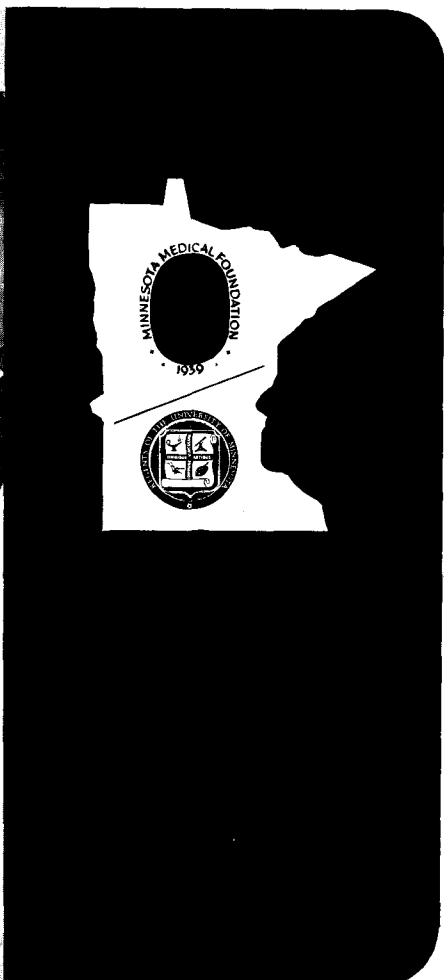


MEDICAL BULLETIN



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THE UNIVERSITY OF MINNESOTA MEDICAL BULLETIN

W. ALBERT SULLIVAN, JR., M.D., EDITOR / EIVIND O. HOFF, JR., EXECUTIVE EDITOR

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CHARTING THE NEWS

MINNESOTA COMMITTEE FOR THE HEALTH SCIENCES CREATED

FORMATION of a state-wide *Minnesota Committee for University Health Sciences* was announced recently to focus public attention on the impending crisis Minnesota faces in the health services available to its citizens.

University of Minnesota President Malcolm Moos appointed **Gerald T. Mullin**, former state senator and past president of the Minneapolis Gas Company as chairman of the new committee. **A. A. Heckman**, executive director of the Hill Family Foundation, St. Paul, was named co-chairman.

Jay Phillips, Sander D. Genis and Roy Larsen of Minneapolis and Supreme Court Chief Justice Oscar R. Knutson of St. Paul will serve as associate chairmen, Mr. Moos added, indicating that others would be named later.

"Our problem," Mr. Mullin explained, "is that Minnesota is falling behind in its obligation to train more physicians, dentists, pharmacists, nurses and their allied workers in the health field. This affects every man, woman and child in the State.

"Traditionally a leader in its health services and facilities, Minnesota now, for instance, has only 145 physicians per 100,000 as compared with a national average of 140. When you subtract the professional talent concentrated at the world-renowned Mayo Clinic at Rochester, the State is actually below the national average.

"The situation is especially acute," Mullin pointed out, "with respect to the family physician. The percentage of family doctors has declined steadily. In 1910, nearly all the physicians in Minnesota were family doctors. Today, substantially less than half are in family practice."

Minnesota had 77 dentists per 100,000 population in 1940, but has only 58 today, according to Mullin. The median age of those now practicing is 51, and 46 per cent of them are 55 or older.

"The same bleak picture," added the co-chairman, "is evident for the other health science specialties—the pharmacists, nurses, veterinarians and the wide range of therapists and technicians. We must act now to avoid a very serious situation tomorrow."

Minnesota's health manpower situation was spotlighted in a recent comprehensive study of the problem made by a public advisory commission under Hill Family Foundation sponsorship. In its report, the commission estimated that by 1975, Minnesota will "fall short by 207 to 269 of the number (of doctors) needed to maintain the present active physician-population ratio."

In a "team approach" to the problem of health manpower shortages, the Board of Regents has expanded the University Medical Center into the University of Minnesota Health Sciences Center encompassing the administrative units of medicine, dentistry, pharmacy, veterinary medicine, public health, hospital administration and nursing. The "team approach" philosophy provides that health sciences students will be involved not only with their own specialties but also will be given a working knowledge of other specialties which affect the total health of the community. This is expected to alleviate the health manpower shortage to some extent by increasing the effectiveness of each health professional so trained.

Also a part of the Health Sciences Center idea is that the faculty and administrators of the schools included will work with a unity of purpose in guiding the University's efforts to meet the health needs of the future.

Along with the establishment of the Health Sciences Center, the Regents projected plans for adding the physical facilities and teaching personnel needed to increase significantly the numbers trained in the various health sciences specialties as recommended by the Hill Commission. This proposal calls for expanding the University enrollment in the health sciences from 3,500 to 5,200 students by the mid-seventies.

Included in the first step of the plans is an increase of Medical School graduates from the present 160 per year to at least 200 by an early date. The Dental School's output would be upped from an average 100 at present to almost 140, while Pharmacy would add about 20 to its annual graduating class.

"The vital task before us right now," Co-Chairman Heckman declared, "is to institute a crash information program which will bring to the attention of Minnesotans everywhere in the State the crisis which we face and their personal stake in what must be done. After all, the people of Minnesota will be the beneficiaries of the University Health Sciences program. They personally are involved with what is and what is not done. They should know

so their voices can be raised to help make assured the facilities and the personnel required."

In addition to the committee of distinguished citizens backing the health manpower information campaign, Heckman reported, organizations are giving vigorous support to the state-wide effort. He identified those as: the Minnesota State Dental Association, the Minnesota Hospital Association, the Minnesota Academy of General Practice, the Minnesota State Medical Association, the Minnesota League of Nursing, the Minnesota Nurses Association, the Minnesota State Pharmaceutical Association, the Minnesota Public Health Association, and the Minnesota State Veterinary Medical Association.

