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MEDICAL BULLETIN

UNIVERSITY OF *Minnesota*

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- CLASS OF 1945
- DIABETIC RETINOPATHY
- SPACE RADIATION
- ETHACRYNIC ACID

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HISTORY OF THE MEDICAL SCHOOL

Part IV



Names have made the news at the University of Minnesota Medical School since its opening in 1887. The institution's growth and development was shaped and formed under the influence of its many splendid teachers.

During the Medical School's 75th Anniversary Observance, the MEDICAL BULLETIN is publishing brief sketches of some of the great moments and the great men who helped write its history.

Elexious Thompson Bell, M.D.

Four thousand medical alumni of the University of Minnesota Medical School were taught anatomy or pathology by Dr. Elexious Thompson Bell, whose massive influence as a teacher and researcher are probably unequalled at the Medical School. Few of these graduates—nearly two thirds of all who ever received the MD at Minnesota—can forget that their lives and careers were touched by “Tommy” Bell.

Dr. Bell taught anatomy for eight years at the University of Missouri—his home state—before he was hired by the University of Minnesota as a 30-year-old instructor in 1910. A year later, he transferred from Anatomy to the Department of Pathology, of which he became head in 1920. A brilliant 29-year career as chief followed before he retired in 1949.

In those years he won the confidence, admiration, respect, and love of a host of medical students. His *Textbook of Pathology*, among his prolific writings, became a handbook for thousands of embryonic doctors in dozens of medical schools. A Minnesota colleague attributed Bell's success with people and science to “horse sense” in research, a friendly manner, a fine sense of humor, intolerance of sham, ability to counsel wisely, and a talent for adding a touch of drama to prosaic topics.

Dr. Bell persuaded Dr. Richard E. Scammon, later a Dean of the Medical School, to join the Department of Anatomy in 1912. They became roommates and together played a major role



in convincing University President George E. Vincent that the School of Medicine should be reorganized. That historic reorganization in 1913 resulted in the hiring, at Bell's urging, of Dr. Clarence M. Jackson, his former chief at Missouri and then dean of Missouri's School of Medicine, to become head of the Department of Anatomy at the University of Minnesota.

Bell and Scammon also recommended Elias P. Lyon of St. Louis University to be dean of Minnesota's reorganized School of Medicine. Thus the four men—Bell, Scammon, Jackson, and Lyon—became colleagues and etched their names forever in the history of the University of Minnesota.

On reaching retirement age in 1949, Tommy Bell was given professor emeritus status and for another decade conducted research with his beloved pathology works at Minnesota, his clear mind undimmed by the advancing years.

Professional honors piled up in abundance as his accomplishments were recognized. Among them were the Distinguished Service Award of the Minnesota Chapter of Sigma Xi; honorary doctor of science degree from his Alma Mater (University of Missouri); Medal of the Minnesota Academy of Medicine; and the Banting Distinguished Service Medal of the American

Diabetes Association. The E. T. Bell Lectureship held annually in his honor at the University of Minnesota was established in 1955 by the Minnesota Pathological Society.

In his 80th year, 1961, Dr. Bell was honored by 200 colleagues on the occasion of the dedication of the new Bell Pathology Laboratories at the Medical School. The Department of Pathology houses the E. T. Bell Pathological Museum as a memorial to him.

Dr. Bell's life ended on September 16, 1963, at the age of 83. He was the victim of injuries suffered in an auto accident in Missouri earlier that year.

In a moving eulogy to Dr. Bell, Dr. Cecil J. Watson of the Medical School faculty offered these words:

"This truly great man and his work now belong to the ages. As the years pass his name will come to represent, more and more, the finest tradition of medical teaching and research. Surely the focal point of this tradition and its brightest reflection will be this Medical School and this University."

S. Marx White, M.D.

Few of the celebrated clinicians in Medical School history have had the sweeping influence of S. Marx White, whose medical career has spanned all but ten years of the institution's life.

Born in Hokah, Minn., July 16, 1873, the son of a country doctor, Dr. White graduated from Northwestern University (M.D. '97). He was hired in 1898 by Dean Frank F. Wesbrook as a "demonstrator" of pathology and bacteriology at the University of Minnesota. He rose through the faculty ranks as a pathologist, initiating the autopsy service at Minneapolis General Hospital, bolstered his education by postgraduate studies in Europe, and finally joined the Department of Medicine in 1908. The Department of Medicine was then located in a building on Washington Avenue, and was headed by Dr. Charles Lyman Green. Dr. White brought the first EKG machine to Millard Hall, and raised funds for the original Elliot Memorial Hospital, first unit of University Hospitals, on the expanding University Campus.

Meanwhile, Dr. White established a notable private medical practice, although he devoted more than one-half of his time to teaching at the University. He served the institution through



the painful reorganization of 1913, and fought hard for the Mayo affiliation which followed World War I. He was named a full professor of medicine in 1915, and chief of the Department of Medicine in 1921.

His resignation as chief in 1925 was lamented by the teaching staff and student body, for he had earned high regard and critical acclaim. But he strongly believed that a full time chief was essential to the future of the Department of Medicine,

and his belief turned to reality shortly after.

After 1925 Dr. White devoted himself to the Nicollet Clinic, which he had founded in Minneapolis in 1921 with other University medical professors of the shared-time era. However, he continued on the University's clinical teaching faculty until 1942.

Over the years S. Marx White's pedagogic and humanitarian influences have been felt by a host of students, physicians, and the community. He made his mark as a lifelong TB fighter, officer of the State Board of Health, leader of various units of organized medicine, and winner of many awards for distinguished service, all in addition to teaching the art and science of medicine.

Dr. White is now approaching 93 years of age and lives in a nursing home at 3101 Lyndale Ave. S., Minneapolis. Although his eyesight has failed, he is alert and productive, still dictating medical literature to a secretary occasionally. Earlier this winter he published an impressive paper in *Journal-Lancet* titled "*The Changing Scene in Medicine, 1887-1960.*" Few others are so well qualified to chronicle the astonishing medical developments of the period. Few have played such an important role in it themselves.



Alumni Survey



The Class of 1945

The Class of 1945 completed Medical School in only three years of accelerated wartime curriculum which began for them at 7 a.m., June 1, 1942. Until graduation occurred between VE and VJ Day, no vacations were allowed, and most of the students were kept busy under Navy V-12 or Army ASTP programs.

The Army men were barracked at nearby Motley School, marching to class daily, and drilling on Saturdays. Nine month internships were followed, in most cases, by 21 months of active military duty.

The 124 classmates included six who are now deceased. After 20 years, 108 have answered the MEDICAL BULLETIN survey (91%). Among them was one who helped pay his tuition by working as a part time streetcar conductor. Tommy Bell and Leo Rigler were mentioned as favorite teachers. The class produced a host of children, including the 13 of Francis Schnugg (see below).

When **Frank Schnugg*** casually enclosed a Christmas card photo of his family for the Class of 1945 survey, the MEDICAL BULLETIN's editors began counting. There sat Dad and Mom surrounded by nine daughters and four sons. In number they match the family circle of Philip Pallister (Med. '44), Boulder, Mont. Thus a second family of 13 children has been discovered among the 6,000 graduates of the Medical School. (Does anyone know of a larger one?)

To the head of the Class of 1945, then, goes the **Frank Schnugg** family of 57 Lombardy Lane, Orinda, Calif. Frank is an anesthesiologist at Providence Hospital in nearby Oakland, Calif. He served in the Navy aboard the *U.S. Valley Forge*, and has been practicing in California since 1953.

Frank's wife, youthful and pretty among her children, is the former Mary Hayden of Rochester, Minn. Their children

*Member, Minnesota Medical Foundation



Dr. and Mrs. Frank Schnugg and family

are Stephen, 16; Mary, 15, Peter, 14; Susan, 13; Nancy, 12; Anne, 11; Jane, 10; Patricia, 9; Sarah, 8; John, 6; Peggy, 5; Tom, 3; and Elizabeth, 1. Frank comments, "Obviously most of our time is taken up following our tennis players, dancers, swimmers (five are in AAU competition), or listening to piano lessons. Our main problem is that, at best, we can only be in two places at one time. Occasionally we get out on the golf course."

John F. Alden* practices general surgery in St. Paul with classmate Joseph Sprafka and two others. He received his M.S. in surgery from the U. of M., and served twice in the Army. John married Meredith Brown of Wisconsin, and they have three sons, ages 15 to 10. The family lives at 21 Benhill Rd., St. Paul.

