

Cardiovascular Medicine

Cardiovascular Medicine at OHSU: The First 50 Years (1955-2005)



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The purpose of writing this monograph is to document the important events and people in the first 50 years of cardiovascular medicine at OHSU while most of them are still around and can share their experiences. During this period not only did the name of the institution change, but also its governance. In order to avoid confusion, I have used the name OHSU throughout rather than the historical name at the specific time of the event. A brief outline of the major historical events at OHSU since its inception as Oregon's first and only medical school can be found at www.ohsu.edu/xd/about/facts/history.cfm.

In writing this I have borrowed heavily from the oral histories of Herbert Griswold, Donald Kassebaum, and Victor Menashe, as well as the written versions of David Bristow and James Metcalfe. At my request Henry DeMots, Jack McAnulty, and Frank Kloster also worked on a combined historical perspective of the cardiovascular division from which I have drawn generously. I have asked innumerable questions of James Metcalfe, Leonard Ritzmann, William Neill, Albert Starr, Edward Murphy, Sonja Connor and others, and they have all been very kind and helpful in their responses. Bart and Bonnie Griswold were generous enough to share memories of Herb and provide me with the photographs included herein. Many colleagues and Kay Bristow shared their memories of David Bristow. Leonard Ritzmann provided the photographs of the Portland Veterans Administration Internal Medicine group and the Portland Heart Club. Greg Moneta provided a write-up on John Porter and a brief history of the vascular surgery program at OHSU.

The purpose of this perspective is to not include in great detail the major scientific contributions that many of the faculty members at OHSU had made over the years. That information is available from the literature and bibliographies. Instead I wanted to depict the important roles different people played at various times in the cardiovascular medicine division and also the contributions of others at OHSU outside of the division (radiology, surgery, endocrinology, primate center, etc.) to cardiovascular medicine. Other than Henry DeMots, faculty members present at OHSU in the summer of 2005 are not discussed

here in any detail: only those who have retired or left OHSU by then are discussed. Additionally, details are provided only on those who served on faculty for two years or more.

Writing this monograph has been an extremely educational and captivating experience for me. I now have a much better feeling for what happened here over the years. It has been a challenge to get information from or about some people. Sometimes finding individuals has been difficult. Persistence has helped. I am grateful to Susie Diamond for helping with this perspective. I am also thankful to Maija Anderson, head of historical collections and archives at the OHSU library for providing me with unique photographs from the 50-year period. I am hopeful that an updated version will be developed in 2030 when cardiovascular medicine at OHSU will be 75 years old and at that time the important contributions of people not included in this version will be mentioned as will that of others who have contributed from 2005 onwards!

Sanjiv Kaul

December 2012, revised January 2015

Cardiovascular medicine became a specialty within internal medicine around the Second World War. At OHSU (University of Oregon School of Medicine at that time) it was called the “Division of Cardiovascular Hypertensive Renal Diseases” and the first division head was **Homer Rush**, who practiced in downtown Portland (like most of the medical school faculty at that time) and visited OHSU to teach and see patients. Homer and others like him were internists with a special interest in cardiovascular medicine. The chairman of medicine at that time was **Howard (Hod) Lewis** (see Figure 3), who was among a handful of full-time faculty members in the department of Medicine at the medical school, and in 1955 he appointed **Herbert (Herb) Griswold** as the first full-time head of the Division of Cardiovascular Hypertensive Renal Diseases at the medical school. **George Porter** was initially also a member of the division and on encouragement from Griswold first formed a Renal Section within the division in 1970 and then formed a separate Division of Renal Diseases in 1973. After that the cardiovascular portion was called the “Division of Cardiology.” Porter later became chairman of the Department of Medicine.

The Griswold years

Griswold was a visionary with brilliance and unbounded energy who laid out the foundation of the division over the 18 years that he headed it. He was assisted by a number of outstanding and talented individuals, who will be mentioned later. Griswold was born in Kansas City on April 15, 1917. His family moved to Portland in 1926. He graduated from Grant High School and read at Reed College for his Bachelor’s degree. He obtained his medical degree from the University of Oregon Medical School (now OHSU) in 1943. He married Norma Walker the day after graduation and had four children with her.

Griswold completed his internal medicine internship and residency in the United States Army and trained for 18 months in cardiology at Johns Hopkins with



Figure 1: Norma & Herb Griswold with their children: Bartley, David, Thomas & Cheryl

Helen Taussig before returning to Portland in 1949, where he started working at OHSU as an assistant professor of physiology (under **William Youmans**) and assistant professor of Medicine (under **Hod Lewis**) at an annual salary of \$4,500! The dean of the medical school at that time was **David Baird** (Baird Hall is named after him). So Griswold was the first full-time faculty member in cardiovascular medicine at OHSU. At that time you could spend 15 percent of your time in private practice to supplement your university salary.

Griswold built the first cardiac catheterization laboratory (hemodynamic — not coronary angiography) in Oregon in Baird Hall in 1950 and, assisted by a technician, started investigating patients with congenital heart disease. The outpatient cardiology clinic was also situated in Baird Hall while in-patients were admitted to the old Multnomah county hospital, which is now Multnomah Pavilion. Griswold started the first coronary care unit (two beds) next to the nurses’ station in Multnomah Pavilion. He also started the cardiology fellowship program in 1956. Prominent practitioners in the community who volunteered time at the medical school in the early ’50s were **Marvin Schwartz**, who brought modern electrocardiography

to the Northwest (Figure 3), **William Hurst** (Figure 3), and **Charles Coffen** (Figure 3). In those days relations between practitioners of Cardiovascular Medicine in Portland were good and they were all members of the Portland Heart Club that met occasionally in downtown Portland (Figure 3).

Homer Rush was instrumental in convincing the Dant and Irwin families, among others, to donate money to The Oregon Heart Association, the Oregon chapter of the American Heart Association, with the purpose of supporting cardiovascular research at the medical school. Some of the funds were used to develop the Oregon Heart Research professorship in cardiovascular medicine, the first recipient of which was James Metcalfe.

In 1961 Griswold received the first large National Institutes of Health (NIH) grant (Program Project Grant for \$0.8 million a year for seven years) at OHSU (his co-investigators were Charles Dotter and Albert Starr who had by then put an artificial mitral valve in two patients). In addition to paying faculty salaries the grant also paid for fellows. By the end of the '60s several ex-fellows had joined the faculty: David Bristow, Donald Kassebaum, Frank Kloster, and **Louise Kremkau** (who stayed for two years and directed the cardiac catheterization laboratory before joining what is now the Oregon Clinic). In 1968 the NIH grant was renewed for another four years with David Bristow as the principal investigator. Some of the papers that ensued from the 11 years of research supported by this grant became classics, particularly those related to valve and coronary bypass surgery.

The '70s saw some excellent trainees who stayed on as OHSU faculty. Among them were Henry DeMots, Jack MacAnulty, Mark Hattenhauer, Mark Morton, Peter Cummins, Edward Murphy, and George Pantely. Of all the fellows in the first two decades of cardiovascular medicine at OHSU, one-third remained in academic medicine. Some trained at OHSU and left to become leaders elsewhere, such as Richard Lewis (son of Hod Lewis) who went on to become chairman

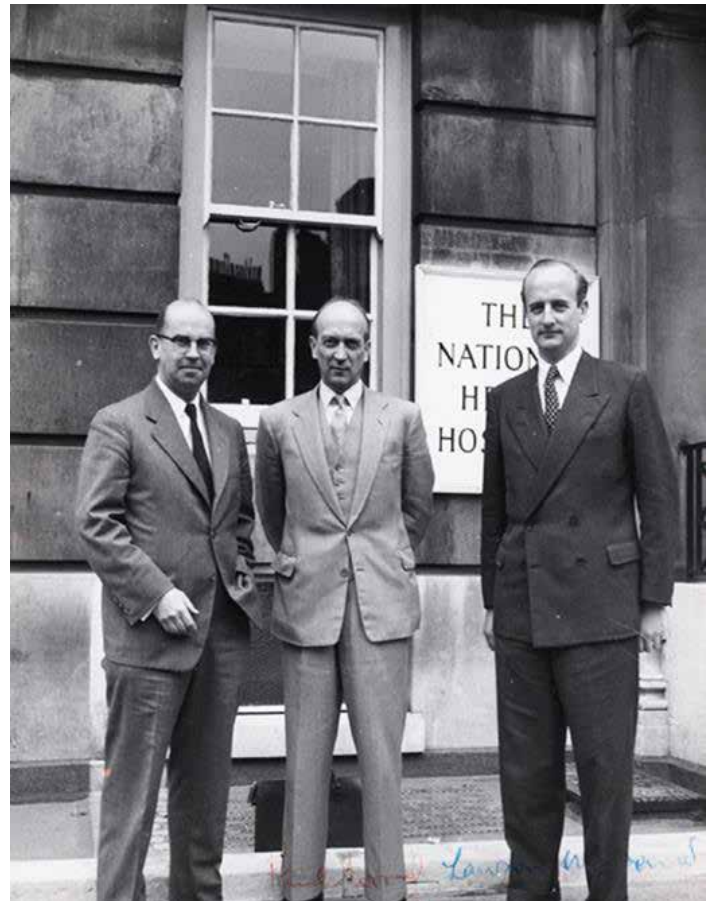


Figure 2: Griswold (left) with Paul Wood (center)

of medicine at Ohio State University and President of the American College of Cardiology (he died in 2008); Bernard Chaitman, who moved to St. Louis and became the head of cardiovascular medicine at St. Louis University; Peter Cummins who later worked at the University of Washington in the Department of Public Health; and, George Wyse who moved to the University of Calgary and later became chief of cardiology there. Mark Hattenhauer started a private group in Portland but returned to OHSU in 2002 as an interventional and clinical cardiologist.

Griswold spent his first sabbatical (1957-58) at the National Heart Hospital, London with Paul Wood, one of the deans of modern cardiology. His second sabbatical was in 1976-77 in Africa (Nairobi and Kenyatta Universities) as a Fulbright international fellow. He stepped down as head of cardiology in 1973 after he developed paralysis of his hand following a motor vehicle accident. He retired in 1983 and died on August 25, 2002 at the age of 85.

Cardiovascular surgery at OHSU

Cardiovascular surgery in the early '50s was performed on The Hill by **William Conklin** (Figure 3), a prominent thoracic surgeon in the Thoracic Clinic that later grew into the Oregon Clinic. He performed operations for conditions such as patent ductus arteriosus and aortic coarctation. His assistant, **Stanley Bergquist** (Figure 3) did the first open heart surgery at Providence Hospital, and a few unsuccessful ones

at OHSU. By the mid '50s they realized that OHSU needed a trained cardiac surgeon and Albert Starr was recruited from New York in 1957. In 1963 Starr was appointed head of the Cardiothoracic Surgery Division.

Albert Starr was born in New York on June 1, 1926. He received both his under-graduate and medical degrees from Columbia University. He interned in surgery at the Johns Hopkins University and returned to

***Figure 3:** A meeting of the Portland Heart Club (1968) that included cardiovascular specialists from Portland and other parts of Oregon. Front row (from left): Hod Lewis, William Conklin, Leonard Goldberg, Albert Starr, Scott Page, and John Bigelow. Second row (from left): John Wild, Leonard Ritzmann, Wayne Rogers, Isadore Brill, Charles Coffen, Marvin Schwartz, and Jim Wood. Third Row: (from left): William Hurst, Gordon Morris, Cyrus Farrehi, Toon, Ernest Dygert, John Bussman, Donald Sutherland, Rene Malinow, Frank Kloster, and Don Kassebaum. Last row (from left): Melvin Reeves, John Murphy, Frank Underwood, Akune, Michael Brodeur, Stan Bergquist, Ralph Reaumme, Harry Ditmore, T. David Lee and Aftab Ahmad. Not present were Homer Rush, Herb Griswold, Louise Kremkau, and Herb Semler.*





Figure 4: Lowell Edwards (left) and Albert Starr (right)

Columbia and New York University as a general and cardiothoracic surgery resident. During that period he also served in a MASH unit in Korea for 18 months (spring of 1951 to fall of 1952).

