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"Once you start studying medicine, you never get through with it," wrote Charles H. Mayo (1865-1939). These students and their classmates began their lifetime of studies in August as members of The Class of '86. Before getting down to business, the students were welcomed by the faculty and the Alumni Association at receptions, luncheons, tours and dinners. For more about the entering class, see page 7.
Larry Bowman is donating a kidney to his sister, Becky Heimer. Larry cannot avoid twitching while Gloria Evans, the nurse he teasingly calls "Gertrude," prepares to draw some of his blood, which will also be given to his sister. Larry's mother says that for as long as she can remember, he has been terribly afraid of needles.

Becky is 26, married, and has been ill for several years with kidney disease. Like most kidney patients, she has low hematocrit and low energy levels. She is not diabetic. She has been on dialysis. She has not felt well for a long, long time. One of Larry's kidneys could change her life.

In the past, organ transplants in perpetuity have been difficult to accomplish without (and sometimes in spite of) stringently exacting pre-operative conditions to ensure a high degree of tissue compatibility, and a large barrage of pre- and post-operative prophylactic drugs. Many promising situations have been scrubbed when the patient was tested and found to be sensitive to the donor's tissues, a condition that could ultimately lead to the patient's rejection of the transplanted organ. Over the past decade, however, research has pointed in the simpler direction of enhancing the patient's response before the transplant operation by giving blood transfusions from the prospective organ donor. The transfused blood, in effect, allows the patient's system to become accustomed to the donor's blood before the actual transplantation occurs. This technique minimizes rejection, increases the chances of finding a suitable donor (even when donor and recipient tissues are mismatched) and allows any effects of mismatches in tissue typing to be diagnosed before transplantation.

Since the early 1970s, research has been conducted at Washington University medical school and Barnes Hospital using this technique in renal transplants. Surgeons Charles B. Anderson, M.D., Edward E. Etheredge, M.D., and Gregorio A. Sicard, M.D., are coinvestigators and have recently received a $600,000 five-year grant from the National Institute of Arthritis, Diabetes, Digestive and Kidney Diseases. They will study the immunological mechanisms at work while patients are treated simultaneously with donor-specific blood cells and immunosuppressive medications.

When Becky was 14, her family noticed her high blood pressure and kidney problems. She spent two months at Barnes Hospital. Approximately three years ago, a fistula was implanted for dialysis treatments. She and her family began to learn about the possibilities of a kidney transplant, but her physician wanted to wait until both kidneys had completely ceased to function before removing them. A month after removal she could have a transplant.

Last summer, Becky's kidneys were removed, but transplant surgery had to be postponed. The doctors found a spot on her lung — she had developed pneumonia. An infection further delayed the transplant.

The transplant procedure which was to benefit Becky was not available ten years ago. Her surgeon became one of the pioneers in donor transfusion-enhanced transplantation in 1970 when he began to work with the late Dr. William Newton at the Cochran Veterans Administration hospital in St. Louis. Among their responsibilities was development of a kidney transplant program there. During his training with Newton, Anderson began to consider special treatments for renal transplant patients. He said, "It was the combined efforts of Dr. Newton and myself, thinking about how to improve the results of kidney transplantation, that first prompted us to use this enhancement technique. The basic experimental evidence was available in the immunology literature. Work had been done in animal models. We could go ahead and try the technique on humans."

At that time, the technique was quite provocative and controversial. The generally accepted concept in the 1970s was that giving blood transfusions before surgery was the worst thing that could be done. "So," said Anderson, "it was a bit of a heresy when we first did this." He continued, "At that time, you tried to avoid blood transfusion in people who were about to receive a kidney transplant. You especially avoided giving blood products from the one who was to be the donor. The idea was that if the recipient developed antibodies against the donor blood cells, he might also be developing antibodies against the kidney. These antibodies would later destroy the transplant. The whole concept of giving these foreign cells, in combination with immunosuppressive drugs, we hoped, would trick the body into accepting these foreign cells, yet, at the same time, not have the body react vigorously and produce antibodies against the kidney."

Starting in 1971, four transplants were performed. The re-
sults were encouraging. Said Anderson, "The most important thing that our initial work with these four transplants showed was that we didn't have sensitization. That is, we did nothing to affect adversely the results of transplantation. More specifically, the recipients did not develop antibodies to the person who later donated the kidney."