Harry J. Anderson* and his wife, Darlene, enjoy fishing for trout and salmon near Seattle, Wash., where Harry has practiced psychiatry for the last seven years. "We tend to be lucky," he writes, also mentioning his daughter, Pam, 15; and son, Scott, 7. They live at 18553 35th N.E. in Seattle.

Warren M. Bartholomae practices internal medicine with a specialty in cardiovascular disease in Akron, Ohio. His address is 513 W. Market St.

Joseph C. Belshe recently began practicing anesthesiology in St. Cloud, Minn. after receiving his M.S. degree from the U. of M. in 1965. Joe comments, "After two years in the

*Member, Minnesota Medical Foundation

service, I spent three years in general practice and surgery in my hometown, Northfield, Minn., and 12 years at St. Croix Falls before starting my residency in 1962." Joe and his wife, June Larsen, have four children, ages 19 to 7, and live at 1000 24th Ave. N.

Lyle M. Benson* is a GP with three others in Springfield, Ore., where he has spent 12 years. He served in the Army, 1946-48 and 1951-52, and married Lucille Peterson of Zimmerman, Minn. They have three daughters, ages 19 to 15; Judith, the oldest, is a sophomore at the U. of Oregon. Lyle writes that he "enjoys the hunting and fishing available in western Oregon." The family lives at 25 Ann Ct.

Emil H. Bergendahl* practices otolaryngology with a three-man group in Ft. Wayne, Ind. He went there in 1951 after his training at the U. of Ill. and Army service. Emil and his wife, Margaret Alberg, have two sons, ages 12 and 9, and live at 1202 Illsey. The family enjoys boating, golfing, traveling and picture taking.

Donald G. Bohn* has been medical director of North American Life and Casualty Company in Minneapolis for 7 years. He teaches at the U. of M. and St. Barnabas Hospital. Don served in the Army and married Yvonne Kvam of Minnesota. They have two children, ages 12 and 14, and live at 4541 Westwood Lane in Minneapolis.

Alfred Borgen is deceased.



J. C. Brenemann

James C. Brenemann* practices general medicine in the Galesburg, Mich. Clinic where he located 17 years ago. He served in the Army and married Mary Jo Helmer-son of Minneapolis. They have three children, ages 15 to 9. Jim writes that he just returned from a tour of the Orient where he attended a seminar. He received the Ross Award in 1959 and the Angiology Award in 1963. His current research interest is allergy as the cause of enuresis.

Spencer F. Brown writes "Hope this is not too late for the survey of the Class of 1945 — the 'greatest class ever.' I've been in private practice of pediatrics in Darien, Conn. for 12 years, and on the clinical faculty at Yale." Spencer was former chief of pediatrics at Minneapolis General Hospital, and he served twice in the Army. "Some day I hope to get back to Minnesota.

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Best regards to all." Spencer's wife, Janet, is from Michigan. They have four children, high school and college age.

Mary Elizabeth Craig* has been in solo pediatrics practice in St. Louis Park, Minn. since 1948. She is married to Mr. Howard W. Lincoln, and they have two children, ages 15 and 12. Both children are gymnasts and divers, and Elizabeth reports that their hobby is "being proud parents." The family lives at 4423 Ellerdale Rd. in Minnetonka.

Charles D. Danielson is a general surgeon at the V.A. Hospital in Grand Island, Neb.

Tom Davis, II is deceased.

Robert F. Deranleau* practices general medicine alone in Perry, Iowa. He has been there for 16 years. Bob served in the Army and married Mary Lauterbach of Redwood Falls, Minn. They have ten children, ages 20 to 2. Bob recently moved into a new office building and is past president of the Rotary, Elks Lodge No. 407, and of the local industrial organization.

Roy W. Dickman* is a surgeon with the Southwest Clinic in Minneapolis and lives at 4504 Balfanz Rd. with his wife, Patricia, and three teenage daughters. He served in the Army, 1955-57.



Donald Dille and family

*Member, Minnesota Medical Foundation

Donald E. Dille has been a GP in Litchfield, Minn. since 1946. He served in the Army and married Bonnie Anderson of Litchfield. They have seven children, age 20 to 7-year-old twin boys, Peter and Andrew. Don quips, "I have the largest Protestant family in the county. The three oldest attend the U. of M." He is president of the county historical society, and enjoys flying and farming.

Vernon A. Doms* is in general practice at the Elbow Lake, Minn. Clinic where he has spent 14 years. He served in the Navy, and married Jean Rupert of Pennsylvania. They have two daughters, ages 16 and 14. Vern is listed in *Who's Who in the Midwest*.

Capt. Robert M. Drake became chief of laboratory service at the U.S. Naval Hospital in Great Lakes, Ill. in 1964. A pathologist, Bob was with the Calif. State Health Dept., 1949-57. Since that time has been in the Navy. Bob's wife is the former Merry Hoyt of Minneapolis, and they have three children, ages 16 to 10. Their address is Quarters N, U.S. Naval Hospital in Great Lakes.



Robert Drake

Nylene Eckles Kirschbaum is affiliated with the M.D. Anderson Hospital Institute, Houston, Texas. Her husband is deceased. She has two sons and lives at 4055 Tartan Lane.

Ruth Eldred Smathers writes from Lathrup Village, Mich., "I'm busy with the family and a variety of children's and community activities but, with our family growing up, I hope to again use my education more directly." Ruth's husband, Ward, is a general surgeon and teaches at Wayne University in Detroit. Their six children range in age from 17 to 8; the two girls swim in AAU competition. The family lives at 18741 Roseland.

Robert S. Ely is in private pediatrics practice in Salt Lake City and teaches at the U. of Utah. He taught at the University of Utah and Arkansas before entering private practice in 1959. Bob served with the Marines in China, and is married to Joy Wilson, "an M.D. and psychiatrist from the U. of Utah, who practices only a little, at home." They have four children, ages 12 to 5, and live at 2345 East 9th St. Bob was 1957 recipient of the *Ross Pediatrics Research Award*.

James E. Fearing is deceased.

*Member, Minnesota Medical Foundation



Robert Ely and family

Samuel B. Feinberg* is director of the Department of Radiology at Mt. Sinai Hospital in Minneapolis, and teaches at the Medical School. He took his training at the University of Michigan, and served two tours in the Navy. He and his family live at 602 Drillane Rd. in Hopkins. Sam was winner of the 1965 "Golden Apple Award" for outstanding clinical teaching and performance in the Department of Pediatrics at the U. of M.

Seymour Feldman is deceased.

Richard R. Fliehr practices OB-GYN in Minneapolis and lives at 6409 Colony Way, with his wife, Kathleen, and son, Richard, 17. He also teaches at Hennepin County General Hospital. After Navy service and 16 years of OB-GYN, he's now making a serious bid in the professional theatre. He's enrolled at the University of Minnesota seeking an M.A. in Theatre Arts.

James Rogers Fox is something of a household name in the Twin Cities area. Jim appears daily on KSTP-TV with program titled "Doctor's House Call." He's also an internist of 16 years' practice, presently in Minneapolis, and the husband of Elizabeth Ann Webster of Minneapolis. They live at 4906 Lakeview Dr., Edina, with their four sons and one daughter.

Benjamin F. Fuller, Jr.* has concluded his internal medicine practice with two doctors in St. Paul and now teaches fulltime at the Medical School. He received his M.S. degree from the Mayo Foundation. Ben's wife is Carol Myre of Wyoming, and they have four children, ages 17 to 4. Ben comments, "It was an exciting and pleasant practice of 16 years in St. Paul." The Fullers live at 260 Stonebridge Blvd. in St. Paul.

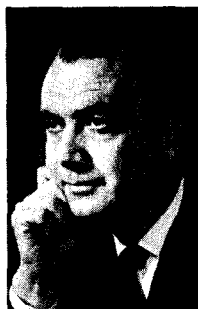
*Member, Minnesota Medical Foundation



Herb Johnson



David Johnson



Ben Fuller

Dale Q. Furnell is an orthopedic surgeon in Chicago, Ill. His address is 4849 W. Fullerton.

Richard C. Gaard is head of anesthesiology at North Memorial Hospital in Minneapolis and teaches at the Minneapolis School of Nurse Anesthetists. He took his training at St. Luke's Hospital in N.Y.C. and served in the Navy in China. Dick's wife, Annabelle Ravner, is from Minneapolis where they live with their three children at 210 Peninsula Rd.