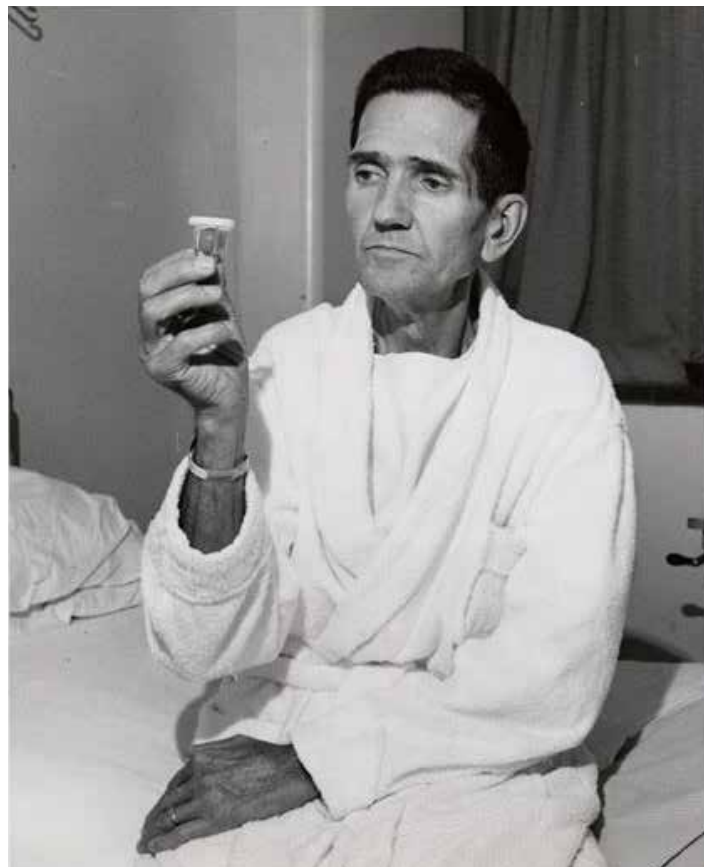
After Starr moved to OHSU, he was visited by **M. Lowell Edwards**, a retired engineer who had designed a fuel injection system for rapidly climbing aircraft during the Second World War (Figure 4). From the royalties from this and other inventions, such as hydraulic debarking systems, he operated his private Edwards Development Laboratory. Edwards was interested in developing an artificial heart. At that time there was urgent need for artificial valves and Starr persuaded Edwards to first help him design an artificial heart valve. At that time it was thought that an artificial heart would also require valves.

They set about designing different valves for the mitral position and tested them in dogs. Even the first few designs using tilting disks worked well initially, but resulted in thrombosis that originated at the site of tissue injury extending into the sewing ring. This led

to the ball and cage design that was also successful hemodynamically but still resulted in thrombosis. Then Starr thought of using a silastic shield over the site of implantation that got rid of thrombosis and led to long-term survival in animals. In 1960 Herb Griswold and **J. Englebert Dunphy**, chairman of surgery, inveighed upon Starr to implant the device in humans.

The first patient in the world to undergo mitral valve replacement in August 1960 was a 40-year-old woman with end-stage rheumatic heart disease who died within a day of successful valve placement. The second patient, who was a truck dispatcher, underwent mitral valve replacement the following month, and lived for another nine years. Within a year Starr and his team (including **James Wood**, see Figure 3) had performed double and triple valve surgeries. This led to an explosion of valve surgery with OHSU as the Mecca for this procedure, to which came patients as well as surgeons from all over the world. Within six

Figure 5: Philip Amunsdon, a Starr-Edwards mitral valve recipient in October, 1960.



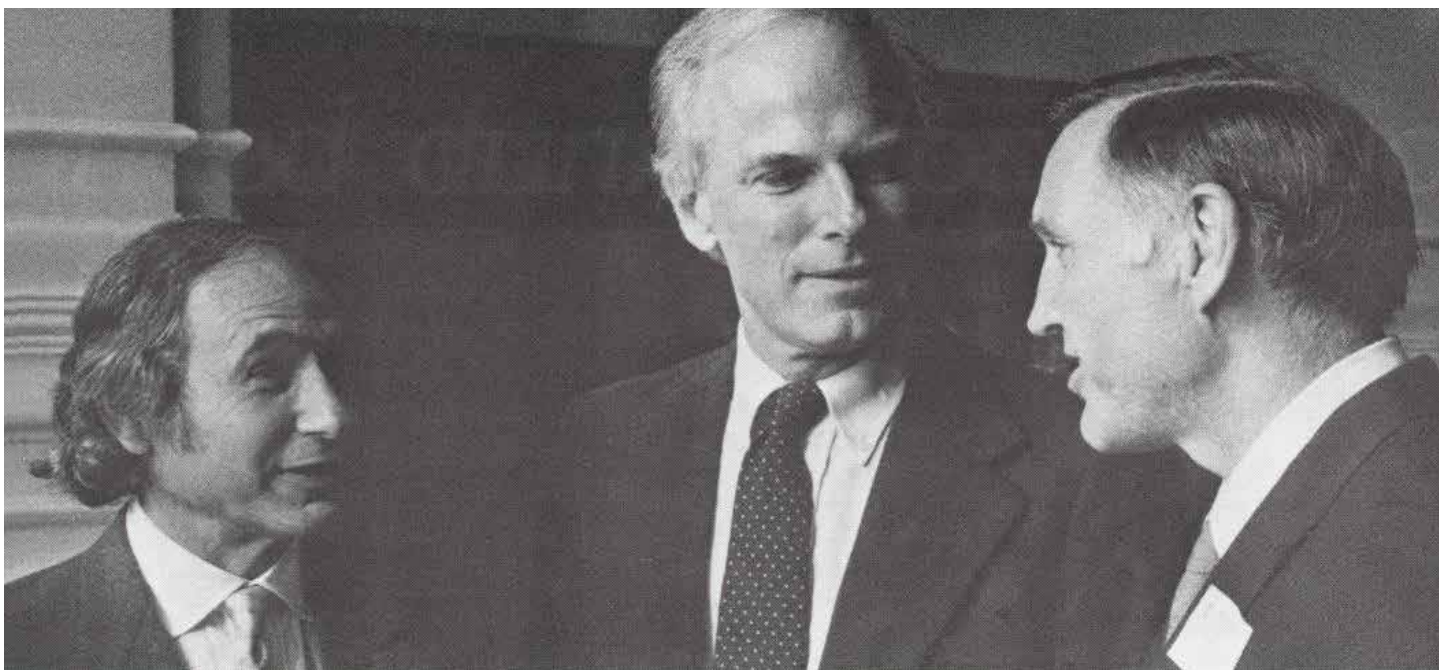


Figure 6: Albert Starr, Miles Edwards (son of Lowell Edwards and a pulmonologist at OHSU), and Frank Kloster at the announcement of the Lowell Edwards Chair in Cardiology.

years operative mortality decreased from 50 percent to 10 percent. Starr's team was the first to report on complications and outcomes of the valve. Edwards created a new company named Edwards Laboratory and asked Starr to be a part of it. Citing potential conflict of interest, Starr declined and instead requested that the valve be named Starr-Edwards rather than Edwards-Starr.

Donald Shiley worked at the Edwards Laboratory and was assigned to the development of the first ball-in-cage aortic valve. In 1961 five patients underwent aortic valve replacement but four of them died within two weeks. The valve was then redesigned and 10 of the next 11 patients survived the surgery. Shiley eventually started his own company that developed the Bjork-Shiley valve (Bjork was the surgeon with whom Shiley co-developed the valve), a tilting disk valve, which was first implanted in humans in 1971. Shiley sold his company to Pfizer.

In 1979 Edwards sold Edwards Laboratory for \$10 million and after some iterations, the company is now the very successful Edwards LifeSciences situated in California. At Edwards' death in 1985 at the age of

86, his family established a chair in Cardiovascular Medicine in his name at OHSU. The first (and current) occupant was **Kent Thornburg**, Ph.D., who at the time of appointment (2001) was in the Department of Physiology and moved to cardiovascular medicine in 2005 after my arrival at OHSU.

Starr performed the first coronary artery bypass surgery at OHSU in 1968. Cardiac surgery operations increased exponentially. OHSU did not have the capacity to accommodate all the patients who were coming from all over the world to Oregon for cardiac surgery (there were only six cardiac surgery beds at OHSU). David Baird set up the St. Vincent connection through his friends at the Portland Clinic who happened to practice at that hospital. The Portland Clinic bought a heart-lung machine for use at St. Vincent and more and more patients started being sent there for open heart surgery.

David Baird was replaced by **Charles Holman** as the dean of the school of medicine and J. Englebert Dunphy was replaced by **William Krippaehne** as chairman of surgery. Both felt that the medical school needed to perform all types of surgeries and could not

simply be a place for heart surgery. Despite protests from Herb Griswold and others, they mandated that paying patients should have their operations at St. Vincent hospital. To his last day Griswold thought it was the biggest blunder OHSU had ever made!

Starr performed the first cardiac transplant at OHSU in 1985. The patient was a 44-year-old man from Battle Ground, Washington. The donor heart was from a 27-year-old male who was killed during a break-in in Northeast Portland.

Other major surgical innovations of Starr were correction of total AV Canal by simplifying the technique using a single patch for the combined septal defect, primary correction of tetralogy of Fallot, correction of prolapsed aortic leaflet in congenital aortic incompetence by a free margin shortening procedure, and radical muscle excision for hypertrophic cardiomyopathy under echocardiographic guidance. Starr received numerous awards for his pioneering work including the Distinguished Scientist Award from the American College of Cardiology (1988) and the Albert Lasker Award (2008), which he shared with his friend Alain Carpentier.

In 1985 Starr became the director of the Heart and Vascular Institute of the Providence Health System. He and his group continued to operate at OHSU, the Portland Veterans Administration Hospital and Emanuel Hospital (pediatric patients). Then in 1990 he stopped all work at OHSU but retained his academic title. In 1999 he discontinued working at the Portland Veterans Administration Hospital as well. In 2010 he stepped down as the director of the Providence Heart and Vascular Institute and in 2011 he returned to OHSU as distinguished professor of cardiovascular medicine and special advisor for cardiovascular services to the president of OHSU and the dean of the school of Medicine. In January 2013 he became the first executive chairman of the Knight Cardiovascular Institute.



Figure 7: Harkness (Storm) Floten running with the donor heart for the first cardiac transplantation at OHSU.

Other prominent surgeons that Starr trained while at OHSU included James Wood (who was the principal surgeon in the early years at St. Vincent hospital); **Rodney Herr**, who was co-author on some of the early papers and later moved to Boise, Idaho; **Colin McCord**, another gifted academic surgeon who moved to New York City within a few years of completing training; **Larry Bonchek** who became chief of cardiothoracic surgery at the University of Wisconsin; **Aftab Ahmed** (Figure 3) who moved to the US from the United Kingdom to work with Starr; Hugh Gately; **Harkness (Storm) Floten** (Figure 7); **Jeffrey Swanson**; and **Adnan Cobanoglu**, a native of Turkey, who had trained in pediatric cardiothoracic surgery at Jefferson University in Philadelphia and had moved to Portland in 1981. He returned to Jefferson in 1983 to train in the newly developing field of transplant surgery. When Martin Lees moved from OHSU to Emanuel Hospital, Starr and Cobanoglu provided pediatric cardiac surgery services there as well.

When Starr moved to St. Vincent hospital in 1989, he inveighed upon Cobanoglu to remain at OHSU as head of the cardiothoracic surgery program and keep the heart transplant program going. Cobanoglu remained in that position until 1999 employing members of the Starr team as part-time employees,

including **Verappa Reddy** and **Ravi Ravichandran** (the latter moved full-time to the Portland Veterans Administration in 1994). Cobanoglu left for Turkey where he developed cardiac surgery programs in major medical centers in Istanbul and Ankara. He returned to the US in 2006 as the head of cardiothoracic surgery at the Case Western University, a position he has held ever since.

After Cobanoglu's departure in 1999, Floten returned to OHSU as head of cardiothoracic surgery. He hired **Ross Ungerleider** as chief of the Cardiac Surgery section in 2000, and when he left OHSU in 2003 Ungerleider assumed his position. **Matt Slater** came to OHSU for surgical residency in 1993 and stayed on to train in cardiothoracic surgery (1999-2001). He joined the faculty in 2001. **Howard Song** joined the faculty in 2004.

