.
5. Daily examination of consultation hematopathology cases.
6. Correlation of lymph node biopsies, bone marrow biopsies with flow cytometry data and frozen section and paraffin section immunoperoxidase studies.
7. Examination of cytochemical stains of acute leukemias.
8. Examination of electron micrographs of hematopathology cases.
9. Examination of SWOG cases.
10. Every fourth-year medical technology student has a 6-week rotation through the laboratory actively participating in each area.

Research:

Ongoing studies correlating morphology, cytochemistry, and electron microscopy of lymphomas and leukemias with flow cytometry.

1983 - 1984 Goals:

1. Implementation of on-line use of the Diff 350 with the Med Lab Computer.
2. Implementation of routine data interpretation using data retrieved from S+4's and Diff 350.

Bertram Schnitzer, M.D.
Director, Clinical Hematology
Laboratory

LABORATORY DATA CENTER
DEPARTMENT OF PATHOLOGY
ANNUAL REPORT
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The primary focus of activity within the Laboratory Data Center (LDC) during the year under review was the planning for and installation of the upgrade of the preexisting Medlab clinical laboratory computer system. During the summer months of 1982, LDC personnel were deeply involved in contract negotiations for this project. These efforts culminated in the contract signing for the new system which occurred on October 15, 1982. A considerable amount of planning had occurred in anticipation of this event. Therefore, a comprehensive planning document covering numerous details relating to the computer system upgrade was ready to activate at this time.

During the latter part of 1982 and the first half of 1983, all of the steps necessary to install the first of the two computers which would ultimately comprise the total system were accomplished in an orderly fashion. This involved the completion of complex individual tasks such as developing a methodology file for each of the numerous tests offered by the various clinical laboratories served by the computer system, training personnel to operate the new system, and the physical renovation of the Laboratory Data Center to accommodate the new equipment. New cables had to be installed for laboratories currently on the system, as well as to meet the needs of laboratories entering the system for the first time. An advisory committee composed of clinicians working in the University of Michigan Hospitals was also organized to assist in the design of the Patient Cumulative Report and offer guidance on other matters relating to the laboratory computer system.

Most of the hardware for the first of the two computers was received and installed in early May. The new software was tested during late May and June culminating in a two-week "software exercise" in late June. A critical element in this process was the installation and testing of the interface between LDC and the Hospital Data Systems Center (HDSC). The first of the two new computers came up live, on schedule, during the morning of June 29 with the new Patient Cumulative Report being printed and distributed the next day, June 30.

The remainder of the new hardware is scheduled to be delivered and installed in LDC during July and mid-August. Blood bank personnel training sessions will commence in late August. Additional new software will be tested in October. The second computer will then be brought up on October 21, completing the major hardware installation. Following this, electronic billing will be implemented on December 1 and remote test result reporting using printers and video terminals in 15 high use inpatient and outpatient location will be made available in early January, 1984. This will be a pivotal event because it marks the first time that hospital physicians will

have frequent hands-on experience with video terminals. Following this latter event, the following special function laboratories will be folded into the clinical laboratory computer system: Special Hematology, Arthritis, Adult and Pediatric Blood Gas, Virology, and Pediatric Bacteriology. By mid-1984, the University of Michigan Hospitals will have one of the largest and most sophisticated clinical laboratory computer systems extant in a large tertiary care medical center.

A second major event which occurred during the year was the organization of a new postgraduate conference dedicated solely to the topic of clinical laboratory computers. The meeting was held on June 16-17 in the Towsley Center for Continuing Medical Education. By any measure, this project was extremely successful. There were 171 paid registrants in attendance. Nine vendors of laboratory computer systems demonstrated their systems in the lobby area. The symposium faculty consisted of six speakers from outside the University and six from within. Based on the success of this venture, it will undoubtedly become an annual event each June. The addition next year of a half-day workshop module is anticipated.