Anthony C. Gholz* is in a pediatrics partnership in Port Huron, Mich. where he has been since 1950. He took his training at Children's Hospital in Detroit, Mich., after serving in the Army. Tony's wife is Helmi Monkkonen of Crosby, Minn., and they have three sons, ages 17 to 12. He writes that he keeps "busy in general pediatrics and enjoy golf, reading, and watching my kids grow." The family lives at 1725 Court St.

Warren C. Glaede practices general medicine and surgery in Springfield, Ore., where he has spent 15 years. He served in the Army and lives at 340 N. 22nd in Springfield.

John H. Glaeser has practiced otolaryngology with Graham Smith (Med. '38) since 1954 in Minneapolis. He served in the Army, and married Mary Jane Scott of Mo. They have a family of five, ages 17 to 8, and live at 3001 Quail Ave. N. in Golden Valley. John enjoys golf, hunting, and family skiing.

Stanley J. Graiewski* is in general practice with a partner in Oshkosh, Wis., and teaches at the Mercy Hospital of Nursing. He served in the Navy, and married Irene Crispigna of Mich. They have five children, ages 20 to 5, and live at 1844 Vinland Rd. Stan is medical advisor to the Campfire Girls, Boy Scouts, county board, local Civil Defense, and the Oshkosh high school football team which was 1964 and 1965 state champion.

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Melvin L. Grais* is in private dermatology practice in San Jose, Calif., and is chief of the dermatology service at Santa Clara County Hospital. He received his M.S. from the U. of M., and served in the Army. Mel's wife is Dian Klugman of N.D., and they have three children, ages 13 to 9. The family lives at 135 Longmeadow Dr. in Los Gatos.

Cloid D. Green has been in teaching and research fulltime in the Anesthesiology Department at the University of Virginia since 1960. He served in the Air Force, 1957-60, after receiving an M.S. degree from the University of Iowa. His wife is Margaret Moulton of Minneapolis. They have six children and live at 1630 Brandywine Dr., Charlottesville, Va. Cloid's hobby is timber farming.

Roscoe A. Gutekunst* lives in Dallas, Texas where he has been a GP for five years. He served with the Marines in Korea, 1950-51, and married Cynthia Bergloff of Phoenix, Ariz. They have two daughters and live at 10448 Vinemont.

Charles A. Haberle* is a psychiatrist with the 22-man Minneapolis Clinic of Psychiatry and Neurology. He trained at Minneapolis V.A. Hospital, and now teaches at the Medical School. Chuck and his wife, Vera, have three sons, ages 20 to 6, and live at 6221 Idylwood Lane in Edina. David, 16, was Minnesota high school golf champion as a sophomore. Chuck was in general practice before he took his psychiatry training.

Phillip V. Halliday practices internal medicine in Duluth, Minn. He went there 10 years ago after a U. of M. fellowship and Army service. Phil and his wife have three children, ages 18 to 15, and live at 2620 Skyline Pkwy.



Stanley Graiewski and family

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Fred Z. Havens, Jr.* has been an internist for 13 years with the Riverside, Calif. Medical Clinic. He trained at the Mayo Clinic and served in the Navy. Fred's wife is Barbara Stephenson of Iowa, and they have three children, ages 13 to 3. Fred teaches at Loma Linda and consults at the USAF Hospital at March AFB. Real estate is his hobby. The family lives at 2139 Archdale St.

Philip C. Hendenstrom is a GP with a group in Marshall, Minn. where he has spent 18 years. His wife is the former Eleanor Hatlestad of Cottonwood, Minn., and they have four children, ages 18 to 11.

Stanton A. Hirsch* practices internal medicine with the Northwestern Clinic in Crookston, Minn. He took his training at Philadelphia General Hospital and NIH. Stan served in the military, and married Sally Van Valkenburg, a U. of M. nursing graduate from St. Paul. They have four children, ages 13 to 5, and the family enjoys skiing and sailing.

Robert W. Huber is in practice in St. Croix Falls, Wis.



William Hunt



L. B. Kiriluk



B. J. Kennedy

William Hunt is affiliated in OG-GYN with the Geisinger Medical Center, Danville, Pa. He received an M.S. degree from the University of Minnesota in 1951, and served in the Navy, 1945-48. Bill and his wife, Margaret, have six daughters, ages 19-8. They live at 111 E. Market St.

John W. James practices as a pathologist in St. Paul, Minn., and lives at 13 Birchwood Rd., Mahtomedi.

Louis C. Jensen, Jr.* has spent 11 years as an internist with the Brevard Medical Group, Cocoa, Fla. Much of his practice involves personnel from nearby Cape Kennedy. His wife, Joy,

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is a nurse anesthetist at a local hospital. They live at 4 N. Hardee Circle, have three children, and "enjoy Florida living."

David R. Johnson has practiced neurosurgery alone in Minneapolis for 10 years. He and his wife, Cordelia, have five children, ages 14 to 5, and live at 5032 Fremont S.

Herbert W. Johnson* practices internal medicine in St. Paul and teaches in the Medical School's affiliated program at St. Paul-Ramsey Hospital. Herb likes sailing and swimming, and has won a meritorious service award from the Board of World Missions, Augustana Lutheran Church. He and his wife, Betty Lou Hevle of St. Paul, have two sons and two daughters. Another 8-year-old daughter died in 1963. The family lives at 1609 Douglas Rd.

Allen S. Judd* is a pathologist at St. Mary's Hospital in Minneapolis and teaches at the Medical School where he took his training. He served in the Army and married Mercedes Hogan of Brainerd, Minn. They have five children, ages 19 to 1. The family enjoys snow and water skiing, boating and fishing, and U. of M. football and hockey. They live at 1709 Preston Lane in Hopkins.

Manley F. Juergens* is a GP with a 6-man group in Stillwater, Minn., where he has been since 1949. He served in the Air Force and married Harriet Anderson, a U. of M. graduate and sister of classmate Harry Anderson. They have three children, ages 19 to 11. Manley writes, "This is an ideal location for family practice." He enjoys boating on the St. Croix River and flying.

Earl R. Kanne* is in general practice in the Lake Region Clinic in Brainerd, Minn., where he has been since 1948. He served in the Army, and married Lois Beckman of Northome, Minn. They have three children, ages 19 to 13, and live at 1524 S. 7th St. Earl enjoys photography, hunting, and fishing in his spare time.

Allan B. Karon has practiced internal medicine for 14 years in Los Angeles, Calif., and teaches at Harbor General Hospital. He served in the Army, and married Edythe Avrck of St. Paul. They have three children, ages 18 to 13; Diana, the oldest, is a sophomore at UCLA. The family lives at 5329 Garth Ave., L.A. 56.

Vincent C. Kelley* is professor of pediatrics and chief of pediatric endocrinology and metabolism at the University of Washington School of Medicine. He has been at Seattle eight years and taught eight previous years at the University of Utah.

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He has a Ph.D. in biochemistry and has served in the Air Force. He and his wife, Dorothy, have seven children, and live at 8611 45th N.E., Seattle.

William D. Kelly* is a full time professor of surgery at the Medical School, where he also took his training in general surgery. He spent eight years on the staff of the Minneapolis V.A. Hospital, and was chief of surgery there from 1960-62. Bill's professional interests are teaching, the care of surgical patients and research, transplantation and the artificial heart valve. He is chairman of the Medical School's Transplantation Committee. Bill's wife is Claire Mueller of Zurich, Switzerland. They have six children, ages 12 to 1, and live at 3935 Washburn Ave. S. in Minneapolis. Bill's hobby is racing his Class "C" sailboat on Lake Harriet.

B. J. Kennedy* is an associate professor of medicine at the Medical School, engaged in fulltime teaching and research. He took his training at MGH in Boston, Mass., McGill Medical School, and Cornell. His special interests include chemotherapy of cancer and he is chairman of the Cancer Committee of the Medical School. B.J.'s wife is Margaret Hood of N.Y.C. They have four children, ages 12 to 6, and live at 1949 East River Rd. in Minneapolis.

Lawrence B. Kiriluk* is a general surgeon in Seattle, Wash., where he has spent 12 years. He took his residency at the U. of M. and University of Washington, and now teaches at the latter. Larry was an Air Force flight surgeon and married LaVerne Anderson of Minneapolis. They have four children. Larry writes, "I have a wonderful healthy family with no problems. Life has been kind and blissful to us all. My practice could not be better." He enjoys fishing and golf, and lives at 17009 13th Ave. N.W.