The early years of coronary angiography

Charles (Charlie) Dotter came to OHSU in 1952 as the institution's youngest (32 years old) professor and department chair. Prior to that he was at Cornell where he worked with Israel Steinberg in cardiac angiography. He was lured to Oregon by his friend Daniel Labby who was an internist at OHSU. Dotter was born in Boston on June 14, 1920. He earned his under-graduate degree from Duke University and his medical degree from Cornell (1944). After a tenure in

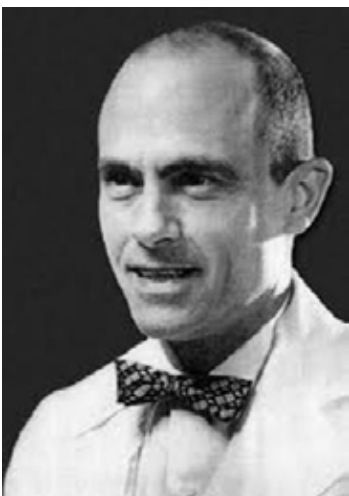


Figure 9: Charlie Dotter

the Army he completed his internship and residency in radiology at Cornell before becoming an assistant professor of radiology there in 1950.

Dotter had a major impact on cardiovascular radiology at OHSU and the world. He worked very closely with his



Figure 8: Albert Starr with friend Alain Carpentier at the Lasker Award ceremony (2008).

cardiology colleagues at OHSU. In those days, hemodynamic studies were first performed in the cardiac catheterization laboratory and then the patient would be either physically moved to the angiography suite or studied next day for angiography. There were no catheters that could access the heart. In fact, left atrial pressure was measured in the catheterization laboratory using a trans-bronchial approach. It was not until 1978 that both cardiac catheterization and coronary angiography were performed only by cardiologists at OHSU. In 1983 OHSU opened a brand new "Herbert Griswold Cardiac Catheterization Laboratory" with state-of-the-art biplane angiography. For many years coronary angiography, coronary interventions, and electrophysiological procedures were performed in this laboratory.

Before selective coronary angiography was developed, Dotter would inject contrast into the aorta via retrogradely placed catheters using the Seldinger technique (described in 1953) and either give acetylcholine in order to transiently stop the heart so the dye wouldn't clear, or even transiently occlude the aorta with a balloon. In those days placing a catheter in the heart was considered too dangerous. In order to disabuse this notion he once appeared at Medical Grand Rounds where he talked about the safety of taking pressure recordings directly from the heart and injecting dye directly into it. When challenged on the safety of such a "foolish approach," he directed the audience to a

screen where it could be seen on fluoroscopy that a catheter was present in his own heart while he was making his presentation.

Dotter was the father of interventional radiology, being the first to perform angioplasty on a peripheral artery. In his most famous case, Dotter used a guide wire and Teflon catheters to dilate a superficial femoral artery stenosis in an 82-year-old woman with limb ischemia and gangrene who was not an operative candidate. It was a successful procedure with the patient being ambulatory for the rest of her life. Unfortunately this procedure was not adopted in the US for years; instead it became popular in Europe and 13 years later the same procedure was first used in the coronary artery by Andreas Gruentzig in Zurich.

Akin to the relationship Starr had with Edwards, Dotter developed one with William Cook whom he met at a conference in 1963. Cook had started a company making hypodermic needles and wanted to get into

catheters. After Dotter made Cook some catheters from Teflon using a blowtorch, Cook became an ardent admirer and supporter. Dotter supplied the ideas and Cook supplied the money. Dotter died of heart disease in 1985. In April 1989 Cook donated \$2 million to start the Dotter Institute for Interventional Radiology, which was established a year later with **Josef Rosch** as the director. Fred Keller took over the directorship in 1993. The year before he had been named chairman of radiology, a position he held for 20 years. In 1978 Keller travelled to Zurich to see Andreas Gruentzig perform his seventh coronary angioplasty and was the first one to do them in Oregon. Rosch was highly respected by his cardiology peers and trained many cardiology fellows in coronary angiography. His cut-film coronary angiograms were considered works of art.

Figure 10: Charlie Dotter (right) with Bill Cook (left) at the 1963 RSNA meeting in Chicago



Dotter had the ability to attract the best. He brought to OHSU, among others, Melvin Judkins, Josef Rosch, and Fred Keller, all of whom made very important contributions to cardiovascular medicine. Judkins grew up in the Los Angeles area and loved to build things. He received his medical degree from the College of Medical Evangelists (now known as Loma Linda University). During his Army years he was head of Urology in Osaka, Japan. He then settled into private practice jobs first in the state of Washington and then in California. At the age of 39 he decided to do residency training in radiology at OHSU under Dotter. He was sent by Dotter to the Cleveland Clinic to learn coronary angiography from Mason Sones who had recently developed the brachial artery cut-down approach. He also visited the University of Lund in Sweden to learn the Seldinger technique. Upon return to OHSU in 1966 he developed preformed catheters for coronary angiography for the Seldinger percutaneous approach through the femoral artery. He started using these catheters in patients and published his experience in 1967.

In 1969 Judkins became professor of radiology and head of cardiovascular radiology as well as head of a research laboratory donated by a Charles Guttman on whose wife he and Charlie Dotter had performed a successful percutaneous peripheral artery angioplasty to save a limb. They travelled to New York to do this procedure and on returning received a check for half a million dollars from Mr. Guttman.



Figure 11: David Bristow on return from San Francisco

Mason Sones came to Portland to watch coronary angiography using the Judkins approach and on seeing the X-ray technician easily slip a preformed catheter into the left main artery screamed “Judkins, you have ruined me!” In 1970

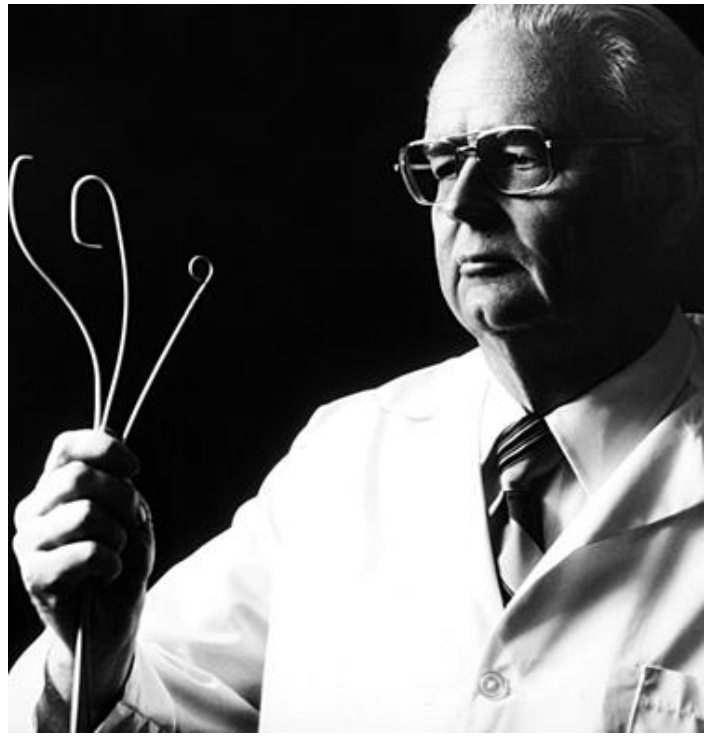


Figure 12: Melvin Judkins with his catheters

Judkins was invited back to Loma Linda as chairman of radiation sciences and director of cardiovascular radiology. Judkins and Sones co-founded the Society for Cardiovascular Angiography and Intervention (SCAI) in 1978. Judkins suffered a stroke in 1978 and stopped doing any procedures. He died in 1985. In 2014 a professorship in his honor was initiated by the Knight Cardiovascular Institute.

The Bristow years

David Bristow was born in Pittsburgh on December 7, 1928. His family moved to Oregon when he was 7 years old. He obtained his undergraduate degree from Willamette University in 1949 and his medical degree from OHSU in 1953. He served in the United States Navy from 1955 to 1957. He completed his internal medicine residency at the Portland Veterans Administration Hospital, which at that time had a residency program separate from OHSU. Bristow would later joke that Hod Lewis did not think him good enough to do his residency at OHSU. Nonetheless, he completed his cardiology fellowship at OHSU after which he was appointed Instructor in Medicine. He then

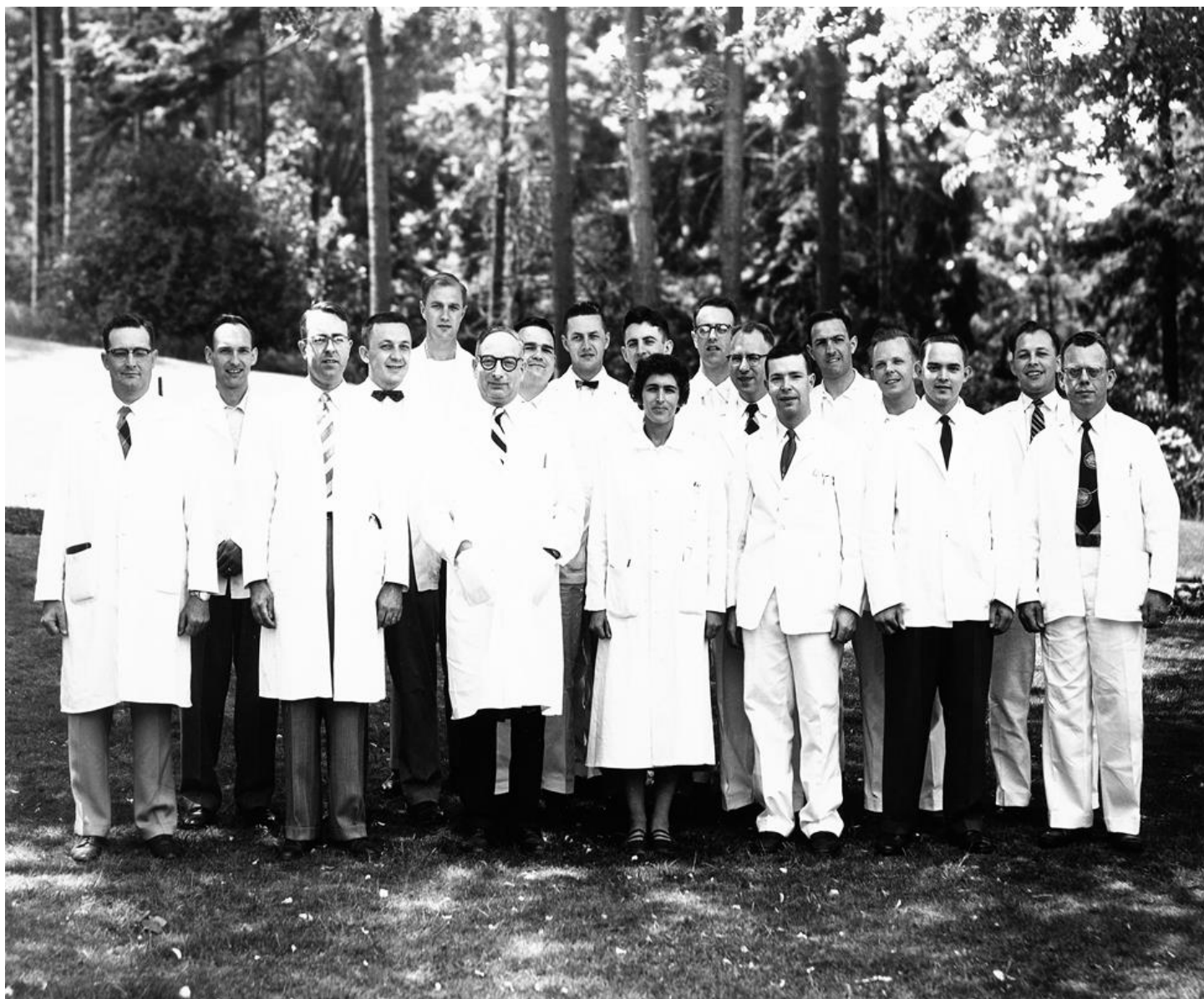


Figure 13: David Bristow (second from left) during medical residency at the Portland Veterans Affairs Medical Center. To his left is Leonard Ritzmann, chief of Cardiology at that time at the Portland Veterans Affairs Medical Center

went for a year to the Cardiovascular Research Institute in San Francisco to work with Julius Comroe. Upon returning in 1962 he was appointed assistant professor and director of the cardiac catheterization laboratory. In this capacity he worked very closely with Dotter and his team. It was during that decade that trans-septal approach for left atrial pressure measurement was described by John Ross, Jr. and the measurement of cardiac output was developed using Fick's principle. The cardiac catheterization laboratory became the principal site for investigating patients with heart disease.