This lack of sensitivity, and hence rejection, extended across the non-related donor barrier: two of the donors were unrelated to the recipients. While unrelated cadaver donations have historically yielded a 50 percent success rate, all four transfusion-enhanced recipients showed healthy kidneys for up to ten years after the transplant.

While the original test sample was much too small for a convincing conclusion, similar research by a group in Los Angeles confirmed the possibility of enhancement. This group studied the effects of giving blood transfusions from randomly selected third parties. The results were that patients who had had many blood transfusions before their kidney transplant surgery seemed to do better than persons who had never had a blood transfusion. "This added credibility to our concept of intentionally giving donor-specific blood," Anderson said. "The concept of avoiding all blood transfusions seemed to be not necessarily correct. The fact that many papers have appeared since then shows that these random blood transfusions seem to be good and indicates that what we had tried initially may not have been as far out of line as many people had thought." Anderson continued his research.

In the mid-1970s, Drs. Gregorio Sicard and Edward Etheredge joined the project. A new protocol was introduced which combined the original ideas with additional results gathered since the initial findings were published in 1973. At present, 35 patients have completed the protocol; five are in the work-up, exam and test stage; and two more will be coming into the protocol. Within the past two and one-half years, 29 recipients have received new kidneys, all from relatives. "The procedure, as we perform it, requires a living donor, not a cadaver," Anderson explained. "But the living donor could be farther removed than sibling or parent. Now, it could possibly be a cousin or an aunt. Therefore, more people could get kidney transplants. With the exception of two in the original study, we presently are not doing transplants from non-related living donors."

Even though the transfusion enhancement allows relatives further removed than parents or siblings to donate kidneys, the current practice of the Washington University/Barnes Hospital transplant service still calls for relatives with the closest possible tissue matching. Said Anderson, "Prior to our recent investigative work, the more the donor and recipient were alike, in other words, the more donor and recipient blood antigens matched, the better the chances for the kidney graft to work. The rule was that the matching had to indicate that the people were half alike, or all alike. We still try in relatives to find combinations of people that are as close a match as possible. However, now we feel that even if the relatives' tissues are completely mismatched, we can go ahead with the special blood transfusion protocol and improve the result. We don't have to pay as close attention to tissue typing any longer."

Becky Heimer, with three brothers living, healthy and willing to donate a kidney, was a fortunate candidate for the protocol. The transplant protocol is completely voluntary. Prospective kidney donors and recipients are given the option of participating if they wish. They go on good faith that they are given comprehensive, clear information. Becky and Larry understood the dangers and accepted the responsibility. In a preliminary discussion, they were given basic information. They were told about the immunsuppressives and the possibilities of complications such as increased susceptibility to infections, bone marrow depression, the risk of hepatitis. They were also told about the hazards of transfusion: Becky could have a reaction with chills, elevated temperature, changes in blood pressure, hives, rash, itching or dropping pulse. They were also told that rejection could occur at any time, but that the outlook improves if Becky keeps the graft for a year. The procedure also could be terminated in the pre-operation stage if dangerous antibodies develop. Each of Becky's three brothers would have been glad to donate a kidney. Larry's was the closest match. He said that he was not nervous about the operation — only about giving blood.

In the weeks before Becky's surgery, giving blood was, indeed, the worst part of the protocol for Larry, although he eventually gained some confidence. He had never given blood before being admitted to the protocol. When he was a boy, an older brother and his mother had to hold him down so he could be given his usual childhood inoculations. He was in the 82nd Airborne, a paratrooper, and would rather jump out of any airplane than have a needle in his arm. Home is Enfield, Illinois; Larry was born and raised in that part of the country. He works on an oil field derrick for Gallagher Drilling and is seldom seen without his Gallagher baseball cap. He is 29.