The Minnesota Medical Foundation has joined the list of sponsoring groups, and has announced a grant of \$5,000.00 for support of the information program. A grant of \$1,000.00 was provided by the Minnesota Medical Alumni Association.





Alumni Survey



The Class of 1948

The Class of 1948 was the last heavily "military" class to complete Medical School as postwar normality returned to the University. Among its 73 members, many were quite young, the others being mostly "older" men or women. Civilians watched amusedly while their military colleagues marched to classes.

The Class was enrolled in 1945 while the three-year curriculum was still in effect. Among their favorite teachers was the late A. T. Rasmussen, renowned neuroanatomist, whose chalk-lectures often ran right off the edge of his blackboard," said one member.

The MEDICAL BULLETIN located 61 members of the Class. One member, John W. Raattama, is deceased. Eleven did not answer the survey.

Each member was asked the question: Which teacher influenced you the most in Medical School?

Answers are printed in italics at the end of each capsule.

Regine Aronow is director of the Poison Control Center at Children's Hospital of Michigan, and lives at 501 Washington Rd., Gross Pointe. She also is a clinical instructor at Wayne State Medical School. She is married to John Hoag, an attorney, and they have four children. Regine also serves as a part-time pediatrician for the Detroit Health Dept. *Dr. McQuarrie.*

"An intelligent, beautiful wife is my biggest interest and hobby," says **Joseph J. Asta,*** a radiologist in Duluth, Minn. (26 S. 30th Ave. E.) Joe, who was a U. of M. staff instructor in 1953-54, also commented: "Staying abreast of modern developments in the field of radiology and keeping up with an active group of 7 children tends to keep a guy busy and somewhat youthful." *Leo. G. Rigler.*

Geriatrics is a special interest of **Jesse J. Barron,*** 2017 Virginia Ave. S., now practicing at the West Park Clinic in St. Louis Park, Minn. Jesse is an associate editor of *Geriatrics*. He also teaches at the U. of M., is married, and the father of three children. One of them, Nancy, 17, recently spent a summer in India with a physician's family. *Dr. E. T. Bell.*

Orthopedic surgery is the specialty of **Anthony J. Bianco, Jr.,*** who is on the staff of Mayo Clinic. Dr. Bianco teaches in the Mayo Graduate School, and has been at Mayo since 1957. Dr. Bianco is married and has seven children. *E. T. Bell.*

After 17 years in the Army Medical Corps, **Leland M. Bitner** is now in private practice in Saginaw, Mich. He retired from the Army in 1965, now specializes in internal medicine and pul-



The J. J. Asta family

* Member, Minnesota Medical Foundation

monary diseases. Lee is married and the father of two boys, and he reports that the family enjoys boating, hunting, skiing and snowmobiling. They live at 5259 Vanalleo Dr. *Cecil Watson.*

Col. Alexander M. (Pete) Boysen,* is now commanding officer of the 106th General Army Hospital in Yokohama, Japan, following a long military career that included three years as a POW in Korea. Col. Boysen joined the army in 1948, and has been in hospital administration since 1965. He served as commanding officer of the 55th Medical Group in Vietnam in 1967 and early 1968, and received the Legion of Merit with Oak Leaf Cluster. He and his wife have three children, and he says future plans "include a cottage on a peaceful northern Minnesota lake—some day." *O. H. Wangenstein.*

Robert G. Bridge is an internist, living at 1009 W. St. Andrews Road, Midland, Mich., a community he has served since 1954. He is married to the former Ruth Zappa, who was a nurse at Northwestern Hospital in Minneapolis. They have six children. *C. J. Watson.*

After a five-year hitch in the Army Medical Corps, **Donald G. W. Brooking*** entered the field of Dermatology, and is now in private practice in Dallas, Tex. He and his wife, also a physician, live at 1300 Canterbury Court. He says the most influential instructor in Medical School was *Dr. Cecil Watson "whom I bumped into years later in a New Orleans antique shop and who, amazingly, remembered me."*

I. Harold Chevlen* is a GP with two other physicians in Youngstown, O. He also teaches at Youngstown Hospital. Dr.



The Myron Erickson family

* Member, Minnesota Medical Foundation

Chevlen reported he returned to Minneapolis for an alumni homecoming and was surprised at all the changes except that "the apartment we lived in while I was a student hadn't changed in 20 years—having the same threadbare carpets." He is married, and has four children, and lives at 149 Brookline Ave. *Dr. Cecil Watson.*

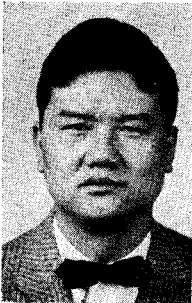
Colorado Springs, Colo., is the home of **Richard L. Condé**, who is in the private practice of psychiatry, associated with Brady Hospital. Dick reports he raises quarter horses and is an amateur gemologist. He and his wife have three children. *Cecil Watson, A. B. Baker, Don Hastings, George Fahr.*

Donald Derauf lives at 650 Wentworth, and is in the private practice of internal medicine in St. Paul, Minn., and teaches at the U. of M. He says he "married a Scot," and his family, which includes four children, has visited Scotland several times. *Dr. Bell.*

E. J. Diefenbach has spent 16 years in practice in Minneapolis. His wife, classmate **Jeanne Dahl Diefenbach**, has worked off and on at the U. of M. Health Service and Cancer Detection Clinic, and for the past two years has been school physician at University High School. They have two daughters, live at 5933 Halifax Ave. *A. B. Baker, William A. O'Brien.*