Bristow spent a sabbatical year (1967-68) at the Radcliffe Infirmary at Oxford with Peter Sleight at which time Frank Kloster took over directorship of the cardiac catheterization laboratory. Upon returning from sabbatical Bristow was appointed the chief of the Medical Service for the University Hospital (Kassebaum was chief of the Medical Service at the Multnomah County Hospital).

In 1971, Bristow was appointed chairman of medicine and Laurence Selling Chair of Medicine at Hod Lewis' retirement. He served in this position until 1975, when he went for a second sabbatical to the Kaiser Foundation Health Services Research Center in

Portland. He moved to San Francisco in 1975 to head the Cardiology Section at the San Francisco Veterans Administration Hospital. He was appointed professor of medicine at the University of California in San Francisco and served as a senior staff member at the Cardiovascular Research Institute where he worked closely with Julian Hoffman. He returned to OHSU as professor of medicine in 1981 to direct the Cardiovascular Division fellowship and research programs until his retirement in 1992. In 1987 he took another sabbatical year at Oxford.

Bristow made major contributions to cardiovascular medicine, especially in valve and coronary heart disease. He published 105 peer-reviewed papers as well as 40 review articles and book chapters. With Kloster he performed the first NIH-funded prospective study in the 1970s that randomized coronary disease patients to medical versus surgical therapy and showed no benefit of surgical therapy. He also contributed to our understanding of myocardial hibernation. Other than research his great joy was teaching and training of fellows. Some of the fellows he trained after his return from San Francisco went on to become academic leaders elsewhere, such as Peter Kudenchuck (University of Washington), William Groh (Indiana University), George Wyse (University of Calgary), Edward McFall (University of Minnesota), Christopher Bensen (University of Iowa) and Andrew Arai (National Institutes of Health).

Bristow played leadership roles in the American Board of Internal Medicine, American Heart Association, National Institutes of Health (chairing the cardiology advisory council of NHLBI), American College of Physicians (Governor of Oregon Chapter in 1976), and Western Association of Physicians (President in 1985). As chairman of medicine, Bristow attracted many talented young faculty members to OHSU; important among these were William Connor and Shahbudin Rahimtoola. Bristow died on December 30, 1997 from prostate cancer at the age of 69. In 1998, friends and family established a lectureship in his name.



Figure 14: Donald Kassebaum

Donald G. Kassebaum was born in Portland on May 15, 1931. He attended Reed College and OHSU from where he graduated in 1956. His residency in medicine was at the Portland Veterans Administration Hospital and his fellowship in cardiology was at OHSU. This was followed by a year with Hans Hecht at the University of Utah to learn basic electrophysiology. Kassebaum returned to OHSU in 1962 as an assistant professor in the Cardiovascular Division and started working in the brand new Medical Research Building. He was initially funded by the Oregon Heart Association and later by the NIH. He was very productive in the laboratory for a decade and also started teaching electrocardiography to medical students and residents. He received many teaching awards. To quote DeMots: “He taught the residents with fear as the major tool. He made regular rounds on the wards and daily rounds in the intensive care unit as well. Even as fellows we would get corrections on our ECG interpretations signed only K, written in red and the front of the K made with a straight edge.”

In 1969 Kassebaum was appointed Chief of the Medical Service at the Multnomah Hospital (county hospital) while Bristow was given the same position at the University Hospital. Kassebaum became very interested in critical care and built the first emergency room and new intensive care units in that hospital. In the mid '70s the University and Multnomah hospitals were combined and he became director of both hospitals in 1975. By that time Multnomah County got out of the medical care business and sold the hospital to the medical school for \$1.00.

This gave the school a good clinical teaching base but saddled it with a large fiscal burden and made the hospital the place you went if you had no money.

Kassebaum also became involved in a number of university-wide initiatives including starting the faculty practice plan and developing business models for running the hospital. Kassebaum left OHSU in 1986 to become dean at the Oklahoma Medical School, after which he moved to the Association of American Medical Colleges (AAMC) in Washington D.C. where he headed the accreditation of medical schools for 11 years. He retired in 1999 and moved back to the Oregon Coast. He died on October 19, 2012. His recollections of the turmoil at OHSU in the '70s and '80s make interesting reading (www.ohsu.edu/library/ohmindex/interviewee.cfm?token=29).

The Heart Research Laboratory

The Heart Research Laboratory was founded by **James (Jim) Metcalfe** who was recruited to OHSU by Herb Griswold. Griswold had been instrumental in convincing the Oregon Heart Association to create a \$15,000 a year professorship in cardiovascular research at OHSU. Metcalfe was the first (and last) recipient of that professorship. Since Metcalfe had been on faculty at Harvard already for seven years he was owed a sabbatical (those glorious days!), which he took at the University of Tübingen in Germany before joining OHSU in 1961. Among the reasons for joining the faculty here, other than the job, was



Figure 15: James Metcalfe with a pygmy goat

the presence at OHSU of his previous Harvard colleagues: **John Benson** (Head of Gastroenterology and former Harvard roommate, who later became interim dean of the school of Medicine at OHSU and later the Chair of the American Board of Internal Medicine), J. Englebert Dunphy (chairman of surgery), and **Don Pitcairn** (head of pulmonary medicine and former fellow).

Metcalfe was born in New Bedford, Massachusetts on August 16, 1922. He received his undergraduate degree from Brown University and medical degree from Harvard. He completed his residency in internal medicine at what is now the Brigham and Women's Hospital in Boston (merger of Peter Bent Brigham and the Boston Lying-in Hospital). At the time of his move to Portland he was an assistant professor of medicine at Harvard Medical School, associate in medicine at the Peter Bent Brigham Hospital, and chief of medicine at the Women's Lying-in Hospital.

Metcalfe was allocated laboratory space on the 9th floor of the Medical Research Building and while it was being remodeled, he started working at the Oregon State University in Corvallis. He moved to his laboratory at OHSU a year later. Although Metcalfe en-

couraged all sorts of research projects in his laboratory, his own interest was on the effect of pregnancy on the mother and later on the physiological interactions between the pregnant woman and her fetus. He made seminal contributions on this subject using models from hen's eggs to pygmy goats. He was continuously funded by the American Heart Association and the NIH (a program project grant he held for 15 years). He also received a training grant from the NIH for 10 years. In the clinical setting he became an international authority on heart disease in women and published the first book on the subject with C. Sidney Burwell (then dean of the medical school at Harvard), which underwent a second edition with Jack McAnulty and Kent Ueland (Chairman of Obstetrics and Gynecology at Stanford) in 1986. He contributed a book chapter to Hurst's "The Heart" on this subject in 1998 with revisions for each successive edition until now.

Metcalf had a legendary secretary, **Jean Matsumoto**, who managed the Heart Research Laboratory. While Metcalfe had dozens of scientists working in his laboratory over the years, the physicians from cardiology and pediatric cardiology who worked with him as trainees or colleagues included William Neill, George Porter, Frank Kloster, David Bristow, George Pantely, Mark Morton, Jeffrey Hosenpud, Martin Lees, **Robert Campbell**, and Richard Selden. Metcalfe also collab-

orated with another star in cardiovascular medicine at the Oregon Regional Primate Center (which at that time was not part of OHSU), Rene Malinow. Later **Job Faber** and Kent Thornburg from the department of physiology also became major collaborators. Metcalfe published 187 peer-reviewed papers in major scientific journals.

Metcalf retired from OHSU in 1986 and worked full time for the Portland Veterans Administration Hospital. He served as chief of staff in the Extended Care Division in Vancouver, Washington, until 1993. After retirement from the Portland Veterans Administration Hospital he became a full-time horticulturalist. He received many awards including the American Heart Association Distinguished Scientist Award (1972), Alexander von Humboldt Award (1976), and the American Heart Association Outstanding Service Award (1982). In 2011 he became professor emeritus at OHSU. In 2010 the Cardiovascular Division established a named lectureship in his honor. In 2012 he celebrated his 90th birthday with family, friends, and colleagues. In 2014 the lectureship was converted to a Chair and the first recipient was **Nabil Alkayed**, PhD, a vascular biologist who was vice-chairman for Research in the Department of Anesthesiology.

After Metcalfe's retirement, the Heart Research Laboratory morphed into the Heart Research Center under the leadership of Kent Thornburg. In 2013 it got folded into the Knight Cardiovascular Institute, as the Center for Developmental Origins of Health and Disease.

Metcalf recruited **William Alexander Neill** to OHSU as a member of the Heart Research Laboratory. Neill was born on March 4, 1929 in Nashville, Tennessee. His father was a microbiologist at Vanderbilt University who later moved to New York where Neill was raised. Neill had a fascination with science early on and was intrigued by butterflies in his teens. He graduated from Amherst College and obtained his medical degree from Cornell University, where he stayed on for medical internship before moving to the Center for Communicable Diseases (CDC) in Atlanta for



Figure 16: Members of the Metcalfe Laboratory: Front row includes: George Pantely (extreme left), Jeffrey Hosenpud (second from left), Jean Matsumoto (center), James Metcalfe (third from right), and Mark Morten (extreme right).

two years. He did a year of medical residency at Boston University (then called Massachusetts Memorial Hospital) following which he moved to the Peter Bent Brigham Hospital to do a fellowship in cardiology with Richard Gorlin, one of the fathers of modern cardiology. It was there that he started his research career in cardiovascular medicine and where he trained to perform cardiac catheterization. Upon completion of two years of cardiology fellowship, Neill moved back to Boston University to do a research fellowship with William E. Huckabee whom he greatly admired.

In 1963 Neill was recruited to OHSU as an assistant professor of medicine. His main aim was to do basic and clinical research and not spend much time with patients. He succeeded in that aim until 1970 (he was promoted to associate professor in 1967) when he was called by Griswold while he was on sabbatical in Dusseldorf, Germany, working with Wilhelm Lochner, and was asked to become chief of cardiology at the Portland Veterans Administration Hospital. He served in that position until 1976 and this required him to spend less time in the laboratory.

Neill's research interest was myocardial metabolism and coronary ischemia. His basic work was mostly in the canine model and his clinical research was based in the cardiac catheterization laboratory. He was the first to show that patients with acute coronary syndrome had phasic and spontaneous reductions in coronary blood flow at rest. He published extensively in high impact journals. It was Neill who introduced the TOFS (try on for size) conference at OHSU where people could present research ideas for criticism and feedback. This conference continues to this day. In 1971 the coronary care unit and the adjacent cardiac laboratory were established to facilitate care and investigation of acutely ill patients at the Portland Veterans Administration Hospital.

In 1976 Neill was recruited back to Boston, to Tufts University by Herbert Levine, where he served as professor of medicine until 1984 and chief of the Cardiology Section at the Boston Veterans Administration



Figure 17: William Neill in his laboratory with two technicians.

Hospital from 1976 to 1981, and then as director of cardiac rehabilitation from 1981 to 1984. In 1984 he was recruited by Joseph Messer to become chief of cardiology at one of the affiliate hospitals (MacNeal Hospital in Berwyn) of Rush University in Chicago. He served in that position and was a professor of medicine at Rush University until 1990 when he retired and moved back to Portland with his wife and has remained here since.

Neill resurrected his passion for butterflies after returning to Oregon and has published books on butterflies of the Pacific Northwest. He was gracious enough to present me with a 2007 edition of his "Butterflies of the Pacific Northwest." Some of the photographs in the book are also taken by him.

Cardiovascular science at the Oregon National Primate Research Center

Cardiovascular science at the Oregon National Primate Research center was initiated by **Manuel Rene Malinow**. Malinow was recruited to the Primate Center in 1963 as the director of cardiovascular diseases research. At that time the Primate Center was not a part of OHSU. Malinow was born in Buenos Aires on February 27, 1920 and graduated from the Buenos Aires Medical School at the age of 23. He completed a fellowship in cardiology at the Michael Reese Hospital in Chicago. He was practicing medicine in Buenos Aires when he was hired to work at the Oregon National Primate Research Center, where he remained as chief



Figure 18: Rene Malinow

of cardiovascular diseases for 40 years. He was among the first to show the importance of exercise, cholesterol and homocysteine in heart disease. He published more than 300 papers on atherosclerosis and lipid-lowering therapies and was among the first to demonstrate regression of atherosclerosis. He mentored many scientists over three continents before retiring in 2004. He died on April 20, 2010 at the age of 90.