The blood-transfusion process takes nearly an entire day. For Larry Bowman and Becky Heimer, the trips to Barnes Hospital took two and one-half hours. Then there was nearly an hour for giving blood, waiting for it to be processed, and waiting for it to be given to Becky. Finally, the return trip to Enfield. They started these days at 5 A.M.
Both donor and recipient will encounter problems throughout the transplant process. The surgery often physically and psychologically impacts the donors more. "They are healthy, productive people, working and enjoying themselves," said Chris Anderman, R.N., transplant nurse coordinator. "They are not too concerned with diet, fluids, health. They are just normal, active people and then, whammo! They have major surgery and they weren't even sick!" Most donors stay in the hospital for a week or so. After six to eight weeks, they can resume light duties and return to work, depending on their jobs. But, as far as feeling normal, feeling like their old, energetic selves, that takes some more time.

The initial step in the program is the testing of both the donor's and the recipient's blood. Blood bank technicians weigh the blood, label it and keep track of each sample. Both the blood bank and the histocompatibility laboratory conduct blood compatibility tests. Cross-match testing of both red and white cells is done. The blood is typed and screened for existing antibodies, hepatitis, venereal and other diseases. The progressive development of antibodies is monitored throughout the course for each participant.

Once the blood samples have been matched and cleared, blood transfusions are begun. Three 200 ml units of whole blood are administered at two-week intervals. Cross-matching is conducted throughout the transfusion period. The recipients also begin taking the immunosuppressant, azathioprine, in tablet form, two days before the first transfusion and then daily throughout the transfusion period. They will take azathioprine for the life of the kidney. Recipients will spend from three to six weeks in the hospital after the operation. Post-operation rejection episodes are the major potential problem and are diagnosed by kidney biopsy, radionuclide scans of the graft, serum creatinine levels, blood pressure, urinary sodium levels, palpation of the kidney, and the patient's weight.

Becky said she was looking forward to surgery and a better life. She has lived for a long time on a very restricted diet with restricted fluids. She looked forward to celebrating her new kidney with a watermelon feast. She grows melons in her garden at home.

If her surgery is successful, Becky will join the ranks of 27 others in the protocol who have had well-functioning transplanted kidneys for as long as two and one-half years. To date, 29 patients have opted for the experimental procedure. One transplant resulted in rejection, but was a very unusual situation involving a pre-existing sensitivity to the donor in which the preoperative desensitization did not work.

When compared to the historical controls at Barnes Hospital, these results are, indeed, favorable. In February 1982, Anderson, Sicard and Etheredge presented their findings at the 43rd annual meeting of the Society of University Surgeons. They stated: "Of the 21 patients who completed the blood transfusion protocol and subsequently underwent transplantation, 90 percent have functioning grafts at the end of three months. No additional graft losses have been experienced in five patients followed from three to six months, and in 14 patients followed for seven to 12 months. This represents a significant improvement over our previous experience of 58 percent one-year renal graft survival in haplo-type (in which tissue typing shows half similarity) living related transplants and is similar to our experience with HLA identical (typing is 100 percent similar) transplants in which an 85 percent one-year kidney survival rate was observed during the same time span."

These results also compare favorably with results gained at other research facilities which do not administer immunosuppressants concomitantly with blood transfusions. Without immunosuppressants there is indicated an overall sensitization rate of approximately 30 percent. "We think that both intravenous donor cells and an immunosuppressive regimen are important," said Anderson. "If the rate is 30 percent sensitized and we are allowing only five percent sensitization, then 25 percent more people can donate."

The increased success rate does not imply that rejection reactions never occur, nor that donor-induced antibodies never form. Rather, the rejection reaction might never reach the acute stage. While approximately 60 percent of transplant patients in this study have never experienced any rejection incident, mild
Chris Anderman, R.N., kidney transplant coordinator, and surgeon Charles Anderson, M.D., explain the protocol to kidney donor Bowman and recipient Becky Heimer, while she receives a transfusion of her brother's blood.

The removed kidney is perfused in the operating room.

Surgeon Gregorio Sicard, M.D., removes kidney from Larry Bowman.
to moderate single rejection episodes have been encountered. These have been easily controlled by intravenous immunosuppressant administration. Also, pre-operative sensitivity diagnosed by slightly increased antibody presence did not preclude a successful transplant. Some antibodies are known to be more critical than others.