Completing 21 years of active military service in 1966, **John H. Draheim*** was in academic medicine for one year and then went into the practice of pathology in Green Bay, Wis. He and his wife live at 300 Terraview Dr., and have three children. *Dr. Bell.*

John E. Egdahl* has been in general practice in Oceanside, Calif., for the past 15 years. His family, which includes four chil-



L. Y. Hom



L. Jacobson



F. Koenecke

* Member, Minnesota Medical Foundation

dren, lives at 4202 Highland Dr., Carlsbad. John writes that his family has traveled considerably in this country, Canada and Mexico, and enjoys sailing on the Pacific Ocean. *C. J. Watson.*

Ruby M. Engstrom has a physician husband—Dr. Charles L. Schneider—and does research in pathology at Wayne County General Hospital, Dearborn, Mich. She and her husband have won several awards for research work. They have three children, and the family likes camping.

Myron E. Erickson* has been in general practice at the Camden Clinic in Minneapolis for the past 17 years. He and his wife, Katherine, have four children. *Cecil Watson.*



The George Heine family

Robert J. Fink lives at 133 Hawthorne Rd., Hopkins, Minn., and practices solo in ophthalmology. He teaches at the U. of M. Bob and his wife, Peg, have six children. *A. T. Rasmussen, Raymond Bieter.*

Since 1956, **William H. Goodnow*** has been a specialist in internal medicine for the last 8 years at the Duluth, Minn. Clinic. He and his wife have three sons and one daughter.

Pediatrics is the specialty of soloist **Robbie (Clayton R.) Green,*** who is in private practice at 348 Second Street, Excelsior, Minn. He also is a clinical instructor at the U. of M., and a skiing enthusiast. *C. D. May.*

James W. Halvorson is in Family Practice in Zumbrota, Minn., where he, his wife and three children have lived since 1955, on R.R. #1.

George W. Heine* lives at 2219 Hawthorne Dr., and is

* Member, Minnesota Medical Foundation

medical director of a cardio-pulmonary lab and practicing anesthesiologist in Cedar Falls, Iowa. He and his wife have five teenage children. *Allen Boyden.*

Lucille J. Hoiland* lives in New Brighton, Minn., and is a fulltime faculty member at the Medical School. She does research in Hematology, and teaches in the Department of Laboratory Medicine.

After practicing alone in Battle Lake, Minn., for 17 years, **Leong Y. Hom*** joined a medical group in Fergus Falls, Minn., in 1967. Dr. Hom and his wife have four children, the oldest—Douglas—now in his second year of pre-med at the U. of M. Another son, Denis, will enter pre-med this year.



V. Perrigo



P. Margolis



H. Locketz

Loren J. Jacobson is in OB-GYN practice with five associates in Minneapolis. He trained at Mayo Clinic 1959 to 1961. Loren has a wife and four children, lives at 4335 Tyrol Crest, and likes "family camping."

An associate professor at the Baylor University Medical School, **Sheldon W. Joseph** also specializes in pediatrics at the MacGregor Medical Clinic in Houston, Tex. He has lived in Houston for 15 years, and has a wife and two daughters. *C. J. Watson.*

Robert M. Joyer now lives at 4535 Lindell Blvd., St. Louis, Mo., where he is medical director of the Midwestern Area Red Cross Blood program. He is a bachelor.

Warren A. Kadas has a general practice in Sutherlin, Ore. He studied ophthalmology at Cook County Hospital in Chicago for two years, and has been named first citizen of his community. Warren likes skiing, astronomy and Civil War history. He and his wife have four children. *Leo Rigler.*

* Member, Minnesota Medical Foundation

James E. Kelsey* is an internist with a private practice in Des Moines, Ia. He is married and the father of three. The family home is at 3511 Southern Hills. *Ed Flink.*

Ervin A. Kjenaas is an instructor at the Cherokee, Iowa, Mental Health Institute, and serves as director of the Northwest Iowa Mental Health Center in Spencer. He served in the Army from 1948 to 1956. Married and the father of three. Erv says he plans "to eventually associate with a university, in teaching." *Cecil Watson.*

Certified in psychiatry at the University of Wisconsin in 1967, **Fred H. Koenecke** now practices with the Doctor's Park Psychiatric Group in Madison, and teaches at the University. Dr. Koenecke is treasurer of the Wisconsin Psychiatric Assn., married and the father of three children. *C. J. Watson.*

Jeanette Kraemer Lowry,* the wife of physician Paul T. Lowry, has found time to teach, raise three children, and conduct a private practice in Edina, Minn. She teaches with both the U. of M. and Northwestern Hospital. The Kraemer home is at 5512 S. Blake Rd. *C. J. Watson.*

Anesthesiology is the specialty of **Paul Kushner**, who now practices in Brooklyn, N.Y. He teaches at the Downstate Medical Center. Paul and his wife, Mary, live at 2116 Ave. "L", with their three children.