Figure 19: Frank Kloster

Kloster was appointed instructor in medicine at OHSU in 1965 after completion of his cardiology fellowship. The following year he was appointed assistant professor and became associate professor in 1970. In 1972 he went for a year to Erasmus University, Rotterdam, to train in the new field of echocardiography with Jos Roelandt, one of the pioneers in the field. Roelandt and his colleagues (especially Nicholas Bom) were innovators not only in the clinical but also the engineering aspects of echocardiography, including the development of one of the earliest two-dimensional imaging systems. Kloster returned with a prototype two-dimensional system and set up the first echocardiography laboratory at OHSU. He continued to collaborate with the Rotterdam group and Roelandt himself spent a sabbatical at OHSU in 1976-77. Roelandt died in 2014 at the age of 80.

After returning from his sabbatical Kloster was appointed division head and was promoted to professor of medicine the following year. From 1982 to 1983 he served as vice-chairman of medicine during which time he went for another sabbatical (this time to University of Goteborg in Sweden). Upon his return he

The Kloster years

In 1973 **Frank E. Kloster** was appointed the second head of Cardiovascular Medicine at OHSU after Griswold stepped down. Kloster was born in Forest City, Iowa on December 27, 1929. He received his undergraduate degree from the Iowa State University and his medical degree from the University of Iowa. He interned in internal medicine at the Mt. View General Hospital in Tacoma, Washington, and completed his internal medicine residency at the Portland Veterans Administration Hospital followed by a fellowship in cardiology at OHSU. Between his internship and residency he was a general practitioner for two years in Osage, Iowa.

served as acting chairman of medicine during George Porter's sabbatical year (1983-84). He stepped down as division head in 1985 and until 1991 he served as the director of the electrocardiography and echocardiography laboratories, after which George Pantely assumed the echocardiography laboratory and Jack Kron the electrocardiography laboratory responsibilities. Kloster retired at the end of 1991 and became professor emeritus in 1992. Since then he has been a forest tree farmer in Newberg. Porter retired as chairman of medicine in 1994 and was replaced by **D. Lynn Loriaux** who served in this position until 2012.

The Faculty Practice Plan was initiated at the beginning of Kloster's tenure as division head. Prior to that time all faculty income came from the state and patients who had no insurance were not billed for their care. Patients were accepted based mostly upon the academic interest of their disease. The additional income from billing the patient's insurance company allowed the medical school to expand, the faculty to become stabilized, and research to grow. The plan

started slowly but has now become the dominant source of faculty income. Until that time the cardiologists practicing in the community like **Donald Sutherland** (Figure 3) came to the University and the Portland Veterans Administration Hospitals to teach and attend in clinics and wards.

Kloster was a master clinician and teacher. He also had great empathy for internists and family practitioners and considered it a mission to impart state-of-the-art cardiovascular knowledge to this group. He started an annual cardiovascular conference for the general practitioner at Salishan in 1978. This conference, given by faculty members of the Cardiovascular Division, is still held every year and draws physicians from Oregon and surrounding states.

During his tenure as head of the division, Kloster recruited many talented physicians to the division including fellows who had graduated from OHSU: Henry DeMots (initially at the Portland Veterans Administration Hospital and then at the University), Jack McAnulty, Edward Murphy (to the Portland Veter-

Figure 20: Frank Kloster examining a patient with a multi-element 2-dimensional prototype echocardiograph



ans Administration Hospital), Mark Morton, George Pantely, Jeffrey Hosenpud, George Giraud and Robert Palace (to the Portland Veterans Administration Hospital), Jack Kron, Ronald Schutz, and **Warren Sherman**. Sherman stayed on faculty for only a year before moving to New York City. The people recruited by Kloster from outside OHSU were Richard Selden (to the Portland Veterans Administration Hospital), Barry Greenberg, Warren Walsh, Richard Wilson, and David Bristow (as a returnee from the San Francisco Veterans Administration Hospital).

In 2014 the Knight Cardiovascular Institute endowed a Pepoon-Kloster Lectureship in cardiovascular medicine. The Pepoon family was a benefactor of cardiovascular medicine at OHSU.

Figure 21: John Porter in the early years at OHSU



Vascular surgery at OHSU

The Division of Vascular Surgery was established at OHSU in 1971 and **John Marshall Porter** was appointed the first chief of Vascular Surgery. Porter was born in Concord, North Carolina, in 1938. He obtained both his undergraduate (1959) and medical (1963) degrees from Duke University and completed his surgical residencies (General, Thoracic, and Vascular) there as well before being recruited to OHSU. He served as chief of Vascular Surgery for 29 years until 2000. He directed OHSU's General Clinical Research Center (GCRC) for 25 years and served for 10 years both as an associate editor of the Journal of Vascular Surgery and as editor of the Yearbook of Vascular Surgery. He founded the Association of Program Directors in Vascular Surgery and served as its first president. Over his career, Porter authored 665 articles in the field of vascular surgery and supervised the training of 20 vascular surgeons at OHSU, some of whom have attained national and international stature. Porter died on June 1, 2001, at the age of 62, five days after surgery for a quadriceps tendon rupture. Friends and colleagues remember Porter as a man with diverse interests. He was equally enthusiastic discussing points of surgical technique with local surgeons at his weekly Saturday morning conference (that is still operative), debating the merits of French versus Oregon wines, critiquing fine restaurants throughout the world, as well as proclaiming what lure he believed produced the best results for salmon or steelhead on his beloved Lewis River in Southwest Washington.

Jerry Bauer was recruited to the faculty by Porter in the 1970s. Bauer had trained at OHSU in General Surgery before there were Vascular Surgery fellowships. Porter and Bauer started the Vascular Laboratory and hired all the initial staff members for the laboratory who at that time were all critical care nurses. Bauer stayed at OHSU for about 12 years before moving to private practice in Boise for family reasons. He died of pancreatic cancer about 10 years ago.

During those early years **Daniel Dennis** and **Bolek Brant**, who were general surgeons at OHSU, also did some vascular cases. Both eventually went into private practice in Portland and are now retired. Bauer was replaced by **Lloyd Taylor**, the first OHSU Vascular Surgery fellow who graduated from the program in 1983 (Duke medical school, OHSU General and Vascular Surgery). Taylor spent his entire career at OHSU. He retired early and is now living on a boat and sailing in Mexico. He was an outstanding clinical surgeon, held NIH grants for many years, and was very well known and respected nationally. Porter hired **Greg Moneta** on faculty in 1988 after Moneta had completed training at the University of Washington with the intention of splitting his time between OHSU and the Portland Veterans Administration Hospital. He also helped with the trauma service for a few years. By that time Porter's health was failing and for many years Taylor and Moneta did most of the surgery. Porter was still active for selective cases and participated fully in the clinic, and of course was still academically and politically very active nationally in vascular surgery. After about five years Moneta moved full time to OHSU and gave up doing trauma. Moneta was replaced at the Portland Veterans Administration Hospital by **James Edwards** (OHSU General Surgery, University of Washington Vascular Surgery), who later became chair of surgery there before retiring in 2013.

Donald McConnell trained at OHSU in General Surgery and for many years did general and vascular surgery at the Portland Veterans Administration Hospital and Vascular Surgery on an on-call basis at the University. McConnell was a "man for all seasons" and a tremendous supporter of the Department of Surgery on the Hill. He took trauma and ICU call as well as general and vascular surgery call at the University and at the Portland Veterans Administration Hospital. He started the bariatric surgery program on the Hill. While in practice he was everyone's "go to" general surgeon. He spent his entire career at OHSU and is now retired in Portland.

Richard Yeager trained in general surgery at OHSU and vascular surgery in New Jersey. He spent his entire academic career at the Portland Veterans Administration Hospital. He achieved the rank of professor and was well-recognized as an expert in vascular graft infections, cardiac assessment of the vascular patient, and complications of dialysis access. He was the rock of vascular surgery at the Portland Veterans Administration Hospital for more than 20 years. He was an excellent clinical surgeon with terrific judgment in complicated cases. He is mostly now retired but still does a few cases and clinics at the Portland Veterans Administration Hospital.

Some of the people who trained at OHSU have gone on to outstanding academic careers and have become chiefs of Vascular Surgery at other institutions: **Mark Nehler** at the University of Colorado; **Joseph Mills** at the University of Arizona; **Ronald Dalman** at Stanford University; and, **Amed Abouzamzam**, at Loma Linda University. Additional academic stars include: **Marc Passman**, professor of vascular surgery at the University of Alabama, **John Harris**, professor of vascular surgery at Stanford University, and **Robert McLafferty** who became professor of vascular surgery at Southern Illinois University and then returned to Portland in 2013 to replace Edwards as the chair of surgery at the Portland Veterans Administration Hospital. This is probably the best record for any division at OHSU.

In 2000, citing poor health, Porter stepped down as division chief, and Moneta was appointed chief of vascular surgery. From then until 2005 he hired **Greg Landry** and **Timothy Liem** to the division.

Lipidology at OHSU

William E. Connor was recruited to OHSU from the University of Iowa by David Bristow in 1975. Connor was born on September 14, 1921 in Pittsburgh and grew up in Dubuque, Iowa. Connor studied at the University of Iowa before and after serving in the U.S. Army Signal Corps during World War II. He received his medical degree in 1950 and trained in medicine in



Figure 22: William Connor

San Francisco and Stockton, California as well as Iowa City. In between he also managed to do two years of private practice in Chico, California. After two additional years as a research fellow at the University of Iowa he was appointed an assistant professor of medicine there in 1958. Ten years later he was appointed as the director of the Clinical Research Center and the principal investigator of a NIH Specialized Center of Research grant at the University of Iowa. In 1974 he became the head of the lipid-atherosclerosis section of cardiovascular medicine. It was that year that he discovered the rare atherosclerotic genetic disease called sitosterolemia.

From 1975 to 1990 Connor was professor of medicine at OHSU with appointments in both the Divisions of Cardiology and Metabolism and from 1990-1992 he served as head of the Division of Endocrinology, Nutrition and Metabolism. From 1992 until his death

at the age of 88 on October 25, 2011 he continued to work in the Endocrinology Division. He published 400 original peer-reviewed papers and with his wife, Sonja Connor, a nutrition scientist, he published three books for lay people, including the famous *The New American Diet* which was based on data gathered from the Family Heart Study, conducted from 1978 to 1984 and involving 233 Portland families. The Connors were most known for their studies on the mechanisms of omega-3 fatty acids, such as fish oil, for preventing heart attacks. Connor also demonstrated omega-3's nutrient value for infants, which led manufacturers to improve infant formulas. He was also an avid athlete (biked every day to work) and lobbied for years to persuade a private landowner to grant an easement to the Marquam Hill Nature Park; the park's newest trail, near OHSU, is known as the Connor Trail. Toward his end he was working on the relation between the antioxidant lutein and macular degeneration.

When Connor moved to OHSU, one of his goals was to combine the excellent coronary arteriography here with his prevention of coronary artery disease strategies and prove that cholesterol lowering would reduce the progression or cause regression of coronary artery disease. One of the NIH reviewers had experienced the death of a patient during a research study and convinced the other reviewers that the study should not be funded. That ended the study of patients with coronary angiography for research purposes at OHSU. Later he worked with Jack McAnulty to do a study on fish oils in preventing sudden death in patient with defibrillators and with Edward Murphy on cholesterol metabolism in coronary plaque. He also conducted a study with Jack McAnulty and Merritt Raitt in the use of fish oils in the prevention of sudden cardiac death.

In 2014 the Knight Cardiovascular Institute established the Sonja and William Connor Chair in Cardiovascular Medicine and the first recipient of this chair was **Sergio Fazio**, M.D., a nationally prominent lipidologist who was recruited to OHSU from Vanderbilt University.

Another major collaborator of the Connors and members of the cardiovascular division was **David Roger Illingworth** who was born in London on August 2, 1945, and received his bachelors and Ph.D. degrees from University of Liverpool. He then worked first as a research associate and then as an assistant scientist for four years starting in 1970 at the Oregon National Primate Center. In 1974 he went to the University of Miami, Florida, for a two-year medical school for students with a Ph.D. He returned to OHSU in 1976 to complete a residency in internal medicine and fellowship in endocrinology (1976-80) and worked with the Connors while he was a resident. In 1980 he was appointed assistant professor of medicine in the Division of Endocrinology, Metabolism and Nutrition, and in 1983 was promoted to associate professor. In 1988 he became professor of medicine and succeeded Connor in 1992 as the head of the Endocrinology, Metabolism and Nutrition Division.