The next stage in development of this enhancing technique is to determine the immunological mechanisms responsible for the observed effect. One speculation about the effects of concomitant administration of immunosuppressants during the transfusion phase is that the azathioprine may, in some way, block the normal recipient response to donor blood. The recipient would then not exhibit an accelerated rejection of the transplant. Anderson, Sicard and Etheredge wrote in early 1982 that "our data tend to indicate that there is no spurious effect on response that results in false negative pretransplant crossmatches with subsequent accelerated graft rejection. The fact that none of the 20 transplants performed to date in the absence of a positive T-cell crossmatch were rejected during a three-month to 10-year follow-up would tend to mitigate the simple responder-nonresponder concept. It is important that 12 of these 20 patients have never experienced acute or chronic rejections. And of the eight with single rejection episodes, all were reversed and none were of the accelerated type."

But what lies in the future for blood-enhanced transplants? On the possibilities of renal grafts Anderson commented: "At present, we cannot use this protocol in cadaver transplantation because we must have specific donor blood available at least six weeks before the transplant, and cadaver kidneys can be kept only for 48 to 72 hours. This is not to say that someday the protocol could not be speeded up to, say, 48 hours. Or that maybe we'll be able to store kidneys for the length of time needed. For the present, however, we will be applying what we learn from our research on immunologic mechanisms in transplants to improving the results of future transplants." It will be interesting to see if surgeons in other transplant fields can also adopt this technique of enhancement. The slowly expanding evidence seems to point in the direction that enhancement may one day be a major tool in the arsenal of transplant medicine.

On April 20, 1982, Becky Heimer received her brother's kidney. By the day after the transplant, much of her color had returned and she could tell a big difference in the way she felt. Three weeks later, she was released from Barnes. Return visits to monitor her kidney have decreased from weekly to once every four weeks. No complications have developed since the transplant. Becky is now riding her bicycle, taking care of her home and garden, treating herself to fresh watermelon and enjoying life in rural Illinois.
The Class of '86

The 120 members of the Class of '86 jumped into the routine of becoming medical students in August, attending orientation lectures, filling out forms, making the rounds of desks in the Registrar's office, visiting the Alumni Office to pick up their "Class of '86" coffee mugs and to make reservations for the Alumni Association's Sunday bus tour of St. Louis and welcoming buffet across the wide Missouri River in St. Charles. At the traditional Dean's Luncheon on Friday, August 27, the students enjoyed the opportunity to meet one another and several members of the faculty of the School of Medicine.

The new medical students come from 62 different undergraduate institutions. Of the 120 students, 102 completed questionnaires for the use of this magazine. From those questionnaires, one learns that there are 36 members of Phi Beta Kappa in this class. In their undergraduate years, 24 received special honors in their studies; nine reported being on the dean's list; 13 were graduated Magna Cum Laude, six Summa Cum Laude, and two Cum Laude. Most of them noted having received university or college honors, and president's or chancellor's honors, and election to a variety of honorary societies.
Chemistry was the most popular undergraduate degree (14), followed by 12 with bachelor's degrees in biology. Other undergraduate degrees were awarded in microbiology, pharmacy, engineering, biomedical engineering, physics, and zoology. Not all were science majors, however. The Class of '86 includes men and women who majored in English, German, music, mathematics, business economics, and political science. Four people hold master's degrees (social work, chemical engineering, biochemistry, and public health). There is a lawyer with a J.D.-M.P.P. degree. And four have earned their Ph.D. degrees (chemistry, molecular biology, microbiology, and physiology).

Of the 20 who are the offspring of physicians, three noted that both parents are M.D.s. Two are the offspring of WUMS alumni. The class of '86 includes five married men and two married women, one of whom is married to a physician. The majority of the class was born in 1959 or 1960; the senior member was born in 1949.

When it comes to hobbies, recreation and pursuit of special interests, this class could be said to “cover the waterfront.” There are three sailors, eight swimmers, and a pair of water-skiers. There are two fishers and two hunters, versus one animal welfare advocate.

The outdoor set includes three backpackers, three campers, three rock climbers or mountaineers, a hiker, a cross-country skier and six downhill skiers.

Games of interest enough to be mentioned on the questionnaire include baseball, basketball, softball, volleyball, football, rugby and soccer, handball and hockey. There are seven racquetball players, a dozen tennis players, a foursome for the golf course in nearby Forest Park, and one lone frisbee flinger. Physical fitness fans include four bicyclists and one bicycle racer, six runners and a weight lifter.