J. S. (Pat) Lewis is an instructor in the Department of Psychiatry at St. Paul Ramsey Hosp., and lives in Roseville, Minn. He is married and the father of four children. *Donald Hastings.*

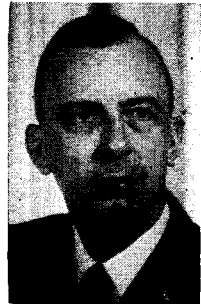
A private psychiatrist in Denver, Colo., **Harold D. Locketz** also is a medical director of the Spanish Peaks Mental Health



J. Sanford



R. J. Salk



R. Pfrommer, Jr.

* Member, Minnesota Medical Foundation

Center in Pueblo. Harold's wife, Barbara, did a sculpture which was exhibited at the recent **Hemisfair** in San Antonio, Tex. They have two daughters, and live at 275 S. Hudson St., Denver. *Maurice Visscher, Ernst Gellhorn.*

Fred Madenberg* specializes in internal medicine and has a private practice in Chicago. He and his family, which includes two daughters, live at 9111 N. Lowell Ave. in Skokie, Ill. *Cecil Watson.*

A book on the *Psychiatric Hospital* is being written by **Philip M. Margolis***, now professor of psychiatry at the University of Michigan Medical School in Ann Arbor. He also is director of the Community Mental Health Center, and has a small private practice. Phil is the father of four children. *Burt Schiele, Cecil Watson.*

J. Victor Monke lives with his wife and two children at 1331 Linda Flora Dr., Los Angeles, and he is in private practice in Beverly Hills. He also is an associate professor at USC. *C. J. Watson.*

A proctologist in Minneapolis, **Charles Neumeister*** is also Chairman of the Board of Minnesota Blue Shield, a trustee of the Minnesota Medical Foundation and treasurer of the Minnesota Medical Assn. Charlie lives at 6654 Parkwood Rd. with his wife Eunice.

Establishment of a cardiac clinic and the only ongoing open heart surgery unit in West Pakistan has been one of the accomplishments of **Harry W. Orme.*** Harry is also part of the planning for a major children's hospital in Long Beach Calif. He is Medical Director of the Children's Hospital Medical Center there, and teaches pediatrics at the University of California, Irvine. *Irvine MacQuarrie.*

Edward A. Pasek has a private practice of ophthalmology in Sioux Falls, S.D. He and his wife, Marjorie, have also been busy raising a family of nine children, at 2701 S. Second Ave.

Vernon F. Perrigo* lives at 489 Aldwych Rd., El Cajon, Calif., where he has a general practice. He teaches at the University of California, San Diego. Vern is married and the father of two.

"In the late 1940s, Minnesota had a great faculty that successfully synthesized the science and humanism of medicine for aspiring young physicians," writes Col John R. Pfrommer, Jr., U.S.A.F. John is commander of the 832 TAC Hospital at Can-*

* Member, Minnesota Medical Foundation

non A.F.B., New Mexico. He has been in the Air Force since 1952, serving in Japan, Southeast Asia and Germany. He and his wife have one daughter.

A co-author of two books on psychiatry, **Rex A. Pittenger** is chief psychiatrist, Staunton Clinic, Department of Psychiatry, University of Pittsburgh. He also is a clinical associate professor of psychiatry there. Rex and his wife have five children. *Ernst Gellhorn.*

John Porter Reed lives at 9608 Hilltop Rd., and practices anesthesiology in Bellevue, Wash. He received the M.S. from Ohio State in 1953 and likes mountain climbing. John and his wife have three children. *Lyle French.*

Dan Reikes* specializes in radiology and practices in Hattiesburg, Miss. He and his family, including three children, spend their free time fishing and boating on the Gulf of Mexico. Dan writes that "*Leo Rigler was the only professor who could turn off the lights at 1 p.m. Friday afternoon and keep all the students awake.*"

A radiology group practice in Minneapolis has been engaged in by **Arnold O. Rholl*** since 1956. He took a radiology residency at the Minneapolis VA Hospital from 1952 to 1955. Arnold, his wife, and four children live in Golden Valley at 528 Janalyn Circle.

Helen Safford lives at 714 Courtland in Richmond, Calif., and is in the field of public health in Oakland. She received advanced training in public health at the University of California.

Richard J. Salk* and his wife, Jean, are raising a family of 12 children, ages 2 to 20 years, in the central Minnesota community of Albany, where Dick is in general practice. He was recently featured in a *Minneapolis Sunday Tribune* article, citing honor and appreciation bestowed on him by his fellow townspeople. Dick has been in Albany 14 years.

General surgery is the specialty of **John B. Sanford**, who practices at the Duluth Clinic, Duluth, Minn. He and his wife, also a physician, have four children. John's family has visited his wife's family in Denmark several times. *A. B. Baker and C. P. Barnum.*

"General practice has been a most rewarding specialty," writes **Harry E. Schneiter**, who practices at 425 Cotler St., Allegan, Mich. He is married and the father of five children. Harry is a dog fancier who devotes time to the breeding and showing of

* Member, Minnesota Medical Foundation

fine English Setters. "*William O'Brien, who preached that the total patient was all-important.*"

Thomas C. Smersh has a private practice in Seattle, Wash., specializing in otolaryngology. He also is a clinical instructor at the University of Washington. Tom and his wife have one daughter, and live at 3720 NE 187th, in Lake Forest Park, Wash. *Allen Bolden.*



Harry Schneider

Stanley J. Sontag practices at the Wadsworth Medical Clinic in Denver, Colo., where he has lived the past 15 years. Stan and his wife have three children. *O. H. Wangenstein.*

A faculty associate at Yale University, **Jolyon S. Tucker** also practices neurology in Hartford, Conn. He supervises the EEG laboratory at Hartford Hospital, is married, and the father of

three. His hobbies include painting and mandolin playing. *A. B. Baker.*

Mary Thornton Roland is a pediatric consultant for the Crippled Children's Service, Utah State Department of Health, in Salt Lake City. She also is assistant professor of pediatrics at the University of Utah, and married to Mr. Don Roland. *A. B. Baker.*

Hildegard J. Virnig* has been in general practice in Caledonia, Minn, since 1950, in partnership with her husband until he died in 1961. Since then she has practiced alone in that southern Minnesota community.