Figure 23: Roger Illingworth



Illingworth stepped down in 2004 because of serious illness and was named emeritus professor of medicine. He had an illustrious academic career publishing 163 peer-reviewed papers, 37 book chapters, and three books. He served as a member of the expert panel for the National Cholesterol Education Program from its inception and on the Endocrine and Metabolic Disorders Advisory Committee to the US Food and Drug Administration. He was founding member of the American Board of Lipidology and served as a member of the National Institutes of Health Nutritional Study Section. He died on November 4, 2018 at the age of 68.

Like Connor, **Shahbudin Rahimtoola** was also recruited to OHSU by David Bristow. At that time he was chief of cardiology at the Cook County Hospital in Chicago and an associate professor of medicine at the University of Illinois. He came to OHSU in 1972 as professor of medicine and director of cardiac research and the Cardiac Catheterization Laboratory. He was born in Bombay (now Mumbai) on October 17, 1931. His family moved to Pakistan after the partition of British India and he graduated from the Dow Medical School in Karachi in 1954. He became a member of the Royal College of Physicians of Edinburgh in 1963 and was awarded a fellowship of the college in 1972. He came to the United States in 1963 as the co-director of the cardiac catheterization laboratory at Mayo Clinic before moving to Illinois in 1969.

Here is an excerpt from Henry DeMots regarding Rahimtoola: “He was a dynamic clinician and soon became popular with the residents and fellows. He involved the fellows in several research projects. Each fellow selected a research project and would complete it. It was in the days before the word processor and a mistake or change on page 2 of a long paper would often require retyping of the entire manuscript. One day one of the fellows found him sleeping in the faculty lounge and reported back to the rest of the fellows: ‘He sleeps.’ The research within the division with Rahimtoola’s leadership was very active and the division members



Figure 24: Shahbudin Rahimtoola while at OHSU

presented regularly at national meetings. He cast a continually broad shadow because of his boundless energy. During his time in Oregon he lectured and taught broadly throughout the state and everyone knew him.”

In 1980 Rahimtoola left OHSU to become the first George C. Griffith professor of cardiology, an endowed chair supported in part by the American Heart Association-Greater Los Angeles Affiliate, at the University of Southern California. He also became the chief physician at the Los Angeles County Hospital and University of Southern California Medical Center. In 1993 he was awarded the title of distinguished professor, University of Southern California. He still holds these positions and is one of the most respected senior cardiologists in the US today.

During the eight years he was at OHSU, Rahimtoola authored 109 papers from work done at OHSU (in

addition to several others from work done before at Cook County). At that time he made seminal contributions to our understanding of the issues related to valve replacement and coronary bypass surgery. He was at OHSU when he described the hibernating myocardium and patient prosthesis mismatch. Some of his seminal papers from OHSU changed the practice of medicine, such as valve replacement in aortic stenosis patients with heart failure and the lack of need for cardiac pacing in bifascicular block. Almost all fellows and faculty at OHSU co-authored a paper with him at one time or another. Rahimtoola still owns a home in Sunriver and visits Oregon frequently.

Heart failure and transplantation at OHSU

Barry Greenberg established the heart failure program at OHSU. A native of Brooklyn, New York, he came to OHSU as an assistant professor of medicine in 1977 after completing a fellowship in cardiology at the University of California in San Francisco. He received his medical degree from the Upstate New York Medical Center in Syracuse followed by internship and residency in internal medicine at Georgetown and Yale Universities, respectively. He also spent two years at the National Institutes of Health with Fredrickson and Levy.

Greenberg was instrumental in introducing the concept of afterload reduction in heart failure and was a principal investigator in several large heart failure trials. He rose to the rank of associate professor in 1981 and to professor in 1987. From 1977 to 1992 he directed the coronary care unit at OHSU, which he used as a laboratory for many of his studies. He went to Hammersmith Hospital, London, for his first sabbatical (1984-1985) and to the Laboratoire de Médecine Expérimentale college de France in Paris for his second sabbatical (1991-1992). In 1995 he moved to the University of California at San Diego, where he is still professor of medicine and director of the Advanced Heart Failure Treatment Program. Greenberg was well funded through the American Heart Association, the NIH, and industry. He published

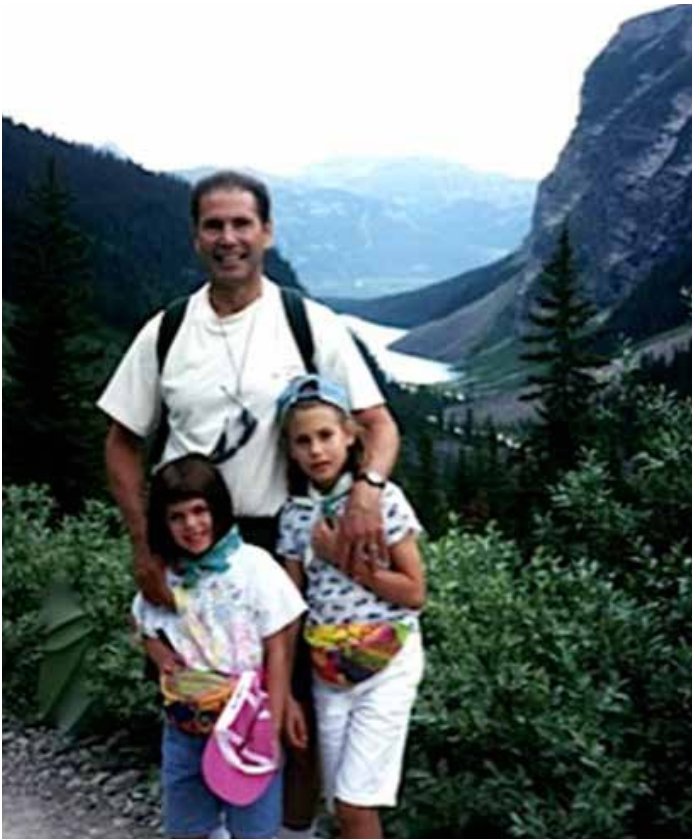


Figure 25: Barry Greenberg with his daughters at the Columbia Gorge

approximately 70 full-length peer-reviewed papers while at OHSU. He continues to be most productive in his current job as well. Among his many accomplishments was being a founding member of the Heart Failure Society of America and later becoming its president.

Another faculty member who contributed greatly to heart failure and transplantation at OHSU was **Jeffrey Hosenpud**. Hosenpud was born on November 21, 1951, and received his undergraduate and medical degrees from the University of California at San Diego and Los Angeles, respectively. He completed a residency in internal medicine at the University of Washington and a fellowship in cardiovascular medicine at OHSU. He went to Stanford for some additional training in echocardiography and was then appointed instructor in medicine at OHSU and was subsequently promoted to assistant professor in 1983 and associate professor in 1988. He became professor of medicine in 1993 and moved to Milwaukee in 1994 as the divi-

sion chief of cardiovascular medicine at the Medical College of Wisconsin, a position he held until 1998. He stayed in Milwaukee until 2007 and then moved to his present position as professor of medicine at the Mayo Clinic in Jacksonville, Florida.

While at OHSU, Hosenpud served as director of the noninvasive laboratory (1982-86) as well as associate director (1985-87), and then director (1987-94) of the cardiac transplant program. He was present at OHSU when the first heart transplant was performed and he built a solid foundation for cardiac transplantation at OHSU. He published 63 papers while he was at OHSU along with 4 books (with Greenberg as co-editor) and 13 book chapters. Hosenpud and his team were initially responsible for the excellent long-term outcomes in heart transplant patients at OHSU, which consistently have beaten the national average since the inception of the program in 1985. After Hosenpud left OHSU, **Ray Hershberger** continued to maintain the high standards and was joined later by **Cindy Peters**, **Ranae Ratkovec**, **Kathy Crispell**, **Andrew Kao**, **Alicia Ross**, and **Rami Alharethi**. The transplant co-ordinators **John Caster** and **Debra Penk** were already here.

Ranae Ratkovec was born on February 13, 1957. She received her associate degree in nursing and her medical degree from the University of Nebraska in Omaha (the latter in 1984). This was followed by an internal medicine residency at the University of Wisconsin in Madison and fellowships in cardiology and cardiac transplantation at the University of Utah in Salt Lake City. She was appointed assistant professor of Medicine at OHSU in 1991 and remained here until 1996 when she left to start a cardiac transplant program at St. Vincent Hospital. She is still in practice in Portland.

Kathy Crispell was born in Tucson, Arizona on June 20, 1952. She received her Bachelor's degree from California State University in Sacramento in 1975 following which she went to nursing school and received her Advanced Nurse Practitioner degree from the University of California in San Diego in 1982. She then decided to go to medical school and

obtained her medical degree from Tulane University in New Orleans in 1990. She moved to Portland to complete a residency in internal medicine followed by a fellowship in cardiology at OHSU. She was appointed as an assistant professor at OHSU in 1996 and remained in that position until 2001, when she moved to the Portland Veterans Administration Hospital. In 2003 she moved to the Kaiser system. She is currently the chief medical officer of the Kaiser Permanente system for the Northwest and continues to live in Portland.

Adult congenital heart disease at OHSU

Initially investigation of all congenital heart disease (adults and pediatric) was performed in the cardiology division since there were no pediatric cardiologists at OHSU. The cardiology fellows and attending physicians would make rounds on the pediatric floor in the hospital and see outpatients at the Crippled Children Clinic. Griswold and **Richard Sleeter** established the Congenital Heart Clinic in 1954 and they were together responsible for bringing Starr to OHSU using a grant from Maternal and Child Health.

Victor Menashe, who was a resident in pediatrics, became interested in cardiac disease in children and worked closely with Griswold, Bristow, and others in the cardiac catheterization laboratory. In 1962 Martin Lees arrived from Boston as chief of pediatric cardiology and took over cardiac catheterization of babies. He was soon followed by Cecille (Sunderland) Beyl and the pediatric cardiology group grew after that.

Menashe was born on July 13, 1929 in Portland. He received his undergraduate and medical degrees from the University of Oregon and completed his residency in Pediatrics at OHSU (1953-1956) after which he served for two years as chief of pediatrics at the Edwards Air Force Base. He returned to OHSU in 1958 as an instructor in pediatrics and was promoted to assistant professor two years later. In 1964 he became associate professor of pediatrics and associate director of the Crippled Children Division in 1967. In 1972



Figure 26: Victor Menashe with a patient

he became professor of pediatrics and director of the Crippled Children Division, a position he held until 1984. He was appointed head of pediatric cardiology in 1987 and in 1995 he became professor emeritus of pediatrics.

Although the pediatric outreach program was initially developed by Sleeter and Griswold, Menashe enhanced it considerably. He worked with George Pantely and Mark Morton to develop the Adult Congenital Heart Disease (ACHD) Program at OHSU. Many of the patients he and his team saw as children and were operated on by Starr and his team are now our patients. Menashe continued to attend the ACHD clinic until June, 2014, when he retired from OHSU. In 2014 A professorship was initiated in his honor.



Figure 27: Mark Morton on his last day in the Cardiac Catheterization Laboratory at the Portland Veterans Administration Medical Center.

Echocardiography at OHSU

Frank Kloster brought echocardiography to OHSU in 1973. He directed the laboratory again after stepping down as chief of cardiology. Others involved in the echocardiography laboratory included Hosenpud (directed the laboratory from '82-'86), Warren Walsh, Ronald Schutz, and Bruce Shively. **George Pantley** directed the echocardiography laboratory from 1990 to 2005.

Warren Walsh was born on September 17, 1942 in Sydney, Australia. He graduated from medical school at the University of Sydney in 1965. He completed an internship and residency in internal medicine at the Prince Henry, Sutherland, and Concord Hospitals in Sydney. He trained in cardiology at the Hammersmith and London Chest Hospitals in the United Kingdom as well as the University of Chicago from where he was hired to OHSU in 1976 as an assistant professor of medicine and from 1977 to 1979 he directed the echocardiography laboratory. He returned to Australia in

January 1980 and has been at the Prince Wales Hospital in Sydney ever since.