Three major initiatives will be undertaken in the upcoming year by LDC personnel. Firstly, a major research and development effort in the area of microcomputer applications for the clinical laboratories will occur. This will consist of the installation of the Plato-Pathlab system in the LDC which will allow clinicians to obtain time trend plots of laboratory values for their patients. This will create an impetus for additional consultations from clinical pathology faculty members. Additional applications software will be developed within the LDC for individual laboratories to accommodate their needs for specialized reports and calculations. Applications software to support interpretive reporting will also be developed for the individual laboratories. Secondly, the value of the current laboratory report will be enhanced. This enhancement will be achieved in many ways. An attempt will be made to deliver reports at a time when clinicians can make better use of the data. Also, statistical tools will be provided within the report to allow the test order clinician to better evaluate the data provided. Lastly, intense study of the clinical laboratory data management needs in the Replacement Hospital Project will be initiated.

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

LIGAND ASSAY LABORATORY
DEPARTMENT OF PATHOLOGY
ANNUAL REPORT
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Service Activities:

The laboratory currently performs 40 different procedures and has shown an approximate increase of 25% over last years volume of specimens. The projected number of specimens was 48,000 with an anticipated total revenue of \$1,620,000. The increased volume of tests performed was accomplished without any increase in personnel and can be attributed to increased laboratory efficiency. A total of 12.5 medical and laboratory technologists and supervisory personnel staff the laboratory.

The high level radioisotope laboratory that was previously shared with the Reproductive Endocrinology Program has been reequiped and is fully functional. The purchase of a Spectra Physics high performance liquid chromatograph, single well radiation detector, portable gamma counter and probe, refrigerator freezer and various smaller pieces of equipment make it possible for us to prepare high quality radioisotopic tracers for use in the clinical laboratory. The inclusion of a small self contained isolation hood inside the existing fume hood has made it possible for us to conform to NRC regulations regarding acceptable levels of radioactivity vented to the outside. This hood arrangement has been well accepted by the University Radiation Control Service and it is their practice to suggest that all high level radiation laboratories adopt the procedure we established.

The measurement of the C-terminal portion of parathormone is now being done in the Ligand Laboratory. Previously this test was sent out. We hope to establish a test procedure for the N-terminal portion of parathormone during the next year.

We are currently in the final stages of evaluating an Enzyme Labelled Procedure for hepatitis tests, Carcinoambrionic Antigen, Alpha_feto Protein and a few smaller volume tests. This procedure, marketed by Abbott can be run on a manual instrument, or on a more sophisticated instrument also sold by Abbott. The decision of whether to adopt the new procedure or stay with the older RIA methodology will be made when all the data is available.

The evaluation for including the aminoglycoside -netilmicin- in the repertoire of laboratory tests has been completed. We are waiting for the drug to be marketed and used in this hospital.

A collaborative project with investigators in the Department of Biological Chemistry concerned with the detection of an alcohol induced liver cytochrome P450 enzyme is progressing well. High titered antisera have been produced and if successful the assay procedure should prove helpful in monitoring tissue damage in alcohol induced liver disease.

A collaborative project was carried out with Dr. B. Forbes in the Microbiology Laboratory with the evaluation of an Antimicrobial Removal Device. The Ligand Assay Laboratory measured aminoglycoside levels in a number of samples obtained in this study.

Teaching Activities:

Pathology House Officers participate in a joint Chemistry - Ligand rotation during a three month rotation. The Residents are encouraged to actively participate in the operation of the laboratory and in the interpretation of results from several different kinds of procedures.

Fourth year Medical Technologists have a one week rotation through the Laboratory. The students run several assays including digoxin, various hepatitis tests, cortisol, and observe the steroid receptor assays.

Barry G. England, Ph.D.
Director, Ligand Assay Laboratory

PHLEBOTOMY TEAM

DEPARTMENT OF PATHOLOGY ANNUAL REPORT JULY 1, 1982 - JUNE 30, 1983

There has been no major expansion of phlebotomy services in the University of Michigan Hospitals during the year under review. One significant change was implemented relating to the technique of drawing blood. It was decided to draw a blood sample from a patient's arm vein distal to a running intravenous drip if it is not possible to draw the blood from another site. When this becomes necessary, the phlebotomist will enter a comment into the laboratory report to alert the clinician to the fact that the blood sample may be contaminated. If proper technique is used for the venipuncture, it was felt that drawing blood distal to the infusion site would not increase the chance of infection in the arm.