James O. Wall has an OB-GYN practice with two other physicians in St. Paul, Minn. He and his wife are parents of five children Jim likes skiing and scuba diving. They live at 620 Keller Parkway. *John L. McKelvey.*

* Member, Minnesota Medical Foundation

George J. Wernette is a general surgeon in Carmichael, Calif., and teaches at the University of California Medical School in Davis. He completed his residency in general surgery in New Orleans in 1960, then entered private practice in surgery at Sacramento, Calif. He moved his office to Carmichael a year ago. George and his wife, Ann, have nine children, ages 5 to 18, at home at 4507 Maple Lane.



L. J. West

Louis Jolyon West is head of the Department of Psychiatry and Behavioral Sciences at the University of Oklahoma School of Medicine. Louis was certified in psychiatry in 1954, and has been at Oklahoma since that time. Presently he is a member of the National Advisory Mental Health Council of the U.S. P.H.S., and the Council of the American Psychiatric Association. Louis and his wife have three children. *Donald W. Hastings.*

John I. Williams* is a specialist in urology and lives at 4322 N.E. 23rd Ave. in Ft. Lauderdale, Fla. He is an instructor in urology at the University of Miami, is married and the father of five children *Owen Wangenstein.*

Joe Yamamoto* has a full time teaching appointment in psychiatry at USC, and is also a private psychiatrist. Presently living at 802 Broomway, Beverly Hills. Joe and his wife, Maria, have two sons. *Donald Hastings.*

The following members of the Class of 1948 did not answer the survey:

Priscilla A. Boekelheide
 Robert F. Conway
 Windon H. Davis
 Laura E. Edwards
 Philip H. Fensterer, Jr.
 Robert T. Jensen

Margaret McCabe Gartland
 Vernon E. Neils
 Clifford E. Nelson
 Charles C. Strong
 Gloria R. Wong Chung

Radiation Therapy

EVALUATION OF PULMONARY DISEASE USING ¹³³XENON GAS AND SCINTILLATION CAMERA

Merle K. Loken, M.D., Ph.D.

Jose R. Medina, M.D.

James P. Lillehei, M.D.

Phillippe L'Heureux, M.D.

George S. Kush, M.S.

Richard V. Ebert, M.D.



Merle K. Loken

A scintillation (Anger) camera and ¹³³Xenon have been used extensively in our Nuclear Medicine Clinic during the past three years for evaluation of pulmonary disease and for measurements of regional blood flow. Xenon has a physical half-life of 5.27 days and emits an 81 keV gamma photon. The short biological half life of ¹³³xenon permits these studies to be performed and repeated as necessary without excessive radiation exposure to patients. The ¹³³xenon is administered to patients either by inhalation to measure ventilation or dissolved in saline

and administered intravenously for measurement of pulmonary perfusion. The details of the technique for performance of these studies have been published elsewhere.

The camera employs a single sodium iodide crystal with a diameter of 11½" which produces flashes of light when struck by gamma rays passing to it through a multichannel collimator. These events are collected on Polaroid film (scintiphotograms). The camera crystal may be divided electronically, either into halves or quadrants so that events occurring in each of these sectors may be recorded separately and thus ventilation and perfusion of each hemilung or of each upper and lower lung field may be

* From the Departments of Radiology and Medicine, University of Minnesota Hospitals, Minneapolis, Minn. Supported in part by grants from the James Picker Foundation (#R-68-12) and the Public Health Service (#CA08832-02)

Acknowledgment: The authors wish to express their thanks to Messrs. Richard Ponto and James Tennison who aided in the technical aspects of this work.

evaluated. The addition of electronic interface equipment of our camera system has permitted data accumulated on pulmonary function to be stored on magnetic tape and then processed by our biomedical computer.

Scintiphotograms showing the distribution and washout of xenon administered by inhalation and intravenous injection to one of our normal subjects is shown in Figure 1. The distribution of xenon is seen to be uniform throughout. Selected scintiphotograms obtained during inhalation and perfusion studies of a 20-year-old male (M.A.) with a history of recurrent respiratory infections are shown in Figure 2. These scintiphotograms show irregularities in patterns of both ventilation and perfusion, particularly in the lower lung field on the left and the upper lung field on the right. Computer data relating to ventilation (V) and perfusion (Q) indices and their ratio (V/Q) for upper, middle and lower lung fields for this patient and a group of normal subjects are shown in Table 1.* Abnormalities in both ventilation and perfusion are readily apparent, particularly in areas seen to be grossly abnormal on the scintiphotograms. Conventional pulmonary function tests of vital capacity, forced expiratory volume, etc. were likewise grossly abnormal as were determinations of blood gases.

To date more than 200 patients have been studied with a wide variety of pulmonary diseases. Serial scintiphotograms showing the uptake and clearance patterns for ¹³³xenon administered either by ventilation or intravenous injection have provided a qualitative evaluation of pulmonary function. Quantitative data on regional pulmonary function are provided by our biomedical computer. Although areas of the lung as small as one square centimeter may be studied in this manner, we have set a practical limit of 40 total lung areas for which ventilation (V) and perfusion (Q) indices, as well as their ratio (V/Q) and uptake and clearance times are determined by the computer.