Ronald Schutz was born on September 4, 1950 in Chicago, Illinois. He received his undergraduate and medical degrees from the University of Illinois in Urbana and Chicago, respectively and stayed on in Chicago to complete his internal medicine residency at the University of Illinois before moving to OHSU for a fellowship in cardiology. He stayed on as a faculty member (assistant professor) for two years (1980 to 1982) where he served as the director of the echocardiography laboratory before moving to the Good Samaritan Hospital as director of the echocardiography laboratory there. He continued to read echocardiograms at OHSU for several years afterwards. He is now an entrepreneur and owns a company that has developed a miniature ultrasound system in collaboration with the Department of Defense.

Cardiac Catheterization Laboratory at OHSU

The Cardiac Catheterization Laboratory, started in 1950, was directed by several individuals as noted before. After Rahimtoola left, it was directed by Jack McAnulty until 1987, when **Mark Morton** was appointed the director. Morton was born on July 26, 1944 in San Antonio, Texas. He received his undergraduate degree at Northwestern University in Chicago and his medical degree at Ohio State University in Columbus in 1970. He completed three years residency and an additional year as chief medical resident at Yale before moving to Portland for a fellowship in cardiology at OHSU (1974-76).

After serving two years in the Navy, Morton returned as research fellow to OHSU to work in Metcalfe's laboratory for two years after which he was appointed assistant professor of medicine in 1980. He was promoted to associate professor in 1985. In 1987 he took over as director of the cardiac catheterization laboratory when Jack McAnulty decided to solely direct the arrhythmia service. In 1991 he was appointed professor of medicine and he retired from OHSU in 1999 at the age of 55, something he had planned for a long time. He had continuous NIH funding as a principal investigator from 1986 to 1994. During his academic career he published 46 full-length papers and 25 book chapters/review articles. He now lives in Redmond, Oregon.

After Morton left, **Leonard Christie** was appointed temporary director of the laboratory. Christie had been in private practice in Eugene until then. He had been trained in cardiology at University of California in San Francisco and Johns Hopkins, following which he had been on faculty at Dartmouth and the University of Florida for almost a decade before joining private practice. After two years at OHSU he returned to Johns Hopkins for a master's in public health. He later returned to private practice in Portland.

Christie was replaced in 2001 by **Charles Cannan** who had been recruited the previous year from the

Richmond Veterans Administration Hospital in Virginia where he had been on faculty. Cannan, a native of South Africa, received his medical degree from Cape Town University. After completing two years of medicine training in Cape Town he moved to the Mayo Clinic in 1989 where he completed an Internal medicine residency and cardiology fellowship. This was followed by an interventional cardiology fellowship at Brown University before being appointed to his first faculty position in Virginia in 1996. Cannan remained at OHSU until the spring of 2002 when he moved to Vancouver, Washington, to join the Vancouver clinic. After he left **Crispin Davies** was appointed director of the cardiac catheterization laboratory, a post he held until the end of 2005. Cannan now works for the Providence Health System in Portland.

Nuclear cardiology at OHSU

Nuclear cardiology services at OHSU were provided by the Nuclear Medicine Department except from 1983 to 1996, when **Richard A. Wilson** served as a nuclear cardiologist here. Wilson was born on March 12, 1949 in Middletown, Connecticut. He did his undergraduate studies at Bowdoin College in Maine and received his medical degree from St. Louis School of Medicine in St. Louis, Missouri in 1975. He completed



Figure 28: Rick Wilson (extreme right) during a birthday party celebration for him. On his right is Barry Greenberg and fourth from right is David Bristow

an internal medicine residency at the State University of New York in Buffalo and a cardiology fellowship at the University of Vermont (I was a resident there at that time). He then trained in nuclear cardiology at the Massachusetts General Hospital with Gerry Pohost, Charles Boucher, and Robert Okada (1980-82), finishing the year I went there. Wilson served as the British-American Heart Research Fellow at the Royal Postgraduate Medical School (1982-83), University of London (Hammersmith Hospital), where he trained in positron emission tomography at a time when Attilio Maseri was head of cardiology.

Wilson was appointed assistant professor of medicine and clinical pathology and director of nuclear cardiology at OHSU in 1983. He worked successfully with colleagues in nuclear medicine, Jeffrey Stevens and Robert Nance. In 1987 he was promoted to associate professor of medicine and was given a joint appointment as assistant professor of radiology. In 1993 he became professor of medicine and in 1996 he moved into private practice with Salem Cardiology Associates, where he has been since.

While at OHSU Wilson was funded by grants by the Oregon Heart Association, NIH, and industry. He also received four US patents for his work done at OHSU, mainly on the use of ribose for detecting myocardial ischemia and viability in conjunction with thallium-201 imaging. He published 61 peer-reviewed papers and 16 reviews and book chapters. He was an invited speaker to several meetings nationally. After he left there was no nuclear cardiologist at OHSU until 2005 and referrals for stress perfusion imaging fell sharply. Instead stress echocardiography became the predominant non-invasive imaging method of choice for coronary artery disease detection and prognostication.

Electrophysiology at OHSU

McAnulty brought modern electrophysiology to OHSU. In the early years of the discipline he went to Chicago to train with Kenneth Rosen and others. The

electrophysiology faculty members at OHSU were mostly trained by McAnulty, notably **Jack Kron** and **Blair Halperin**. Later **Sumeet Chugh** joined the group. Of course, **Karen Griffith** was part of the team from the very early days.

Blair Halperin was born in New Jersey on June 1, 1957. He received his bachelor's degree from Michigan State University in Lansing, Michigan in 1975, and his medical degree from Wayne State University in Detroit, Michigan, in 1984. He moved to Portland to complete his residency followed by a year of electrophysiology fellowship at OHSU. He then went to University of Colorado as a cardiology fellow and did an additional year of training in electrophysiology before returning to OHSU as an assistant professor in 1990. He left OHSU in 1997 to join a private practice.

One of the stars of the division, who was not a physician, was **Charles (Chuck) Walance**. He retired as an engineer at the Howard Hughes Company. In that position he knew not only Howard Hughes but had repaired many cameras for Ansel Adams. He moved to Portland in the early 1990's. Here are some McAnulty's recollections of him:

"He had heart disease. Somehow he came to see me and after one visit he asked what I could do to help with his boredom. I suggested that he might come to a couple of our research meetings and get a sense of any way that he could help. He came, and he stayed.

There were two bad things he did: One was to me. I'd suggest a couple of things he could do (thinking I'd dismissed this personnel management issue for a while) ... and two days later he'd be back having completed everything asked of him ... leaving the problem of what he should do next. Two, he ruined the volunteer recognition pin system at OHSU. Putting in 40-50 hours a week for almost 10 years ... recognition programs weren't designed for people like him.

There were so many good things he did with no prior experience with any of them:

1. He brought the personal computer to the division. Surprisingly, despite his previous work, he had no experience with personal computers. He went on to become a master and was the person all turned to for computer work and development in the division.
2. He established and maintained a very large arrhythmia patient database that formed the foundation for many of the research projects during those years.
3. He worked day and night at the bedside to help with the somewhat tense and grueling approach to arrhythmias doing serial drug testing with arrhythmia provocation.
4. He was the engineer in the arrhythmia laboratory and as a result sophisticated electrical equipment proliferated in the lab. Where there was no equipment, he'd invent it (never for the purpose of getting something out of it but to be used to deal with a problem).
5. He trained the fellows. They were quick to learn.
6. He trained his eventual replacement (Ron Oliver) and many of the catheterization laboratory technicians (some are still at OHSU and knew him well).

Eventually, as he was engrossed in his rhythm world, it engrossed him. He developed recurrent, barely tolerated, sustained episodes of ventricular tachycardia. Eventually he received an ICD in the very program that could be called his. It helped some but he went on to die from heart disease.

In the end, perhaps we never learned everything about Chuck but we learned much from him. This random, no contract, no vetting approach gave OHSU a scientist and teacher and support well

beyond many trained in these areas. In turn, it seems it was a gift to him as well. He said, despite the excitement of his previous world, that this was the most worthwhile work he'd ever done."

The division library/conference room is named in his honor.

The DeMots years

Henry DeMots became the third head of the Division of Cardiology in 1985 after Kloster stepped down. At that time he was also the chief of the Cardiology Section at the Portland Veterans Administration Hospital. He relinquished that job in 1994, at which time he assumed the medical directorship of the University Medical Group. He remained the division head at OHSU until 1997 when he stepped down and was replaced by Jack McAnulty. In 2001 he was appointed interim division head again after McAnulty stepped down, a position DeMots held until 2005 when I was appointed head of cardiovascular medicine. In 2002 DeMots became vice-chair for clinical practice in the Department of Medicine and he retired in 2009.

DeMots was born on June 1, 1940 in Delavin, Wisconsin. He received his undergraduate degree from Calvin College, Grand Rapids, Michigan, and his medical degree from Northwestern University, Chicago, in 1966. He did an internship in internal medicine at Butterworth Hospital, Grand Rapids, and a residency in internal medicine at OHSU, where he served an additional year as chief resident. He was a fellow in cardiology at OHSU (1972-74) and was appointed instructor in medicine in 1973. He was promoted to an assistant professor in 1974 and in 1976 assumed the position of the chief of the cardiology section at the Portland Veterans Administration Hospital until 1994. He also served as interim chief of the medical service at the Portland Veterans Administration Hospital from 1991-1992. He was promoted to associate professor in 1978 and professor in 1984. Upon retirement in 2009 he was appointed

emeritus professor. In 2014 the Knight Cardiovascular Institute endowed a Imel-DeMots lectureship in his honor. The Imel family was a benefactor of cardiovascular medicine at OHSU.

In the mid-1990s managed care threatened to swamp OHSU and academic medicine nationally. The University Medical Group, which until then was just a billing agency, decided to become a more closely knit group so that they could respond as a single entity to requests for care from third parties and could have a seat at the table within the University as a single group in some of the decisions which the University was making. DeMots headed this effort and spent most of the next 18 months working on this project.

In the '90s there was also a national move with several journals espousing the idea that cardiology should become independent of medicine. The heads

of cardiovascular medicine from all academic medical centers formed a group called the Association of Professors of Cardiology to study this issue. DeMots served as the president of this organization, which continues to this day and is now also represented as the Academic Council, one of several councils, of the American College of Cardiology. The members meet twice a year at the major national cardiovascular meetings and discuss issues relating to academic cardiology.

DeMots' recruitments in his first round as division head included Robert Palac, Ray Hershberger, Ranae Ratkovec, Blair Halperin, **Greg Larsen**, **Susan Grauer**, and Leonard Christie. In his second round as section head he recruited Alicia Ross for a year as heart failure faculty after her heart failure fellowship and before her clinical cardiology fellowship. He also recruited Rami Alharethi, who worked with Ray Hershberger in the



Figure 29: Henry DeMots (fifth from left) at the Portland Veterans Administration Hospital. To his right is Edward Murphy.

heart failure and transplant program. DeMots was also instrumental in recruiting Robert Greenfield. As part of my recruitment package he was also instrumental in recruiting **Craig Broberg** and **Karl Stajduhar**.

Robert Greenfield was born in New York City on New Year's Day in 1947. He received his undergraduate degree from City University of New York-Brooklyn College and his medical degree from the State University of New York Downtown Medical Center in 1972. He completed his residency at Nassau County Medical Center in New York and his fellowship in cardiology from the University of California at Irvine, after which he was appointed to the faculty there as an assistant professor in 1977. In 1979 he established a private practice in Southern California and was recruited to OHSU as an assistant professor in 2001 where he was appointed director of preventive cardiology and outpatient clinics.

Greenfield became very engaged in outreach and physician education in Oregon, and as a result was very successful in building a sizeable cardiology practice at OHSU. He also initiated as well as participated in several clinical trials. Because of family reasons he left OHSU in 2004 to join his prior practice in California and resume his clinical assistant professor position at University of California at Irvine.