An alteration of the specimen handling procedure in the Admitting Lounge of the Adult Main Hospital is about to be implemented which has been planned in conjunction with personnel from the Laboratory Data Center. The new procedure consists of staffing the Admitting Lounge with two employees from the Phlebotomy Team; one will draw blood samples and the other will "test request" via video terminal directly into the laboratory computer system. This will allow newly drawn blood samples to be transported directly to the various Clinical Laboratories rather than routing them through the Central Distribution area. The Messenger Service is unable to pick up specimens from the Admitting Lounge frequently enough to ensure rapid turnaround time for laboratory results for newly admitted patients. Phlebotomy Team members will therefore also transport specimens from the Admitting Lounge to the central Clinical Laboratories.

Finally, Phlebotomy Team personnel planned and sponsored the third annual Spring Phlebotomy Team Symposium at the Towsley Center on May 12-13. There were approximately 150 registrants for this day and one-half meeting from as far away as Florida and California. Both technical and management topics were addressed during the meeting. The conference was again well received, and will certainly become an annual event.

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

IMMUNOPATHOLOGY RESEARCH
DEPARTMENT OF PATHOLOGY
ANNUAL REPORT
JULY 1, 1982 - JUNE 30, 1983

Development of immunology research programs in the Department of Pathology commenced with the recruitment of Dr. Peter A. Ward, who officially assumed the position as Professor and Chairman in June, 1980. He left a similar position that he had held since 1973 at the University of Connecticut School of Medicine (Farmington). In a three year period, approximately 23 new faculty members (both M.D. and Ph.D. holders) have been recruited into the Department of Pathology in Ann Arbor; half of these individuals devote a major portion (>50%) of their time to immunological research. Most of the research faculty members are young, as reflected by the fact that five currently hold research career development awards. The development of a strong research program in the Department of Pathology has resulted in the Department's pre-eminence in the area of immunopathology, which is demonstrated both by its research programs as well as its training program in Immunopathology, the largest and most successful program of its type in the United States.

During the past three years the Department has devoted substantial fiscal resources (made available in the recruitment package to Dr. Ward) for renovations within the Department and equipping of new research laboratories. Approximately 8,000 sq.ft. of space have been upgraded for research laboratories with an expenditure of nearly \$2.0 million. With completion of the new Medical Sciences Research Building, another 5,000 sq.ft. of research and support space will become available to the Department. The Department's strengths in the area of immunopathology have played a major role in the recruitment of Drs. Boxer and Smolen into the Department of Pediatrics and Communicable Diseases, and the recruitments of Dr. Roger Wiggins into the Nephrology Division and Dr. Richard Simon into the Pulmonary Division of the Department of Internal Medicine. Each of these scientists has strong interests and experience in the area of immunology/immunopathology, and each has collaborative ties with investigators in the Department of Pathology. Each also has laboratory space within the Department of Pathology.

Immunology research in the Department of Pathology is focused on inflammatory cells, mediators, immune triggers of the inflammatory system, and regulation of the inflammatory reaction. Research on leukocytes takes the form of structural characterization and modulation of chemotactic peptides, generation and role of arachidonate metabolites in functional responses of phagocytic cells (neutrophils, macrophages), and the role of toxic oxygen metabolites (oxygen derived free radicals) in immune complex-induced tissue injury. Mediator studies include the identification of complement activation peptides and their role in the initiation of the acute inflammatory response and the resulting tissue injury. Other mediator research involves the role of macrophage products in fibrogenic responses,

the down-regulating effects of prostaglandins on chemotactic receptors, effects of prostaglandins on leukocytes and related events, and factors affecting cell motility of leukocytes and malignant cells. Studies on immune triggers involve a definition of the features of pathogenic immune complexes, non-immune complex triggers of the complement system, and the effects of interleukins and other phagocyte-derived products on lymphocytes, fibroblasts, and other target cells. Studies of regulation of the inflammatory and immune systems are linked to all of the areas described above. Research activities in the Department of Pathology have the advantage of direct and virtually unlimited access to Departmental facilities involving the Flow Cytometry Facilities, the HPLC Facility, the Research Transmission Electron Microscopy Facility, and Departmental animals rooms.