Robert L. King, Jr.* "plans to remain" in his ENT practice with a clinic group in Pensacola, Fla. where he has spent 5 years. He trained at the Lemberg Institute in New York and the University of Illinois. He served in the Navy, and married Eleanor Parker of Pensacola. They have a son, Bob, Jr., age 11, and live in Pensacola Beach. Bob enjoys skin diving, water skiing and swimming. He is a Deacon in the Presbyterian Church.

Harvey A. Knoche, Jr.* joined the Gaylord, Minn. Clinic as a GP in 1959, following service with the USPHS, and is married to Lois Klein of Welcome, Minn. They have three

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children, ages 19 to 15. Harvey enjoys golf, sports, photography and shop work in his leisure time.

Frederic J. Kottke* is professor and head of the Department of Physical Medicine and Rehabilitation at the Medical School, where he has been since 1947. His wife is the former Astrid Erling of Minneapolis, and they have three children, ages 23 to 17. The family lives at 2741 Drew Ave. S. in Minneapolis.

Russell J. Kotval* has been a GP in Pipestone, Minn. for 18 years. Russ served in the Navy, and is married to Maxine Knutila of Cloquet, Minn. They have four children, ages 18 to 11. Russ writes that he has been a member of the local Board of Education for eight years and is "waiting for Social Security."

Donald W. Koza practices internal medicine with Payne Ave. Medical Associates in St. Paul, Minn. He was a Mayo Fellow and served in the Army. Don's wife is the former Lorraine Semanko of Minneapolis. They have three children, ages 16 to 12, and sadly miss their 15-year-old son, Dennis, who died of virus pneumonia in 1963. Don is active in the Boy Scouts. The family lives at 1638 Arlington in St. Paul.

Henry J. Krawczyk* has been a radiologist at Memorial Hospital in Clovis, N.M. for five years. He took his training at Brooke Army Hospital and served in the Army. His address is Box 27 in Clovis.

William J. Kucera, Jr.* practices ENT with the 30-man Sansum Clinic in Santa Barbara, Calif. where he has spent 10 years. He trained at the U. of Illinois, taught five years at the U. of M., and served in the Army. He and his wife, Elizabeth, have two sons, ages 17 and 14, and live at 36 El Arco. Bill writes, "Our view from the front door is the mountains; the ocean at the back. I just started golf, but my hobby is Western history and paintings."

Oliver E. H. Larson* has had a "busy general practice in Zumbrota, Minn. for 17 years." He spent 1946-48 in the Army and married Agnes McNulty of N.J. Oliver was local golf champion in 1965, and serves on the school board. "We plan to raise our five children right here and move to the Southwest someday," he writes.

Allan R. Leider* taught full time at the U. of Washington Medical School, 1951-55, and now practices child psychiatry alone in Seattle, Wash. He took his training at the Minneapolis V.A. Hospital and served in the Army in Japan. Allan's wife is Julia, 8. He served on the school board for five years. The

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Leiders live at No. 9 Bridlewood Circle in Kirkland, Wash. Louise Snell of Mo., and their children are Steven, 13, and

Aaron B. Lerner is professor of medicine and head of dermatology at the Yale Medical School. He is married to the former Marguerite Rush of Minneapolis. They have four sons, age 13 to 8, and live in New Haven, Conn.

Dagfinn Lie* practices general medicine with emphasis on obstetrics with a 5-man clinic in Webster, S.D. where he has spent 17 years. He served in the Army (1946-48) and is married to Lorena Ploss of Atwater, Minn. Three of their four children are in college. The family enjoys camping and Dag is an avid amateur photographer.

Verner V. Lindgren is a plastic surgeon in Portland, Ore., and president of his county medical society. He teaches at the University of Oregon Medical School, and served in the Army. Vern married Helen Helland of Minnesota. They have three children, ages 16 to 9, and live at 3807 SW Martins Lane.



Wm. Maloney



John Maunder



Edward Litin

Edward M. Litin* is chairman of the Department of Psychiatry at the Mayo Clinic and associate professor of the Mayo Graduate School, Rochester, Minn. He trained at the Mayo Clinic and served in the Army. Ed's wife is Lorraine Kozberg of St. Paul, and they have two children, ages 19 and 15. Their daughter, Nancy, is in pre-med at Rice University and "plans to be a psychiatrist." His interests are psychiatric organization, mental health movements and postgraduate psychiatric education. "And, of course, the Minnesota Vikings, Twins and Gophers." The family lives at 609 8th Ave. S.W. in Rochester.

Earl A. Loomis, Jr. lives at 173 Riverside Dr., New York City, and practices child and adult psychoanalysis and psycho-

*Member, Minnesota Medical Foundation

therapy. He has four children and is married to Lucile Meyer of California. Earl enjoys sailing, carpentry, and teaching residents at St. Luke's Hospital in N.Y.C.

George B. Lund* has been in solo general practice for 17 years in Salinas, Calif. He served in the Navy and married Kaye Strate of Clarkfield, Minn. They have four children, ages 18 to 13, and live at 63 Carlos Dr. George writes that he is in an "excellent medical climate, helped by good, well-trained specialty members."

John W. MacDonald is deceased.

Ralph F. Mach has been a GP in Pine City, Minn. for 14 years, with time out for Army service, 1953-55. He's married to Geraldine Faricy of Grand Rapids, Minn. They have four sons and three daughters.

William F. Maloney* is associate director of the Association of American Medical Colleges in Evanston, Ill., and teaches at Northwestern University Medical School. He spent 6½ years as Dean of Medicine of the Medical College of Virginia, and will return to academic medicine next July as Dean of the Tufts University Medical School. Bill married Margery Ingalls of Minneapolis. They have four children, ages 15 to 7, and live at 830 Monticello St. in Evanston.

Sheldon L. Mandel* practices dermatology with Henry E. Michaelson (Med. '19) in Minneapolis and teaches at the Medical School. He took his training at the Minneapolis V.A. Hospital and served in the Army. Sheldon is current president of the Minnesota Dermatological Society. Single, he lives at 2119 Penn Ave. S.

John B. Maunder is in a group OB-GYN practice in Minneapolis. He took his training at Detroit Receiving Hospital, and served in the Air Force. John's wife is Mary Schalin, an R.N. They have four children, ages 19 to 9, and live at 6712 Point Dr. in Edina.

Roger K. McDonald spent 15 years with NIH, but in 1964 took a new research and teaching post at Yale University. Roger's wife, Pearl, is a U. of M. graduate, and they have five children, ages 19 to 4. They live at 117 Sunset Hill Dr. in Branford, Conn. Roger writes, "In warm weather we work on our Christmas tree farm and sail on Long Island Sound."

Francis B. Meserve has been a GP in Warner Robins, Ga. since 1948. He writes, "I'm just a hard working GP with no surgery or obstetrics. Am currently chief of staff at Houston

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County Hospital (120 beds)." Francis' wife is from Georgia. They have four children, ages 19 to 4, and live at 604 Skyway Dr.

George W. Miners is senior internist with the Redwood City, Calif. Medical Clinic. He teaches at Stanford, and is married to Helen McKinley of Minneapolis. They have three children, ages 20 to 14. George enjoys flying, skiing, hunting, fishing and camping. He spent 1946-48 with the Army in Japan.

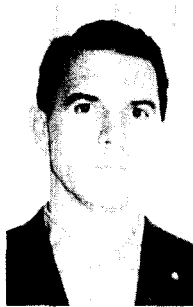
Andrew M. Movius* has spent 15 years in general practice in Porterville, Calif. He lives at 526 Putnam St. with his wife, Verna Wulff, M.D., and ten children.

John J. Muller is in practice in Hibbing, Minn.

Donald R. Nelimark* practices internal medicine with the Lenont-Peterson Clinic in Virginia, Minn. He took his training at the V.A. Hospital in Dearborn, Mich., and served in the Army. Don's wife is Mary Ann Olar of Mich., and they have a family of five, ages 18 to 3½. A son, Robert, is a freshman at St. John's University. Don enjoys outdoor sports and his "family-type practice."