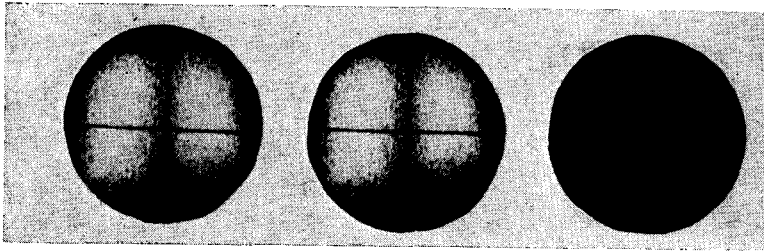
TABLE 1
EVALUATION OF PULMONARY FUNCTION

		Right Lung Segments			Left Lung Segments		
		Upper	Middle	Lower	Upper	Middle	Lower
Cystic Bronchiectasis (M.A. #122)	V	0.78	0.85	1.28	1.06	1.10	0.94
	Q	0.35	1.06	1.71	1.06	1.12	0.56
	V/Q	2.2	0.80	0.75	1.	0.96	1.68
	T-1/2 (Q)	65.	31.	24.	19.	33.	57.
Normals	V	0.86	1.01	1.15	0.82	1.02	1.14
	Q	0.76	1.06	1.21	0.81	1.06	1.11
	V/Q	1.13	0.95	1.01	1.01	0.95	1.02
	T-1/2 (Q)	24.	14.	13.	25.	19.	16.

* The ventilation index is defined as that portion of a single maximum inspiration which enters the lung sector being studied. The perfusion index is defined in a similar manner and expresses the volume of perfusion per unit volume of lung. The ventilation perfusion ratio is obtained by dividing the ventilation index by the perfusion index.

Fig. 1

NORMAL SUBJECT
¹³³Xenon



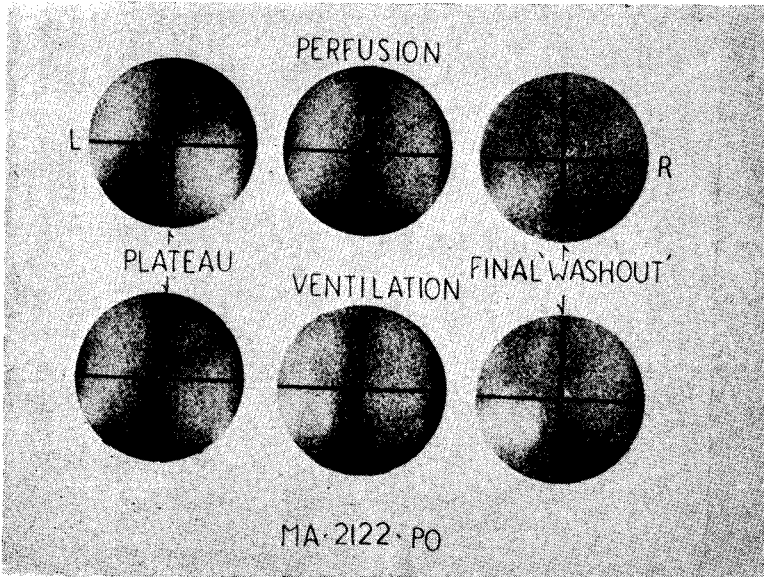
Ventilation
(Single Breath)

Perfusion

Washout
Ventilation
and
Perfusion

Selected lung scintiphotograms of a normal subject.

Fig. 2



Selected lung scintiphotograms of a patient with cystic bronchiectasis.

Computers

CURRENT HOSPITAL AND MEDICAL USES OF COMPUTERS*

Eugene Ackerman, Ph.D.

Hill Family Professor of Biomedical Computing

COMPUTERS of every form and type have become an integral part of the research laboratories of the health sciences. Other computers prepare billings and reports in hospitals. Today new computers are being employed in essential roles in hospital laboratories, in periodic medical examinations, and in intensive care wards. Computers are entering into the medical world to the extent that biomedical computer science may become as integral a part of a medical education as biochemistry or anatomy.

In areas such as hospital accounting and demographic studies, present computers are highly successful. In other areas such as ECG diagnostic aids, computer applications have been developed to the borderline of economic utility. In patient monitoring, however, the present state-of-the-art does not permit medical application despite conceptual feasibility. Both the almost successful and the conceptual feasible are regions for research and development within a University-based medical center.

In all human developments, errors of many types are made. In the medical and hospital applications of computers, the initial errors have often been compounded by replacing the initial personnel with others, who, failing to learn from their colleagues' troubles, repeat the same errors. Regardless, computer applications in the health sciences have grown rapidly in the past few years.

At the University of Minnesota's Health Sciences Center, a number of groups are applying computer technology to health-oriented problems. The largest is the research and education oriented Biomedical Data Processing Unit, directed by Dr. Eugene A. Johnson. They are successfully serving a variety of users in large file processing, simulation, biostatistics and instruction. The Biomedical Data Processing Unit is developing a cathode-ray-terminal network and a link to the University Computer Center. A local computer network within the Health Sciences Center with real time capabilities is anticipated.

Other computer facilities within the Health Sciences Center include a number of smaller laboratory computers and a telephone-wire service terminal. The University Hospitals are planning a

separate computer facility for their own use and a patient monitoring facility has been proposed.

There seems little doubt that computer technology looms large in the future medical and hospital practice.

* From a report to the Staff Meeting of University of Minnesota Hospitals on December 13, 1968.

Medical Alumni News

DR. LEN ARLING ELECTED MEDICAL ALUMNI PRESIDENT

Leonard S. Arling (Med. '35) is new president of the Minnesota Medical Alumni Association. He was elected by the Board of Directors on January 20, 1969, succeeding Kenneth P. Manick (Med. '60).



Len Arling

Dr. Arling is senior member of the Northwest Industrial Medicine Clinic, and a veteran practitioner of industrial medicine. He has been active in Alumni Association affairs for several years, and will be chief representative and presiding officer of Medical Alumni affairs during 1969. Dr. Arling resides in Minneapolis. His clinic is located in the midway district of Minneapolis-St. Paul near the University of Minnesota campus.