As indicated elsewhere, there are strong collaborative ties between immunologists in the Department of Pathology and those in other Departments. Drs. P. Ward and W. Marasco (Department of Pathology) have joint research efforts with Dr. R. Nairn (Department of Microbiology and Immunology) in the biochemical and immunochemical definition of the neutrophil chemotactic receptors. Drs. K. Johnson (Department of Pathology) and R. Wiggins (Department of Internal Medicine) collaborate to define the role of oxygen derived free radicals from phagocytic cells in the production of acute experimental immune glomerulonephritis. Drs. S. Kunkel (Department of Pathology) and L.A. Boxer (Department of Pediatrics and Communicable Diseases) are collaborating in studies of arachidonate metabolites of endothelial cells following contact with activated phagocytic cells. These close collaborative ties have a synergistic effect on immunology research throughout the Medical School. Although immunology research in the Department of Pathology is only three years since its inception, the accomplishments to date are impressive and are excellent predictors of developments in the future.

Peter A. Ward, M.D.
Director, Immunopathology Research

ADMINISTRATIVE/FINANCIAL AFFAIRS SECTION

DEPARTMENT OF PATHOLOGY
ANNUAL REPORT
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I. Administrative Activities:

Department of Pathology Administration has been re-structured to include:

The Office of the Chairman (central administration), the Administrative Support Center, the Medical Service Plan and Word Processing Center, the Surgical Clerical area, and the Grants and Contract Administration Office. Staff include the Administrative Manager and his staff, the Financial Manager for the Clinical and Anatomic Pathology Laboratories; a Financial Analyst, a Grants and Contract Administrator, and an Office Manager.

A. Departmental:

1. The IBM 5520 Administrative System was implemented in July of 1982. The system continues to be expanded and now has the ability to maintain salary, personnel and address files. There are now 11 fully trained operators with plans to expand the system to 14 units.
2. The billing procedures for Pathology services for consultation services was standardized and centralized.
3. The renovation and remodeling projects completed this year include the Faculty Office Suite on the 5th level; the Surgical Pathology Diagnostic Rooms and Clerical Areas, the new Electron Microscopy Suite, Clinical Immunopathology Laboratory, Surgical Pathology Cutting Room, Ligand Assay Tissue Culture Laboratory and Pathology Departmental Storage areas on the third floor.

B. Medical School/Hospital:

1. The implementation of the new Laboratory Computer System began with involvement on the part of the Administrative Manager, Financial Manager, Administrative Coordinator for the Clinical Laboratories and the Office Manager for Anatomic Pathology. Included in this effort is the development of a report by the Billing Task Force. This report will cover the implementation of an automated tape (LDC) to tape (HDSC) billing system.

2. Continued involvement with the planning of the Clinical Pathology Laboratories in the Replacement Hospital.
3. Due to the implementation of the TEFRA regulations and the DRG prospective payment system, several studies were performed including the Faculty Time/Effort study; the planning for a separate Medical Service Plan Office for billing of the physician component of all Anatomic Pathology Procedures; and attendance at related seminars.

II. Other Relevant Activities:

- A. The Grants and Contract Administration office submitted on behalf of the principal investigators a total of 54 grant and contract applications to 19 different funding agencies. Included in this were two major Program Projects.

Currently there are 35 active grant awards totaling \$1,338,384 in direct costs awarded each year. Detailed reports of grant and contract proposals and related financial data are available in the Office of the Chairman.

- B. The Administrative Support Center performed a price survey of laboratory services and implemented FY 84 price increases.
- C. The Anatomic and Clinical Pathology Laboratories performed 2,090,116 fee code procedures resulting in over 6,000,000 test results in Fiscal Year 1982/1983 which amounted to \$29,001,405 in gross revenue. Detailed data regarding activity, revenue and expenses for Anatomic and Clinical Pathology are available in the Office of the Chairman.
- D. Through the increased Anatomic and Clinical Pathology laboratory activity, gross revenue generated for our MSP amounted to approximately to \$3,900,000. Detailed data regarding MSP revenue and expenses are available in the Office of the Chairman.
- E. Developed financial plans, goals and objectives under the Direction of the Chairman and Associate Chairman to enhance Hospital and Medical Service Plan revenue.

III. Goals For Fiscal Year 1984/1985:

- A. Develop data and positions required for an agreement between the University of Michigan Hospitals and the Department of Pathology for FY84 and future years.
- B. Implementation of separate billing for the physician component of Anatomic Pathology Procedures including the establishment of a Medical Service Plan Billing Office.