Paul A. Nelson



Geo. Miners



Don Nelimark

David J. Nelson is an orthopedic surgery partner in Minneapolis with Malvin Nydahl (Med. '34) and Sheldon Lagaard (Med. '43), and teaches at Hennepin County General Hospital. Dave's wife is Beryl Van Valkenburg of N.Y., and they have three children, ages 15 to 11. Dave practiced alone in Idaho for 12 years before joining Nydahl and Lagaard. His hobby is underwater photography. The family lives at 417 Farmdale in Hopkins.

Paul A. Nelson* is head of the department of Physical Medicine and Rehabilitation at the Cleveland, Ohio Clinic and

*Member, Minnesota Medical Foundation

teaches in the clinic's educational program. He trained at the Mayo Clinic, and was in military service for two years. Paul has been chairman of the editorial board of the *Archives of Physical Medicine and Rehabilitation* since 1958 and recently received the *Gold Key* award of the American Congress of Physical Medicine and Rehabilitation. Unmarried, he lives at 3547 Ingleside Rd. in Shaker Heights, Ohio.

Samuel T. Nerenberg* is senior pathologist and laboratory director at Children's Hospital in San Francisco, Calif., and assistant professor at the U. of Calif. He trained at the U. of M., and served in the Army. Sam's wife, Rene Losk of N.D., is a U. of M. graduate. They live with their three children, ages 17 to 10, at 300 Castenado St. in Millbrae. Sam is presently on a year's sabbatical at Brandeis University in Waltham, Mass. as visiting professor in the department of biochemistry.



S. T. Nerenberg

Carl E. Newcomb has practiced general medicine in San Jose, Calif. for 17 years. He served in the Army 1946-48, and spent 18 months in an internal medicine residency. Carl lives at 2543 Westgate Ave., with John, 19; Kathryn, 17; Scott, 14; and Carole, 12. His wife is deceased.

John A. Newman* says he's "found his home" in Butte, Mont., where he practices pathology. John's wife is the former Laura Diesnner, a U. of M. graduate, and their family of five range in age from 19 to three months. John writes, "We love the outdoor life of Montana, including fishing, hunting, camping and swimming at our mountain lake summer home." The family lives at 2604 Evans St.

Kenneth O. Nimlos* is a GP with Payne Ave. Medical Associates in St. Paul. He served in the Army, and is married to classmate Lenore Ostergren. Ken writes that his hobbies are skiing and camping with the family, and "I enjoy general practice in a group—plan no immediate change in career." Ken is past chief of staff of Mounds Park Hospital and is active in YMCA work.

Lenore Ostergren Nimlos* is the wife of classmate Kenneth Nimlos. They are parents of four sons and a daughter. ("Never a dull moment with our noisy and exciting family.") Lenore spent 1964-65 at the University studying marriage counseling.

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and now limits her practice to that field. She also enjoys painting and bridge.

William A. O'Brien practices internal medicine alone in Minneapolis, and is heard weekly broadcasting "*Your Health*" over WCCO Radio. His special interests are hematology and isotopy, and he teaches at the Medical School. Bill and his wife, Rose Mary, have six children, ages 13 to 3. Bill enjoys woodworking, photography, painting, and is "trying to understand emerging teenagers and modern math." The family likes to go camping and lives at 6909 St. Patrick's Lane in Edina.

E. Theodore Palm practices general surgery in Minneapolis. His address is 4704 14th Ave. S.

Eric R. Paulson* has an active family practice in Spokane, Wash., and has been an officer in local medical societies. He's a Regent of Pacific Lutheran University, and choir director at his church. Eric and his wife, Elna, have four sons and two daughters. They live at 3712 S. Gandy St.

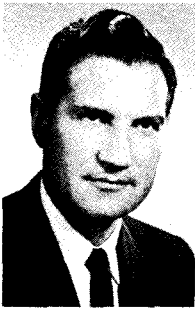
Donald J. Peik* has spent 14 years as a radiologist in Sioux Falls, S.D. He trained at Milwaukee County Hospital and served in the Army. Don married Marjorie Olson of Iowa, and they have three children, ages 18 to 10. The family lives at 1405 So. 5th Ave.

William E. Petersen* practices internal medicine with R. J. Ripple (Med. '53) and Art Lindeland (Med. '59) in Minneapolis. He teaches at the Medical School and HCGH. Bill spent 1946-48 in service and married Betty Sweeny of Minneapolis. They live with their three children, ages 14 to 3, at 5015 Wooddale Lane.

Willard H. Peterson moved to California in 1964 to go back into general practice after seven years as an industrial physician with the Geo. A. Hormel Co., Austin, Minn. He now practices in Rohnert Park, Calif., and lives at 7517 Bernice Ave. He and his wife, Eleanor (R.N., Minn. '43), are parents of eight children. Willard served in the Navy 1946-48.

Matthew K. Plasha* is in general practice with a 5-man group in the Coon Rapids, Minn. Clinic where he has spent 12 years. Matt served in the Army, and is married to Dorothy Steffenson of Isanti, Minn. They have seven children, ages 19 to 7, and live at 837 84th Lane NW in Minneapolis. Hobbies with Matt are golf and music. In 1965 he received the *Merit Award* of the Minnesota Academy of General Practice. He has been a leader in its Minnesota chapter.

*Member, Minnesota Medical Foundation



Sheldon Siegel



Sherman Strand



B. J. Spencer

Bert Reizman has spent 13 years as an internist with the Permanente Medical Clinic, Harbor City, Calif., and lives at 4450 Cerrito Ave., Long Beach. His wife, Gertrude, is from Kansas. They have three sons. Bert spent 1946-48 in the Air Force.

Anthony T. Rozycki was a GP in Pine River, Minn., then spent 1955-58 as an OB-GYN fellow at Mayo Foundation, and now practices the specialty with the 7-man St. Cloud, Minn. Medical Group. He is married to Marie Skoe, and lives at 1268 13th Ave. N. They have four sons and a daughter, and are boating and skiing devotees.

John M. Runquist is in general practice in Duluth, Minn. His address is 4325 Grand Ave.

Robert M. Sandeen has been a GP in Buffalo, Minn. since 1951. He served in the Army, and married Beulah Grunwald of Mo. They have two daughters, ages 16 and 15. Bob writes, "I have enjoyed general practice and find it very challenging. People in these rural communities are wonderful to work with." Bob is active in the Minnesota Academy of General Practice.

Paul R. Sharick is a general surgeon in Sacramento, Calif., and lives at 3911 Random Lane. He trained at Wayne County Hospital, Mich., 1948-52, following Navy duty in Cuba. Helen, his wife, is from Chisholm, Minn. They have two sons and two daughters.

Sheldon C. Siegel* practices pediatrics and pediatrics allergy with the Children's Medical Group in Los Angeles, Calif., and teaches at UCLA. He trained at the U. of M. and the U. of Rochester, and practiced in St. Paul for two years. Sheldon's

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wife is Priscilla Rikes, and they have two daughters, ages 18 and 15. The family lives at 6254 Halm, L.A. 90056. Sheldon writes: "I became a very avid fisherman in Minnesota and when I moved to California I was thwarted until I discovered deep sea fishing. I now prefer it to fresh water fishing."

Rudolph B. Skogerboe* is in general practice in Karlstad, Minn.

Ralph E. Smith is an internist and cardiologist at the Mayo Clinic, Rochester, Minn.

Bernard J. Spencer* has been a pediatric surgeon with three others in Minneapolis since 1953. He took his training at the Mayo Clinic and The Children's Hospital in Boston, and teaches at the U. of M. Bernie served in the Army, and married Carol Fox of Wis. They have three sons, ages 11 to 4, and live at 3837 Chowen Ave. S. in Minneapolis. During 1965 Bernie spoke before such diverse groups as The British Association of Pediatric Surgeons (in Edinburgh), and delivered the commencement address at Blue Earth, Minn. High School where he graduated over 25 years ago.

Joseph L. Sprafka* has spent ten years in a general surgery partnership in St. Paul. He teaches at St. Paul-Ramsey Hospital where he took his training. Joe served in the Army, 1946-48, and married Virginia Locke of St. Paul. They have three children, ages 14 to 8, and live at 754 Woodridge Dr. in St. Paul.

Emil M. Stimac has been in solo general practice and industrial medicine in Davenport, Iowa, for 17 years. He served in the Army and married June Rideout of Faribault, Minn. They have four children, ages 19 to 13, and live at 302 E. Kimberly. Emil enjoys skiing, golf, stamp and coin collecting.