Other new officers, all of Minneapolis, elected by the Medical Alumni group are George W. Janda (Med. '47), *first vice president*; Emerson F. Hoppes (M.S. Med. '47), *second vice president*; Henry W. Quist (Med. '43), *secretary*; and James E. Jenson (Med. '44), *treasurer*, Stillwater, Minn.

Other members of the Board of Directors are L. G. Idstrom (Med. '38), Patrick Scanlon (Med. '61), Konald Prem (Med. '50), Howard A. Andersen (Med. '42), Douglas L. Johnson

(Med. '33), Clarence J. Rowe (Med. '42), Thomas M. Seery (Med. '41), Kenneth P. Manick (Med. '60), Virgil J. P. Lundquist (Med. '42), Edward L. Segal (Med. '53), Eugene Ott (Med. '54), Everett H. Karon (Med. '53), Bror F. Pearson (Med. '31), E. Theodore Palm (Med. '45), and Leonard A. Borowicz (Med. '38).

1969 HOMECOMING REUNION

Medical Alumni are urged to plan now for the weekend of October 17-18, 1969, when the annual Homecoming Reunion and Annual Meeting of the Medical Alumni Association will be held. Headquarters hotel will be the St. Paul Hilton, where the annual dinner dance and many other events will take place. A tour of the University of Minnesota Health Sciences Center will be on the agenda, as will the football game on Saturday, Oct. 18. This year the Minnesota Gophers will play Ohio State University's Rose Bowl and Big Ten Champions in the annual Homecoming game.

Six classes will be honored by the Association this year. They are the graduating classes of 1964, 1959, 1954, 1949, 1944, and 1939. Special announcements of these reunions are being sent to all members of the honored classes, as well as a general invitation to all medical alumni to attend. For details, please contact Mr. Dennis Swan, Minnesota Alumni Association, 205 Coffman Union, University of Minnesota, Minneapolis, Minn. 55455.

MEDICAL MICROSCOPE PROJECT

Twenty freshman and sophomore students at the Medical School are currently benefitting from microscopes loaned for their use from the Medical Alumni Microscope Loan program. The program has been supported by the gifts of alumni, hospital medical staffs, and other interested persons and organizations. A donation of \$450.00 provides for purchase of a good quality binocular microscope, which is then loaned to a deserving student without cost other than a modest annual fee for maintenance and insurance.

Recipients of microscopes for the first two years of the project are *James B. Buhr, Robert F. O'Dea, Jr., Sally H. Ehlers, Marshall J. Golden, James M. Hartley, Ernest E. Lack, Robert W. Leland, Larry E. Lyon, James R. Breitenbucher, Michael B. A. Thompson, Richard Iverson, Paul Nerthin, Carol Fruechte, Larry W. Weiss, David R. Eckes, John F. Boward, Thomas E. Davis, Joanne Pearson, Kathleen Fleming, and Daniel Schulte.*

Among the earliest donors of microscope funds have been

Clarence J. Rowe, Swedish Hospital Staff, B. F. Pearson, Vernon D. E. Smith, T. R. Fritsche, T. J. Konig, R. G. Tinkham, Women's Auxiliary of Ramsey County Medical Society, Kenneth R. Larson, Mrs. Helen C. Glueck, Robert H. Monahan, Robert B. Breitenbucher, Douglas L. Johnson, Emerson F. Hoppes, Leonard S. Arling, James E. Jenson, Kenneth P. Manick, Henry W. Quist, James C. Mankey, and Linneus G. Idstrom.

Additional donations are welcome, and the donor's name will be affixed to the microscope in recognition of the contribution.

MEDICAL FRATERNITY ELECTS 26 MEMBERS FROM 'U' MED SCHOOL

Alpha Omega Alpha, the national honor medical society, has elected 26 medical students at the University of Minnesota to membership.

Eighteen seniors and eight juniors were cited in recognition of their academic achievements and personal qualifications.

Senior class electees to Alpha (Minnesota) Chapter of AOA are:

James R. Bloedel, David C. Anderson, Jeffrey B. Halter, James L. Quale, James D. Miller, Dennis D. Doorneweerd, Herbert M. Reiman Jr., Fredric P. Nelson, James M. Cooper, Mrs. Sandra T. Zieve, James E. Krook, and Kenneth B. Heithoff.

Also, Richard W. Carlson, John W. Beasley, John R. Hoidal, Jeffrey H. Strickler, Robert N. Schulenberg, and G. Eric Knox.

Junior class electees are:

Milton C. Hanson, Harold R. Veits, Michael J. Osborn, John T. Ylvisaker, Forrest C. Bennett, Ronald W. Keller, Richard L. Beck, and Devron H. Char.

Dr. W. A. Sullivan Jr., is faculty adviser to AOA at the Medical School.

Alumni Deaths

Charles E. Bigelow/1904

Died December 26, 1968 at his home in Dodge Center, Minn. He was 89 years old, and one of the Medical School's senior alumni. Practiced in Dodge Center for more than 50 years, following in the footsteps of his father-physician in that community. Dr. Bigelow retired from practice in 1964. He was a graduate of Carleton College.

Russel Edward Carlson/1939

Died November 16, 1968 at age 51 years in Stillwater, Minn. where he was in practice.

Paul M. Crossland/1930

Died Sept. 30, 1968, at his home in Santa Rosa, Calif. A prominent dermatologist and faculty member of Stanford University School of Medicine, Dr. Crossland, age 64 years, was a retired Navy captain. He spent the years 1931-1948 as a naval medical officer, and was heavily decorated for World War II service. Death was caused by a stroke.