And if all that activity is too much, there is a male and a female gourmet cook, three chess players, a computer whiz, a tropical fish fancier and a student of current events.

Of course, music has always been popular among medical students and the four classes at WUMS can boast several bands, ensembles and groups who play for some student events, alumni events and even, as last year, at graduation. The class of '86 includes an afficionado of the classics and a fan of jazz. Musicians include a pianist, an all-around keyboard player, a clarinetist, a cellist, five guitarists, one interested in music composition and one in voice. The visual arts are represented by nine photographers and a painter. "Dancing," "dance," and "ballet" were also listed as special interests.
Samuel B. Guze, M.D., vice chancellor for medical affairs, Spencer T. Olin Professor and head of the department of psychiatry, meets Tommy Chu.

At the traditional Dean's Luncheon in Olin Residence Hall, the students fill their plates at the buffet tables and find their assigned seats at tables for eight. Each table is hosted by a member of the faculty.
Physical Exams at the Speed of Light

by Don Clayton

That fleeting little speed-of-light character called "c" — made famous by Einstein's relatively well-known equation \( E = mc^2 \) — has been a mainstay in the physicist's algebraic alphabet for 75 years. Now "c" has found its way into the physician's black bag.

Using the speed-of-light capabilities of a new body scanner that was unveiled recently in the Mallinckrodt Institute of Radiology at Washington University in St. Louis, scientists expect easy access to a host of hard-to-reach metabolic readings related to heart disease, manic depression and many other illnesses.

"It's the beginning of a new era in medical imaging. This new PETTY scanner represents the first biomedical application of speed-of-light measurements," says Michel Ter-Pogossian, Ph.D., a radiophysicist at Washington University who has become known as the father of PETTY (positron emission transaxial tomography). This newest model scanner is Ter-Pogossian's seventh son, and so significantly advanced that he's christening it Super PETTY I rather than PETTY VII.

"Super PETTY is a quantum leap beyond the technology and capability of the first six scanners we built," says Ter-Pogossian. "Super PETTY will allow us to do many things we couldn't do before," says Edward M. Geltman, M.D., a Washington University specialist in heart imaging. "We'll be able to work with patients minutes after — perhaps even during — a heart attack. We'll be able to watch our therapies work and should be able to say once and for all whether a particular treatment really made a difference in a patient," Geltman says.

The big difference in Super PETTY is an add-on called time-of-flight enhancement. Time-of-flight measurements enable a physician to pinpoint a tell-tale biochemical event within an area the size of a pea. Other benefits include faster scanning times and lower doses of radiation.

The pictures produced by a PETTY scanner look much like those produced by the more familiar CAT scanner. In CAT scanning, X-rays are passed through the body and then picked up by detectors and transformed into pictures by a computer. Radiation is the "paint" of PETTY pictures, too. The difference is that PETTY gives an image of function, while CAT scanning is restricted to form.

In order to undergo a PETTY scan, a patient is injected with, or inhales, biologically active molecules that have been labeled with radioactive tags by a special team of chemists. Like unmarked police cars, these molecules merge into the body's biochemical traffic. Emitting radiation all the while, the molecules leave radioactive paths which are traced and monitored by PETTY's complex detectors and computer.

"By choosing carefully the biochemical tag we use," says Ter-Pogossian, "we can study a variety of tissues and a variety of biochemical systems within the body. We can label glucose to examine brain metabolism, hemoglobin to study blood flow, blood pooling or hemorrhage, and can use another molecule, palmiate, to watch what happens during or after a heart attack. By watching a molecule's flow through the system, we can get a good idea which system malfunctions correlate to a symptom or disease."

The tagged molecules emit minute, positively charged particles called positrons. A positron will travel a tiny distance in the body before it unites with its natural mirror image: a particle of equal weight but opposite charge called an electron. The two particles annihilate each other, and their mass is converted into two equal bursts of energy called photons. These photons flee the annihilation site with the speed of light but travel in opposite directions along a straight line.
In previous PETT scanners, the array of detectors encircling the body took count of the photons originating and traveling along a line connecting one detector to its mate on the other side of the circle. "With traditional PETT we can tell only that, somewhere along a line connecting a pair of detectors, an annihilation event has occurred," says Ter-Pogossian. "But with Super PETT's time-of-flight capability, we can now say where along that line the photons were released."