John P. Storaasli is a fulltime professor of radiology with the Western Reserve School of Medicine in Cleveland, Ohio, where he spent 15 years. John served in the Navy and married Iris Hunter of Pa. They have two children, ages 8 and 7, and live at 2842 Brighton Rd.

Sherman D. Strand is an otolaryngologist in Santa Monica, Calif. and teaches at UCLA Medical School. He took his training at the U. of M., and served twice in the Navy. Sherman's wife is the former Ruth Henry of St. Paul. They live at 2120 Westridge Rd., L.A. 49. Sherman was president of the Bay District of the Los Angeles County Medical Association in 1965.

*Member, Minnesota Medical Foundation



B. Strouth and daughter

Bernard P. Strouth has spent 17 of his 20 years as a GP in Idaho, the last eight in Boise, solo. He put in Army duty after graduation and is married to Mary Dolan of Boulder, Colo. They have a son and daughter (see photo). Bernie is president of the Catholic Physicians Guild of Idaho this year. The family lives at 1313 Tetonia Dr.

Francis L. Stutzman is in a private thoracic and cardiovascular surgery practice with a 3-man group in San Jose, Calif., including classmate Newell Wood. Francis took a Ph.D. in surgery at the U. of M., and teaches at Stanford University. He served twice in the Army and married Edythmae Hubbard of Montevideo, Minn. They have four children, ages 16 to 6, and live at 15195 Park Dr. in Saratoga, Calif.

Theodore H. Sweetser, Jr.* practices urology with his father, Theodore, Sr., in Minneapolis, an association of 14 years. He received his M.S. in urology from the University of Tennessee, and teaches at Hennepin County General Hospital. Ted married Amy Kiriluk of Hallock, Minn., and their family of nine range in age from 17 to six months, including twins Mary and Amy, age 16. The family lives at 4401 W. 44th St. in Minneapolis.

Chester E. Thiem practices internal medicine with the Mankato, Minn. Clinic where he has been located since 1951. He served in the Army and married Karin Lekstrom of Ironton, Minn. Their four children range in age from 15 to 8, and the family lives at 117 Peterson St.

Stuart V. Thorson is in general practice in Minneapolis and lives at 5235 31st Ave. S.

Irving G. Tillotson is an internist in Fresno, Calif. His address is 1300 N. Fresno St.

John E. Twomey is deceased.

Adolph M. Whiting* practices psychiatry with the Blakely Psychiatric Group in Seattle, Wash. He has been there since 1958, teaches at the University of Washington, and "plans to continue in this area." Adolph served twice in the Army, and is married to Jeanne Bryzenski of Minneapolis. They have six children, ages 19 to 5, and live at 9041 Points Drive in Bellevue.

*Member, Minnesota Medical Foundation

Osmund A. Wisness was in general practice for 8 years before becoming an anesthesiologist in 1956. He is with Anesthesia Associates in Minneapolis. Oz is married to Jane Gray, a former R.N. at Ancker Hospital, and they have five children, ages 17 to 8. He writes, "We live in the country (Rte. 1, Savage, Minn.) with several animals (dogs, cats, horses) close to skiing, sliding and fishing."

Newell I. Wood* practices thoracic and cardiovascular surgery with classmate Francis Stutzman in San Jose, Calif. He teaches at Stanford and is chief of the vascular surgery service at Santa Clara County Hospital. Newell took his training at the Minneapolis V.A. Hospital, receiving his M.S. from the U. of M., and at Presbyterian Hospital in Philadelphia. He served in the Army and married Gladys Crowther, a U. of M. graduate. They have four children, ages 18 to 11, and live at 14161 Douglas Lane in Saratoga.

William S. Wright has spent 15 years practicing pediatrics in Minneapolis. He trained at the U. of M., and served in the Navy. Bill's wife is Yvonne Lewis of Ill., and they have seven children, ages 22 to 2½, and two grandchildren. The family lives at 6621 Sally Lane in Minneapolis.

John J. Yaeger* has spent 14 years with a 3-man pediatrics group in Pueblo, Colo. He and his wife, Betty, have four children ranging in age from 17 to 10. John writes that "a busy practice and active kids keep us in trim. I enjoy golf (hacker's variety) and good fishing in a fine climate." The family lives at 3303 Morris Ave.



William H. Ylitalo and family

William H. Ylitalo* is a pediatrician in group practice in Madison, Wis., and is a clinical instructor at the University of Wisconsin. He was once a GP in Hibbing, Minn. where he met his wife, Mary Ash. They have four daughters and a son (see photo). "Madison is a good family town," he writes. Bill served in the Navy in the Pacific; he now lives at 26 N. Prospect St.

*Member, Minnesota Medical Foundation

Staff Meeting Report

Diabetic Retinopathy: Effects of Pituitary Ablation and Retinal Photocoagulation*

F. Thomas Ellingson, M.D.† and John E. Harris, M.D.‡

Pathologic changes on a microscopic level have been elucidated utilizing a flat mount preparation of the retina. Initially there is a hyaline thickening of the basement membrane of the capillaries, similar to that seen in the kidney glomerulus. This precedes formation of the characteristic microaneurysms, a process classically considered to be peculiar to the venous side of the capillary bed but not substantiated by current investigation at the University of Minnesota in the departments of Anatomy and Ophthalmology. Loss of the characteristic mural pericyte, normally found within the basement membrane, is uniform and has been suggested to play a role in the pathogenesis of microaneurysms, neovascularization, and shunt vessel formation. Shunt vessels are highly cellular due to proliferation of endothelial nuclei and serve to by-pass the capillaries.

The gross changes as seen with the ophthalmoscope have been graded accordingly: Grade I, microaneurysms; Grade II, intraretinal hemorrhages and exudates; Grade III, neovascularization and retinitis proliferans. From the standpoint of visual acuity, with which we and the patient are most concerned, a grading system is of little prognostic value. For example, a small macular hemorrhage in a Grade I retinopathy may dramatically diminish vision, whereas the macula may be spared by a massive proliferans and vision be normal. Therefore, one is more concerned with the rapidity of progression once the retinopathy is established, and whether visual acuity is endangered.

Proliferation of blood vessels and glial tissues into the vitreous cavity or along the surface of the retina constitutes retinitis proliferans. It is known to develop following intravitreal hemorrhages which, it has been suggested, supplies the stimulus. However, well defined proliferans is common without antecedent

*From a report to the Staff Meeting of University Hospitals on February 18, 1966

†Resident, Department of Ophthalmology

‡Professor and Head, Department of Ophthalmology

hemorrhages and may emanate from the nerve head or from small vessels in the posterior pole. Proliferans may disturb function merely by secluding the macula and casting a shadow or by traction bands which develop at sites of its attachment to the retina, distorting the macula and producing retinal tears and detachments which are not amenable to surgery.

Intravitreal hemorrhages occur from diseased veins and sites of neovascularization. They may be small, recurrent, sputtering in nature, resorbing over a period of weeks, or massive, devastating, resulting in rapid, permanent visual loss.

Ablation of pituitary function is known to favorably alter the course of diabetic retinopathy; clearing of vitreous haze, cessation of hemorrhages and remission of the progression of proliferans have been reported. Therefore, in an attempt to preserve vision in a select group of patients whose vision was deteriorating rapidly, pituitary ablation was performed on 21 patients at the University of Minnesota Hospitals. Six of these underwent additional photocoagulation to areas of neovascularization and proliferans and are discussed separately. Sixteen are juvenile diabetics, having developed the disease before the age of 30; the average duration of the disease at the time of initial observation was 19 years. The duration of the retinopathy prior to visual loss was unknown. Five were adult diabetics having developed the disease between the ages of 30 and 40 and having had the disease an average of 12 years.

Of the 15 patients here tabulated, 12 of the 30 eyes had a visual acuity below 20/400 initially, a result of antecedent vitreous hemorrhage or retinal detachment; none of these eyes improved following surgery and are not tabulated below.

VISUAL ACUITY BEFORE AND AFTER SURGERY

	<i>Initially No of Eyes</i>	<i>6 months No of Eyes</i>	<i>12 months No. of Eyes</i>
20/20 to 20/40	12	8	4
20/40 to 20/80	3	6	3
20/200 to 400	3	3	3
10/400 to LP	0	1	3
	<u>18</u>	<u>18</u>	<u>13</u>

On the basis of acuity with the criterion of plus or minus one line on the Snellen eye chart constituting no change, and excluding those eyes which had vision worse than 20/400 initially, 55% of all eyes followed 6 months improved or retained visual acuity. Sixty-one per cent of all eyes followed 12 months

retained or improved. Seventy-five per cent of eyes having no proliferans retained or improved over 12 months, as opposed to 60% of eyes with proliferans.