Reinhold O. Goehl/1930

Died July 13, 1968 of cancer, age 63 years. He practiced internal medicine and lived in Grand Forks, N.D.

Adolphe E. Gourdeau/1921

Died May 8, 1968 in Sierra Madre, Calif. He was 77 years old.

Vito Guardalabene/1934

Died September 3, 1968 in Milwaukee, Wis., age 59 years. He was a veteran of World War II, and on the staffs of Deaconess and St. Michael Hospital.

Frederick A. M. Leighton/1926

Died October 15, 1968, aged 75 years, of arteriosclerotic heart disease. Resident of Sheboygan, Wis., he was health officer and former mayor of neighboring Sheboygan Falls.

Carl Lembke/1916

Died April 6, 1968 of heart disease in Minnesota Lake, Minn. He was 78 years old and former mayor of the community.

Scott F. McIntire/1946

Died Aug. 22, 1968, age 45 years, of acute alcohol and barbiturate poisoning. He was a certified internist in Denver, Colo., and faculty member of the University of Colorado.

Richard S. Rogers/1921

Died April 23, 1968 in Yachats, Ore., aged 75 years. Veteran of both World Wars, he succumbed to Parkinson's disease and arteriosclerosis.

Abraham M. Shedlov/1920

Died Sept. 30, 1968 of myocardial infarction. Aged 73 years and resident of Long Beach, Calif., where he was associated with the V.A. Center.

Francis M. Walsh/1937

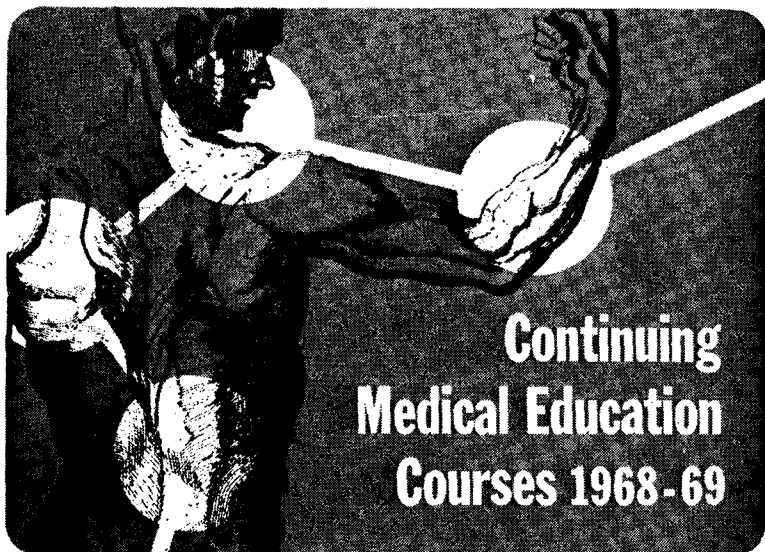
Died September 10, 1968, age 56 years, of cancer. He was a practicing ophthalmologist in Minneapolis, member of Deaconess and Methodist hospital staffs, and veteran of World War II.

MEMORIALS

Gifts have been received recently by the Minnesota Medical Foundation in memory of the following:

Mrs. Charles Bronstien	Ray A. Nicolas
Mrs. Bertha Drill	Mrs. Ann Olsen
Dr. Reinhold O. Goehl	Mathew Peller
Harlan Goulett	Dr. Wallace P. Ritchie, Sr.
Mrs. T. P. Groschupf	Samuel H. Rogers
Dr. H. B. Hannah	Walter Seeger
F. D. Hussa	Dr. Morse J. Shapiro
Lyman E. King	James S. Standal
A. R. Knox	Silas H. Towler
Mrs. Emma Larson	Mrs. Florence J. Werner
Abe Levy	Mrs. Margaret West

Memorial gifts are a thoughtful means of honoring the memory of a relative, friend, or colleague. Gifts may be designated for specific purposes. The Minnesota Medical Foundation acknowledges all gifts to both donor and next of kin.



Continuing Medical Education Courses 1968-69

MARK THESE DATES ON YOUR CALENDAR

APRIL

21-25 Proctology
28-29 Ophthalmology

MAY

5-7 Anesthesiology
9-10 Diagnosis and
Treatment of
Rheumatic Disorders
21-24 Surgery

AUGUST

18-22 Dermal Pathology

SEPTEMBER

20 ...4th Annual Symposium
on Kidney Disease
25-27 ..Hypnosis in Medicine

OCTOBER

2-4Neurologic Aspects
of Internal Disease
16-18 ..American Association
for Automotive Medicine
22-24 Diabetes
27-31 Radiology

Additional courses may be announced during the year.

Courses are held at the Nolte Center for Continuing Education or at the Mayo Memorial Auditorium on the Minneapolis campus of the University of Minnesota. Specific announcements are sent out about six weeks prior to each course to all physicians in the midwest; to selected physicians according to their specialty interest; and to any physician who requests information for a specific course. For additional information write to:

**Executive Director
Office of Postgraduate Educational Activities
Box 193 – Health Sciences Center
University of Minnesota
Minneapolis, Minnesota 55455**

CONTENTS

- ★ COMMITTEE FOR HEALTH SCIENCES. 109
- ★ CLASS OF 1948 SURVEY 112
- ★ RADIATION THERAPY 123
- ★ MEDICAL ALUMNI ELECT OFFICERS.. 127
- ★ HOMECOMING REUNION 128



Len Arling

ALUMNI NEWSMAKER