Gettman explains the difference this way: "Compared to PETT IV, the chest scanner we've been using in the cardiac unit since 1978, Super PETT can image things twice as accurately in one-twelfth the time. Previously, PETT's effectiveness was limited the same way that a camera is limited by low light. The pictures were coming out shadowy and vague. With Super PETT, the time-of-flight circuitry and the detectors work together to improve sensitivity, focus and speed. We get the equivalent to a proper exposure."

Time-of-flight enhancement can be easily explained by comparing it to a familiar high school math problem: Two trains leave an unknown midwestern city at the same time and speed, but travel in opposite directions. One train arrives in Baltimore and the other arrives in Los Angeles. Knowing the distance between the two destinations, and the departure time and speed of the trains, the problem-solver need only find the difference in the times each train took to arrive at its destination. With this information, the mystery city can easily be pinpointed by consulting a map.

Imagine, instead, that the unknown city is the unknown point within the body from which two photon "trains" depart. For scientists to be able to pinpoint the spot at which each particular photon pair arises, all they need to know is the difference in the times that the photons reach each detector.

"That arrival-time information is exactly what we get with Super PETT," says Don Snyder, Ph.D., chairman of electrical engineering at Washington University. Snyder and others in the university's Biomi-
cal Computer Laboratory helped design the time-of-flight computer hardware and data processing architecture used in Super PETT.

"These photons are moving at the speed of light," Snyder says. "Timing photons as they arrive at detectors placed less than a meter apart is a very special challenge."

A photon traveling at "c," the speed of light, moves so fast that it could travel from Los Angeles to Baltimore and back again about 40 times in just one second. "When the speeds are so great and the distances so small, we must be able to distinguish time increments of less than one billionth of a second," Snyder adds. The ability to make measurements in the nanosecond range (one billionth of a second) sets Super PETT apart from its sibling scanners.

"Super PETT's computer keeps track of every photon that strikes a detector and remembers, down to the sub­nanosecond range, exactly when it strikes," says Marcus Raichle, M.D., a Washington University neurologist who is interested in applying Super PETT in his brain research. "One Super PETT scan fills a five-foot-tall stack of memory tape reels with data. The scanner just dumps the data in our hands. The computer engineers work on the part of the system that turns all that data into an image we can use."

All this talk of flight times and nanoseconds would mean nothing to clinical physicians if it didn't provide them with some advantage in the diagnosis of disease or in research. Because Super PETT has been designed primarily for use in chest imaging, its contributions to that medical subspecialty should be the first to reach fruition.

"Our preliminary studies in normal volunteers and early trials in some cardiac patients have been very encouraging," says Ter-Pogossian.

Geltman adds: "Once we get Super PETT out of its construction berth in the Mallinckrodt Institute of Radiology and into the cardiac care unit at Barnes Hospital, what we accomplish will be limited only by manpower and our own imagination. There are so many things we'll be able to study, it's mind boggling.

"Because of Super PETT's advantages, we will be able to reduce the amount of radiation needed to as little as one-twenty-fifth of the amount needed previously. Or, since the amount of radiation we've been using is not considered hazardous, we can continue to use those levels of radiation and in return gain more dynamic, useful information in the image."

Super PETT's power to give precise diagnostic information can, depending on the interests of the researcher or the patient's condition, be applied as any of three types of "fine-tuning." "The types of resolution are spatial, which is location; contrast, which improves the differentiation of various objects within the field; and temporal resolution, which refers to time," says Ter-Pogossian.

"At this time," Geltman points out, "temporal — time resolution — is the most important to me. Because PETT IV took 60 to 70 minutes for each scanning sequence, we weren't able to examine an acutely ill patient. And also a great deal of time elapsed between two consecutive scans. Super PETT takes less than 10 minutes for the whole affair and the scan itself is done in less than 30 seconds. That's the length of one breath-holding."