Six patients underwent both pituitary surgery and photocoagulation. One patient with multiple areas of proliferans and neovascularization required photocoagulation to seal a retinal tear which was successful. The vision in this patient has remained normal, there having been a marked postoperative remission in the retinopathy. In four patients photocoagulation was used to obliterate areas of neovascularization which developed following pituitary surgery and which were responsible for intermittent, small intravitreal hemorrhages. After six months, vision had remained stable in three eyes, one with proliferans. Two eyes have lost vision in spite of the combined therapy; both have proliferans and massive hemorrhage.

Because of the morbidity and the inherent endocrine abnormalities attending pituitary ablation, photocoagulation has been used on 32 patients with diabetic retinopathy grades II and III a total of 73 times in an effort to obliterate areas of neovascularization and the attachments of proliferans to the retina, thus lessening the likelihood of intravitreal hemorrhages, retinal traction, hole formation and detachments. Twenty-five treated eyes of 21 patients have been followed at least six months with an average of two treatments per six months. Fourteen treated eyes have been followed at least 12 months. Eighteen of the patients are juvenile diabetics, having had the disease an average of 24 years, the average age of onset being 12 years. Initially eight of the 42 eyes had vision below 20/400 and were not treated. The rest of the eyes did not require treatment or have not been followed six months.

VISUAL ACUITY BEFORE AND AFTER PHOTOCOAGULATION

	<i>Initially No of Eyes</i>	<i>6 months No of Eyes</i>	<i>12 months No. of Eyes</i>
20/20 to 20/40	16	16	8
20/50 to 20/80	3	3	0
20/200 to 400	6	1	3
10/400 to LP	0	5	3
	<hr/> 25	<hr/> 25	<hr/> 14

On the basis of acuity with the criterion of plus or minus one line on the Snellen chart constituting no change, 72% of eyes followed six months showed improvement or no loss of

initial visual acuity. Eighty-one percent of eyes having no proliferans showed improvement or no loss in visual acuity as opposed to 45% of eyes with proliferans. Of all eyes followed 12 months (14 in number), 47% showed improvement or no loss. Of those eyes with no proliferans 87% showed improvement or no loss over a 12 month period, as opposed to 17% of eyes with proliferans.

It is generally impossible to assess the effect of any treatment on diabetic retinopathy because of the difficulty of assembling a control group. The progression of retinopathy is so variable that even the fellow eye of one individual is a poor control. The data suggest that photocoagulation invokes no adverse effects such as stimulation of proliferans, macular degeneration or hemorrhages. Clinically it is apparent that areas of neovascularization are obliterated as are some, not all, attachments of proliferans to the retina. The amount of vascularization within the proliferans is also lessened, which seems to reduce viability.

We would not suggest that photocoagulation serve as a replacement for pituitary ablation. It is obvious that neither is a cure-all.

Staff Meeting Report

Biophysical Problems of Space Radiation*

Vaughn C. Moore, M.S.† and Baruch S. Jacobson, Ph.D.‡

The major components of space radiation are not unlike X-rays in their biological effects.

When high-energy radiation interacts with matter, ions are produced along the path or track of each charged particle. In isolated cells or micro-organisms, the dose of radiation necessary to produce a given effect decreases as the density of ions within the track increases; i.e., the relative biological effectiveness increases under these conditions. However, the effectiveness does not increase indefinitely, but falls off when an opti-

*From a report to the Staff Meeting of University Hospitals on February 4, 1966

†Instructor, Division of Radiation Therapy

‡Assistant Professor, Division of Radiation Therapy.

imum track density is exceeded. This would suggest that the extremely dense tracks of heavy nuclei found among cosmic rays might prove relatively ineffective, as compared to equivalent doses of other radiations.

Radiation dose is measured in terms of the energy absorbed in a gram of tissue. Microscopically, this energy is not absorbed uniformly, but is concentrated along the tracks. For extremely dense tracks, the average dose may be misleading. In rats exposed to low doses of cosmic rays at high altitude, patches of gray hair appear. With X-rays, this effect can be duplicated only with much higher doses.

Some biological repair mechanisms are ineffective against damage from densely ionizing radiation. Most chemical protective agents are likewise ineffective. Experiments with intact animals are planned which will show whether recovery occurs in tissue. These studies will depend on accurate dosimetric measurement.

Recent developments in the field of lithium fluoride-thermoluminescence dosimetry (LiF-TLD) have made this system a particularly useful and practical means of investigating the rapidly changing dose along the tracks of a high energy heavy particle such as cosmic radiation. Teflon rods with LiF uniformly imbedded throughout may be placed end-on in the path of a beam of heavy particles. The particles will interact with the teflon and LiF and release energy which will be absorbed by the LiF and stored for later measurement. The teflon can then be sliced into ultrathin discs, approximately 10μ thick, on a laboratory microtome. The discs kept in serial order can then be read out on a TLD reader, and the dosage determined as a function of the depth of penetration. The depth at which the Bragg peak occurs is a measure of the average energy of the heavy particles.

Thus far, radiation exposures to astronauts have been almost negligible. For longer space voyages, radiation exposure will no longer be negligible, although it should constitute a relatively minor part of the overall risk of the flight. This exposure can be minimized by shielding, by warning systems, and by careful selection of routes through the high radiation belts.

Experiments in progress in various laboratories will provide data necessary for more exact evaluation of the risk due to radiation. A reduction in life expectancy by a few months or a few years, due to this risk, may be the cost of an extended space voyage. Although no experiment can tell us what the maximum acceptable risk should be, current studies should provide a realistic estimate of the risks that will be encountered.

Staff Meeting Report

Site and Mechanism of Action of Ethacrynic Acid*

Edward J. Cafruny, M.D., Ph.D.†

The mechanism of action of ethacrynic acid, a new diuretic that will be marketed under the name "Edecrin," is similar to that of mercurials, but, unlike them, it blocks sodium reabsorption at all points in the renal tubule where sodium is actively transported out of the urine. Thus there is a sound pharmacological basis for the clinical observation that ethacrynic acid is often effective when mercurials are not.

Evidence that ethacrynic acid has the same mode of action as mercurials is based on a number of pharmacological studies. In dogs the augmentative action of these drugs on excretion of water and sodium chloride is so similar that it is virtually impossible to tell which has been used in any given instance. Although this similarity, in itself, does not firmly fix the proposition that ethacrynic acid and mercurials act in the same way, other lines of evidence leave little cause for doubt. For example, it is well known that mercurial diuretics react with protein-bound sulfhydryl groups of renal cellular proteins and it is generally accepted that this reaction is responsible for the ensuing diuresis, for it can be shown that the dithiol, dimercaprol (BAL), not only removes mercury from blocked sulfhydryl groups but also promptly stops mercurial diuresis. Ethacrynic acid also reacts chemically with protein-bound sulfhydryl groups of renal cells of dogs at a time when diuresis is maximal or increasing. Of major importance is the fact that neither a diuresis nor a reaction with protein-bound sulfhydryl groups occurs in rats even when the drug is administered intravenously in doses approximately 100 times as large as those effective in dogs. This finding provides strong support for the concept that protein-bound sulfhydryl groups are involved in both mercurial diuresis and the diuresis which follows administration of ethacrynic acid.

*From a report to the Staff Meeting of University Hospitals on February 25, 1966

†Professor, Department of Pharmacology

Although histochemical evidence of the sort mentioned above supports the concept of a common mode of action for mercurials and ethacrynic acid, it is insufficient. From a pharmacological point of view, proof that two drugs have the same mechanism of action depends on an adequate demonstration that they react with or occupy the same cellular receptor. Thus it is necessary to show that the sulfhydryl groups with which mercurials and ethacrynic acid react are the same ones.

In vitro techniques clearly show that this is the case. Thin slices of renal cortex incubated in an appropriate fluid medium containing chlormerodrin-Hg²⁰³, an organic mercurial, accumulate or take up mercury. Accumulation of mercury is dependent on a supply of energy, for it is considerably reduced when the temperature of incubation is lowered or when oxygen is not bubbled through the fluid medium. Ethacrynic acid also blocks uptake of mercury into viable slices of renal cortex. The decrease in uptake of mercury following exposure to ethacrynic acid indicates either that it reacts with and competes for some of the same chemical groups to which mercury normally binds, or that ethacrynic acid can influence active uptake of mercury. Since entrance of mercury into slices of renal cortex during incubation at low temperature (no active transport going on) or when proteins have been precipitated by addition of trichloroacetic acid is retarded when ethacrynic acid is present in the incubating medium, the drugs must be competing for the same binding sites in the tissue. By analogy, the sites are presumed to be sulfhydryl groups.