- C. Completion of the renovation and remodeling project for the Medical Science I Building including the House Officer Area and Departmental Conference Room.
- D. Implementation of cost containment programs to ensure the financial stability of the Department of Pathology in light of TEFRA and DRG regulations.
- E. Further development and expansion of the Word Processing Center to include other secretarial staff; integration of the system to include the IBM Personal Computers, and other University computer systems.
- F. Begin the activation plan for occupying the Replacement Hospital/ Adult General Hospital.

Eugene J. Napolitan
Administrative Manager

RESIDENCY TRAINING PROGRAM
DEPARTMENT OF PATHOLOGY
ANNUAL REPORT
JULY 1, 1982 - JUNE 30, 1983

The residency training program in the last year has demonstrated its continued national prominence by recruiting six excellent individuals from distances as far away as Missouri and California. Two of the new residents are also MD PhDs. All of the residents are expecting to complete their training in anatomic and clinical pathology.

The addition of six new residents brings the total house officers to twenty, four below last year's total and indicative of the general trend downward in the size of residency programs due to job opportunities available and, more importantly, the need to modify residency programs to accommodate the five year residency requirements in 1985.

Other developments include a strengthening of the clinical pathology program at the VA Medical Center modifications of the clinical pathology rotations at University Hospital to include the senior year residents opportunities for concentration in an area of future expertise/experimentation. Opportunities in anatomic pathology have been expanded to include formal training in flow cytometry and immunohistology.

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

MEDICAL TECHNOLOGY PROGRAM
DEPARTMENT OF PATHOLOGY
ANNUAL REPORT
JULY 1, 1982 - JUNE 30, 1983

The highlight of the past year for the Medical Technology Program was the awarding of a seven-year reaccreditation with no attached qualifications, by CAHEA of the AMA. This is the maximum time period allowed for reaccreditation by NAACLS, the accreditation agency for clinical laboratory science programs. The site survey team was extremely impressed with all facets of the program and with the support given by the Pathology Department and the Medical School.

Board of Registry exam scores for the Class of 1982 were impressively higher than the previous four classes. In all specific laboratory areas, program mean scores were higher than national mean scores. All students passed the exam as compared to a 90.5% national pass rate. The MT faculty attributes this improvement to the program format changes first instituted with this class. Based on the scores reported from the recent Wayne State Comprehensive Exam, a "practice" Registry exam, the Class of 1983 will demonstrate similar registry score improvement over classes prior to 1982.

Program enrollment has increased, with 18 students admitted to the Class of 1984. Campus-wide recruitment efforts appear to have attracted some very capable and well-qualified students to this class. An interesting feature of the new class is the inclusion of six students already possessing baccalaureate degrees, one of whom also has a Master's degree. Four of these students have reported their inability to find jobs within their fields of concentration as the reason they have chosen to pursue a Medical Technology Certificate.

In 1982 the program opened its didactic lectures in all areas for audit students, in addition to regular students. The 1982-83 group included two tuition-paying audit students from outside the university and one university employee. The new class of 1983-84 also has two tuition-paying auditors and one in-house employee. This opportunity has provided an important service to technologists wishing to retrain and refresh prior to reentry into the job market, and to technologists desiring to expand their expertise or review for certification exams.

The program director and one faculty member, with initial help from HRD, planned, implemented, and "team-taught" a mandatory continuing education program for all Pathology laboratory technologists. The program was given eight times, with the purpose of enhancing the teaching and evaluation

skills of those working with students on the bench. In general, the feedback was excellent, and technologists enjoyed the opportunity to discuss teaching problems with personnel from other labs.

Two of the program faculty have been developing a variety of instructional aids, including CAI and audio-visual programs for both student and/or employee use. In addition program faculty and instructional aids, such as slide collections, are available and frequently used as resources for others in the department.

Although the planned renovation of office and storage space had to be delayed, the space has been utilized very effectively. All faculty now have offices within the MT area, and supplies and equipment have been consolidated into one MT storage area. The MT library will be moved out of the student labs, freeing more cabinet space for storage of laboratory supplies.

The major focus for the coming year will be the development and first stage implementation of a five-year program proposal. This will involve further format, scheduling, and possibly curriculum changes. A major statewide survey is under way to determine present and future hiring practices for medical laboratory workers. This data will be used to propose necessary changes in the type of medical technology education offered by the University.

Sandra Gluck
Director, Medical Technology Program