The cardiologists are looking forward to performing serial studies with the fast-scanning Super PETT. "Now we can realistically plan to do sequential studies in which we can watch how the heart muscle changes during and immediately after trauma. We can examine our methods of intervention to see if we really do save part of the heart with our treatments; we watch the intervention work — or not work."

Geltman says he is confident that Super PETT will help cardiologists determine the efficacy of treatments ranging from "drug therapy all the way to by-pass surgery."

If Super PETT can better image the blocked coronary artery that leads to heart attack, it should also better image vessel blockages in the head area that can lead to stroke. Although neurologist Raichle admits his team of investigators is barely getting to know what PETT VI — a head scanner with Super PETT's detectors but not its time-of-flight circuitry — is capable of doing, he says, "I still think Super PETT offers several advantages for the neurologist as well as the cardiologist. I am looking forward to our first test of Super PETT's ability to produce an image of the brain's blood supply and metabolism."

He says these tests are scheduled to take place very soon.
Super PETT Project Taps Thomas and Team

Lewis J. Thomas, Jr., M.D., always moves out from behind his desk when he talks about Super PETT or other projects in which he is involved as director of the Biomedical Computer Laboratory (BCL). His guests are seated at a conference table next to a 10-foot-long blackboard. As he speaks, he often picks up a piece of chalk from the sill and makes illustrative strokes on the cluttered board, drawing graphs or equations or writing sentence fragments full of acronyms. He writes right across remnants from previous conversations. His hand seems hardly able to keep pace with his intellect and enthusiasm.

When listeners' expressions indicate confusion, Thomas' narrative takes a sympathetic sidestep. He moves over to a wall-sized bookcase and reaches towards the center shelf, where the official progress reports of the BCL are stored. The appropriate catalogue of success is selected and proper explanations are rendered. Thomas is teaching.

"BCL's first involvement in the scanning project came in the late 1960s, '67 I believe," says Thomas, double-checking his recollection against the information in the progress reports. A BCL team worked with the Mallinckrodt Institute of Radiology, interfacing the simple gamma camera with a computer. The gamma camera takes pictures of the distribution of an isotope throughout a selected image field. This system began to yield data in the digital mode rather than as shadowy photographs.

"In PETT scanners, each detector is analogous to a small gamma camera. We began to add more detectors, coupling them together. After that we developed a computer system needed to integrate the digital information and to tackle the problems of image reconstruction," recounts Thomas. "Our latest challenge has been Super PETT, which has time-of-flight capability."

Thomas continues: "Super PETT is Ter-Pogossian's brainchild, there's no doubt about that. But BCL, along with the electrical engineering and computer sciences departments at the main campus, made significant contributions to all levels, from theoretical to practical."

For example, Jerome R. Cox, Jr., chairman of computer science, helped develop early methods for data gathering and processing which led to efficient image production. Donald L. Snyder, electrical engineering chairman, worked out the mathematical basis for the Super PETT system and used his mathematical analysis to predict Super PETT's efficiency accurately.

According to Thomas, computer scientists and engineers on the staff at BCL are currently constructing seven special-purpose digital preprocessors that will be inserted between Super PETT's detectors and the main computer. The preprocessors will enable Super PETT to handle quickly the vast amount of data generated by just one brief scan.

"Those preprocessors are really only a small part of BCL's contribution to Super PETT," Thomas explains. "Actually, it's not unusual for us to build such things ourselves as we focus on problems of computer applications to biomedicine. We listen to researchers' needs and try to use state-of-the-art devices to put together systems that will solve their problems."

Thomas himself first approached BCL in 1964 as a researcher with a problem. "At the time," he says, "I was teaching anesthesiology and was busy in my research within that department. I came to BCL seeking a solution to a tough mathematical question that had become a stumbling block in my research. Jerry Cox, who was director of BCL then, assured me that we could get an answer to my problem. We did."

"After that, I took a programming course and began spending more of my time here. As I moved to the Department of Physiology, I continued studying, and soon took a BCL appointment."

BCL stands, in Thomas' words, "as an interdepartmental resource" because it is not part of any single medical school department. "That arrangement makes some sense because it encourages faculty from every department to come to us for assistance. We're viewed as a useful support group available to all departments equally," he says.