Although mercurials and ethacrynic acid possess a common mode of action, the sites of action of the latter are more extensive. Mercurials do not attach to sulfhydryl groups of distal tubules and most workers believe they block reabsorption of sodium only at more proximal sites. Similarly, many investigators believe that ethacrynic acid acts at only one site in the nephron. They base this concept on the decrease in free water clearance and reabsorption of solute free water over a wide range of solute excretion noted in patients with diabetes insipidus and in healthy human volunteers treated with the drug. Although a decrease in both clearance of free water and the transport of solute free water strongly suggests that reabsorption of salt in the loop of Henle is impaired, it does not and cannot rule out the existence of reabsorptive deficits at other sites. Many factors point to an effect of ethacrynic acid at more than one tubular site. For example, the profound increase in sodium chloride excretion brought about by maximally effective doses of etha-

crinic acid greatly exceeds the amount of sodium chloride which can be reabsorbed in the loop of Henle and distal tubule combined. Moreover, ethacrynic acid reacts with protein-bound sulfhydryl groups in both proximal and distal tubular cells of the nephron.

Additional studies also show that ethacrynic acid blocks sodium reabsorption in the proximal tubule. When distribution of the drug is restricted either by infusion of extremely small quantities so that extraction by proximal tubules is virtually complete (leaving little for binding to distal site), or by injection during ureteral occlusion which prevents the drug from being filtered but permits it to be secreted into proximal tubular urine, only the proximal limbs of stop-flow patterns for sodium and chloride are elevated. In contrast, elevation of the entire pattern occurs in conventional stop-flow studies. Thus ethacrynic acid appears to block sodium reabsorption at all sites where the ion is transported—in the proximal tubule, in the ascending limb of the loop of Henle, and in the distal tubule.

Medical Foundation News

Medical Foundation Given \$50,000.00 for Scholarships

Several significant new contributions to the Minnesota Medical Foundation were announced at the Winter Meeting of its Board of Trustees on January 27.

The largest was a gift of \$50,000.00 made to the Foundation by the Phillips Foundation of Minneapolis, for the endowment of medical scholarships. The new grant boosted the Foundation's Scholarship Endowment Campaign to more than \$300,000, or 60% of the goal of \$500,000.

The Trustees also heard news that the Foundation was named a 10% residuary legatee of the Estate of Dr. Frederick W. Hoffbauer and Vivian Hoffbauer, with proceeds earmarked for "medical scholarships." An endowment fund honoring the Hoffbauers has been established by the Foundation. About \$2,500 has been contributed to it recently by friends and associates.



Needy students at the Medical School will be able to borrow more easily for their critical purposes thanks to a new grant of \$2,000.00 presented to the Foundation by the Minnesota State Medical Association. MSMA established the Herman M. Johnson Memorial Emergency Loan Fund with the Foundation in 1959. It now contains \$10,000.00 and is used constantly for interest-free, 90-day loans by appreciative medical students. Since 1959, more than \$130,000.00 has been loaned from the fund without loss. Nearly 1,000 loans have been granted.

The most unusual new gift to the Foundation was a \$10,000.00 life insurance policy donated by Mr. Edward K. Thode, Jr., of Minneapolis. The Foundation was named sole owner and beneficiary, with the proceeds earmarked for medical scholarships in memory of Mr. Edward H. Thode, Sr. It is the first life insurance policy ever contributed to the Foundation.

Mrs. Florence Hensel of St. Paul recently added a gift of \$3,250.00 to the *Charles Norton Hensel Memorial Scholarship Endowment*, a trust fund held by the Foundation in memory of the late St. Paul physician. The fund, now valued at nearly \$50,000, provides scholarships for deserving medical students.

During the last half of 1965, the Foundation underwrote \$4,000.00 in research grants for young faculty members at the Medical School:

Dr. Peter B. Dent, medical fellow, Department of Pediatrics \$1,400.00—"Ontogeny of the Immune Response."

Dr. Roger Herdman, medical fellow, Department of Pediatrics, \$1,200.00—"Kidney Function and Blood Distribution in Human and Animal Renal Homografts."

Dr. Seth T. Shaw, medical fellow specialist, Department of Laboratory Medicine, \$1,400.00—"Renal Production in Kidneys."

Since 1961, the Foundation has supported 35 individual research projects at the Medical School with grants totaling \$39,670.00.

Grants also approved at the January meeting by the trustees included \$400.00 to the Medical School for support of membership in the National Society for Medical Research. For several years, the Foundation has made similar annual grants.

The Trustees also granted \$500.00 to the Class of 1966 Graduation Program, including support of the Dean's Reception and the Seniors' Farewell Banquet. The events will take place June 10, 1966 at the Medical School.

Alumni Deaths

◆ 1924

Dr. Harold F. Wahlquist, Edina, Minn. Died February 5, 1966, aged 72 years. He was former chief of the medical staff at Methodist Hospital, and helped organize the children's psychiatric clinic at Minneapolis General Hospital in 1958. Dr. Wahlquist also devoted effort to the Minneapolis Society for the Blind, and the World Health Organization.

◆ 1929

Dr. Oliver E. Sarff, Duluth, Minn. Died January 16, 1966, age 65, following a long illness. He was in general practice in northern Minnesota for many years, and since World War II had practiced urology in Duluth.

◆ 1932

Dr. Kenneth E. Stein, St. Cloud, Minn. Died February 9, 1966, age 61 years. He had retired from the U.S. Veterans Administration Hospital service in 1964, and was formerly associated with the St. Peter, Minn. State Hospital.

◆ 1937

Dr. Arnold I. Manson, San Francisco, Calif. Died October 1, 1965, of metastatic cancer at the age of 57 years.

MEMORIALS

The Minnesota Medical Foundation acknowledges with gratitude recent contributions made in memory of:

William Wolf
Minneapolis, Minn.

Emily F. Gross
St. Paul, Minn.

Lorraine Schaller
Montevideo, Minn.

Dr. Harry C. Jensen
Edina, Minn.

Ida Ripatti
Delano, Minn.

Mary Jane Ward
St. Paul, Minn.

Memorial gifts are a thoughtful means of honoring the memory of a relative, friend, or colleague. They serve the living by strengthening medical education and research at the University of Minnesota Medical School. Gifts may be designated for specific purposes. The Minnesota Medical Foundation acknowledge all gifts to both donor and next of kin.

COMING EVENTS

University of Minnesota Medical School

CONTINUATION COURSES FOR PHYSICIANS

University of Minnesota
Center for Continuation Study

1966

February 14 - 18	Proctology
February 21 - 23	Neurology
April 1 - 2	Trauma
April 22 - 23	Neurosurgery
May 2 - 3	Ophthalmology
May 19 - 21	Surgery
June 1 - 3	Anesthesiology

The University of Minnesota reserves the right to change this schedule without notification.

Courses are held at the Center for Continuation Study or the Mayo Memorial Auditorium on the campus of the University of Minnesota. Usual tuition fees are \$50 for a two-day course, \$60 for a 2½-day course, \$70 for a three-day course, and \$100 for a one-week course.

Specific announcements are sent out about two months prior to each course to all members of the Minnesota State Medical Association and to any physicians who request information for a specific course. For further information write to:

DIRECTOR
DEPARTMENT OF CONTINUATION MEDICAL EDUCATION
THE MEDICAL CENTER (Box 193)
UNIVERSITY OF MINNESOTA
MINNEAPOLIS, MINNESOTA 55455

COMING SOON . . .

A New

DIRECTORY OF ALUMNI

University of Minnesota Medical School

NOTICE TO ALUMNI

- Your address shown on this page is assumed to be correct.
- It will be used in the new Directory unless we are notified of a change.
- Your anticipated address as of July 1, 1966 should be used.
- Please send a change of address now if needed.
- The new Directory will appear next summer.

Send your correct address, as appropriate, to:

MINNESOTA MEDICAL FOUNDATION

Box 193 — University Hospitals

Minneapolis, Minnesota 55455