The McAnulty years

John H. (Jack) McAnulty was the fourth head of cardiovascular medicine at OHSU from 1997 to 2001. McAnulty was born on February 23, 1943 in St. Louis, Missouri. He received his undergraduate degree from Amherst College and his medical degree from Tufts University, followed by a residency in internal medicine at the University of Michigan. He came to Portland in 1972 as a fellow in cardiology (the other



Figure 30: Jack McAnulty with colleagues

fellows that year with him were Chaitman, Hattenhauer, and DeMots). In 1975 he was appointed assistant professor and director of the electrocardiography laboratory and in 1978 he was promoted to associate professor. He took over the directorship of the cardiac catheterization laboratory in 1980, and it was then that coronary angiography ceased to be performed by radiologists at OHSU. McAnulty was promoted to professor in 1983 and in 1988 he became director of the cardiac arrhythmia service. In 2004 he took the position of medical director of the arrhythmia service at Legacy Health Systems in Portland and in 2005 he became professor emeritus at OHSU. In 2006 a fund-raising drive was initiated for an endowed professorship in his name.

Although McAnulty is well published and has received several grants, his major contribution has been in education. He has trained several electrophysiology fellows, some of whom, like Blair Halperin, Jack Kron, and Eric Stecker, became faculty members at OHSU. More importantly though has been his teaching of house staff and medical students. He has been recognized repeatedly over the years (almost on an annual basis) for his teaching, with the J. David Bristow Award 15 times, the Alan J. Hill Award eight times, and the Medical House Staff Award 22 times.) He received the Marion Krippaehne Humanism Award seven times and in 2004 he received the Faculty Excellence in Education Award. McAnulty still attends the weekly electrophysiology conference at OHSU.

McAnulty recruited several physicians during his tenure as division head, including Sumeet Chugh, Crispin Davies, Charles Cannan, Mark Hattenhauer, and **Bruce Shively**. Shively was born in Glen Ridge, New Jersey on December 27, 1947. He received his undergraduate degree from Harvard and a master's degree in psychology at the University of California in Berkley. He then moved back to the East Coast and received a medical degree in 1978 from Albany Medical College, New York, and conducted an internship in internal medicine at Montefiore Hospital in New York

City and a residency in internal medicine at Strong Memorial Hospital in Rochester, New York. He completed his fellowship in cardiology at San Francisco General Hospital with a year of training in echocardiography at the Cardiovascular Research Institute at the University of California in San Francisco. He then moved to the Veterans Administration Hospital at the University of New Mexico as an assistant professor of Medicine in 1986 and was promoted to associate professor in 1993, at which time he was appointed section chief of cardiology there. He was recruited to OHSU in 1998. In addition to reading echocardiograms, he developed a hypertrophic cardiomyopathy clinic to which patients were referred from all over the state and beyond. Unfortunately he died during a hiking accident in central Oregon (North Sister) on June 6, 2003 at the age of 55.

Cardiology at the Portland Veterans Administration Hospital

The cardiovascular programs at the Medical School and the Portland Veterans Administration Hospital were integrated in the late '60s. Prior to that the Portland Veterans Administration Hospital had separate faculty and residency programs from OHSU, despite the Portland Veterans Administration Hospital being on the University's Dean's Committee. The first head of cardiology at the Portland Veterans Administration Hospital, **Leonard Ritzmann**, was recruited there in 1953. At that time the Chief of the Medical Service and the only full-time internist at the Portland Veterans Administration Hospital was **Zolton Wirtschafter**. Ritzmann joined as the second full-time faculty member in the medical service and practiced both as an internist and cardiologist. He was born in South Bend, Indiana on September 8, 1921. Most of his childhood was spent in Quincy, Indiana, and he received his undergraduate degree from Valparaiso University in Indiana and his medical degree from Washington University in St. Louis in 1945. After interning there for a year he moved to Salt Lake City for his medical residency and then trained



Figure 31: Leonard Ritzmann (third from left in the front row) with colleagues at the Portland Veterans Administration Hospital. Fourth from the right in the back row is David Bristow.

for one year in cardiology with Hans Hecht. He then moved to London for an additional year in cardiology at the Royal Postgraduate Institute at the Hammer-smith Hospital. In 1951 he was recruited to the United States Army and was stationed as consultant cardiologist in Munich, Germany. After two years in Munich he moved to Portland. He remembers taking the Internal Medicine Boards and Hod Lewis being one of his examiners.

Ritzmann started the electrocardiography laboratory on his arrival at the Portland Veterans Administration Hospital in 1953 and in 1957 started the cardiopulmonary laboratory in collaboration with Leonard Rose, who was a practicing cardiologist in downtown Portland.

From 1956 to 1960 Ritzmann served as the chief of the medical service, after which he returned full-time to cardiology when John Walsh was recruited as the new chief of the medical service. He served as chief of the cardiology section until 1970 when Neill was appointed chief. He remained an active member of the cardiology section at the Portland Veterans Administration Hospital until his retirement in 1990. At that time there were five separate cardiology teams at the Portland Veterans Administration Hospital, each

admitting on a separate day and the average daily census was 50-60 patients. Building #25, which has since been demolished, housed the cardiology section (see Figure 33). During and after his academic career Ritzmann was very involved in the Christian Medical Association, serving in national leadership positions. During his academic career his main interests were patient care and teaching. He is 94 years old and still going strong.

Ritzmann recruited Brent Parker and Cyrus Farrehi, to the Portland Veterans Administration Hospital. **Brent Parker** was born in St. Louis, Missouri, on July 3, 1927. He received his medical degree from Washington University, St. Louis and did a two-year internal medicine internship at Cornell University in New York city. He then returned to Washington University to complete his internal medicine residency and cardiology fellowship. In 1957 he was recruited by Ritzmann to head the cardiology section at the Portland Veterans Administration Hospital, where he published a number of studies with Bristow and others. In 1959 he returned to Washington University as co-director of the cardiology division and director of the cardiac catheterization laboratory. In 1973 he moved to the University of Missouri in Columbia as professor of medicine and in 1976 he became Chief of Staff and Associate Dean for Clinical Affairs. He was then appointed head of cardiology at the University of Missouri from 1983 to 1989 where he became professor emeritus in 1989. He retired fully in 1994. He continued to publish until the late 1980's and continued to give lectures even after his retirement. He now lives in Colorado Springs, Colorado.

Cyrus Farrehi (see Figure 3) was born in Malayer, Iran, on January 26, 1935 and graduated with a medical degree from the University of Tehran in 1958. He did his internal medicine residency at the Wayne Country General Hospital in Eloise, Michigan and then came to OHSU in 1962 for a two-year cardiology fellowship. At the end of his fellowship he married Jane Christensen from Michigan (Figure 32). He then moved to Can-



Figure 32: Cyrus and Jane Farrehi at their wedding. On the extreme right is Dick Lewis and second from right is Frank Kloster

ada for a two-year requirement to leave the country because of his exchange visitor visa. In 1966 he was recruited back to the Portland Veterans Administration Hospital as the assistant chief of cardiology and the director of the cardiac catheterization laboratory. At that time there was a single cardiopulmonary laboratory at the Portland Veterans Administration Hospital and Farrehi helped establish a separate cardiac catheterization laboratory. In 1969 Farrehi moved to Flint, Michigan with his family to be near his wife's family. He remained in private practice in Flint until 2009. One of his two sons (he has two daughters as well), Peter, joined him in his practice. After Cyrus retired, Peter joined the faculty at the University of Michigan where Cyrus now serves on the National Advisory Board of the Cardiovascular Institute.

Farrehi visited OHSU in 2013 at my invitation and gave cardiology grand rounds on the history of cardiovascular medicine at OHSU, which was attended among others by Starr, Ritzmann, and Kloster. It was a very emotional and memorable visit.

Robert T. Palac was born on March 18, 1949, in Chicago, Illinois. He received his undergraduate degree from Boston College and master's in physiology from Illinois State University, Normal, Illinois. He graduated from the University of Illinois medical school in Chicago in 1976. After an internal medicine residency

at the Rush-Presbyterian St. Luke's Medical Center in Chicago, he went to the Loyola-Hines Medical Center in Maywood, Illinois, for a cardiology fellowship. He joined the faculty there in 1981 and moved to the Portland Veterans Administration Hospital in 1983 as assistant professor and was promoted to associate professor in 1989. He moved to Manchester, New Hampshire in 1991 and joined a private practice group, but two years later he joined Dartmouth as associate professor and was promoted to professor in 2008, a position he currently holds.

While in Oregon, Palac directed the echocardiography laboratory at the Portland Veterans Administration Hospital from 1988 to 91 and was the first to perform trans-esophageal echocardiography at OHSU and also arguably the first to perform dobutamine echocardiography in the country. He was the recipient of many grants, including the Veterans Administration review system (1984-85), Veterans Administration career development grant (1988-1990), Veterans Administration merit review (1987-1993), and the Medical Research Foundation of Oregon. He was the principal investigator of the Veterans Administration co-operative study on medical versus surgical therapy for chronic stable angina.

Neill recruited **Richard Selden** to the Portland Veterans Administration Hospital in the summer of 1972. Selden was born on October 29, 1939, in Sterling, Illinois, where his father was a general practitioner. He graduated from Northwestern University with a double major in chemistry and engineering. He received his medical degree from Harvard in 1965 and completed a two-year residency at the Peter Bent Brigham Hospital. He then moved to Atlanta for two years at the Center for Communicable Diseases, where he mastered epidemiology. He developed a program for small pox vaccination in Africa and visited Africa to supervise it. He returned to Peter Bent Brigham to complete his final year of medical residency, following which he did two years of cardiology fellowship at the Massachusetts General Hospital before moving to

Portland as an assistant professor. Within two years he was promoted to associate professor, probably the fastest promotion in the medical school at that time.

Selden was a very gifted basic and clinical scientist. His basic science interest was the mechanism of action of Ouabain and other digitalis class of drugs. He developed this interest while working with Thomas Smith in Boston. Selden was an ardent outdoor man, which was one of his major reasons of moving to Oregon. On March 30th, 1975 he went up Mt. Hood with three other companions to cross-country ski when a sudden storm hit the Clark canyon. The four scrambled around to escape it and Selden fell over a 400 foot ledge to his death. The other three survived. Selden was 35 years old and at the beginning of an extremely promising career. He had been at OHSU just short of three years. His son Nathan is a neurosurgeon at OHSU.

After Neill, DeMots became the cardiology section head at the Portland Veterans Administration Hospi-



Figure 33: Richard Selden

tal in 1976 and served in that position until 1994. One of the people he hired at that time was **Richard Gay**, who was born on September 17, 1952 in Oakland, California. He received his undergraduate and medical degrees from the University of Kansas and did his residency in internal medicine at OHSU. He then moved to the University of Arizona for a cardiology fellowship followed by an academic appointment there for four years. He moved back to the Portland Veterans Administration Hospital in 1988 as an assistant professor of Medicine and was promoted to associate professor in 1990. He joined private practice in 1991. Gay published in the very best cardiovascular journals during his academic career with his main research being in cardiac physiology.

In 1994, Edward Murphy became head of the cardiology section at the Portland Veterans Administration Hospital. Murphy was born on November 29, 1946 in Dixon, Illinois and his father went to school with Ronald Reagan. He received his undergraduate degree from Notre Dame and his medical degree from the University of Chicago in 1971. After completing internal medicine training at the University of Chicago he came to OHSU for a two-year cardiology fellowship. In 1977 he joined the faculty as assistant professor of medicine and director of the coronary care unit at the Portland Veterans Administration Hospital. In 1981 he became associate professor and director of the cardiac catheterization laboratory. In 1990 he was promoted to professor of medicine and went on a six-month sabbatical to Rotterdam. In 1993 he became director of the fellowship training program after Bristow's retirement. He continued as section chief of cardiology and director of the fellowship program until 2005 when he retired from a full-time position and now works part-time at the University. Greg Larsen assumed the position of chief of cardiology after Murphy's retirement.

Murphy was active in clinical research and very effective as a clinician and teacher, receiving numerous

awards. His contributions to the fellowship program are particularly noteworthy. During his tenure **Merrit Rait, Karen McMurdy and Sumeet Chugh** joined the faculty at the Portland Veterans Administration Hospital. Chugh was a joint hire between the Portland Veterans Administration Hospital and the University.

I will end this narrative with some of the legendary “Murphisms”:

“If you are not constantly amused, you are just not paying attention!”

“A request for an echo is a cry for help!”

“This is a situation where you could do something intelligent — or you could just cath him!”



Figure 34: The Portland Veterans Administration Hospital Cardiology crew, with Ed Murphy and Henry DeMots standing to the left and Leonard Ritzmann standing on the extreme right with the catheterization laboratory technicians.



Figure 35: The red brick building (foreground) was building #25 where patients were admitted to the Portland Veterans Administration Hospital. It was demolished upon completion of the new hospital (background).