Funded under the Biotechnology Resource Program of the NIH Division of Research Resources, the BCL conducts research to develop advanced digital computing systems for biomedical applications, collaborates in research with scientists at the University and the School of Medicine, provides education and training in computer technology for biomedical researchers, and works with commercial firms in further developing advanced systems for use in medical centers and laboratories. It is one of the largest biomedical computing resources in the country.

A great many medical school departments currently tap BCL expertise. The latest progress report shows that Thomas' lab is involved with more than 60 projects in six distinct program areas, ranging from DNA mapping to electrocardiogram processing.

"BCL has evolved that way, to have interests in many different areas," says Thomas.

Thomas has evolved that way, too.
A University Without Walls

by Marion Hunt

On April 16, 1982, Arnold S. Reiman, M.D., editor of The New England Journal of Medicine, presented the Second Annual Estelle Brodman Lecture. This lectureship, established to honor achievements in the fields of biomedical communication and medical history, was well served by Reiman's talk.

His subject, "Editing A General Medical Journal," encompassed the history, modus operandi, and objectives of the world's most highly cited medical journal, and touched on some of the joys and problems of editing the Journal in an age of increasing medical specialization and growing public interest in medical research.

Reiman began his lecture by revealing the astonishing fact that "there are at least 10,000 medical periodicals being published now, most of which did not exist 40 years ago." This phenomenon is a natural reflection of the rapid expansion and diversification of scientific research, as well as the increasing specialization of medical practice. Reiman noted that many of these new journals operate in a different time frame than the general medical journal.

"Most are published — and I say this with a sigh of envy — relatively infrequently: bi-monthly, quarterly, or, at most, monthly." In contrast, The New England Journal of Medicine is one of approximately thirty remaining medical weeklies in existence throughout the world, and one of only two left in the United States. The other, the Journal of the American Medical Association, or JAMA, was established 70 years after the NEJM, in 1872. In the U.S. there are only three journals which employ full-time editors who are physicians — JAMA, the New England Journal, and the Annals of Internal Medicine.

Founded in 1812, The New England Journal of Medicine was originally called The New England Journal of Medicine, Surgery and Collateral Branches of Science. This all-embracing title reflected the period in American medicine when there was little or no specialization; doctors were interested in everything having to do with the physical and biological sciences. In its first decades, this ancestor of the current NEJM published articles not only on medicine and surgery, but also covered the fields of botany, natural history, pharmacy, meteorology and zoology.

As Reiman remarked during his lecture, "Although we don't now publish on all of these subjects, we still follow the eclectic tradition of the general medical journal. We try to maintain our breadth of outlook — in addition to publishing articles in highly specialized fields." In today's New England Journal of Medicine, some 25 percent of the articles are non-biological, covering medical ethics, law, economics, history and biography. Occasional poems and lively letters to the editor complete this unique weekly compendium.

A glance at any recent issue of NEJM confirms Reiman's point about continuing the eclectic tradition. For example, on May 20th, there were articles on research into the feedback of insulin secretion and the induction of pemphigus; a case report entitled "Evolution and the Human Tail"; a prominent psychologist's comments on the connection between gender and spatial ability; and a cross-national study of neonatal mortality rates. As the Journal's editor, Reiman is responsible for maintaining this tradition in an age when specialization requires that physicians know more and more about less and less.

The most recent in a distinguished succession of editors, Arnold Reiman has the personal and professional attributes which indicate his qualifications for this position. A person of great intellectual curiosity and energy, he majored in philosophy at Cornell University and received his M.D.
degree from Columbia’s College of Physicians and Surgeons, Professor of Medicine at Boston University and at the University of Pennsylvania, he was also editor of the Journal of Clinical Investigation from 1962 to 1967. After nine years as chairman of the department of medicine at the University of Pennsylvania, Reiman accepted the position as the Journal’s editor, believing that it might give him “more time to think.” He now admits that this expectation was unrealistic. As editor of the NEJM, he says he now has to “read and write at a furious pace” in order to keep up with the constant demands of producing a weekly publication. It is hardly a contemplative life.

Now in its 170th year, the Journal sports four dates on its official seal, each significant in its development. The first is 1812, the year it was founded as a privately owned quarterly, as a result of the efforts of two prominent Boston physicians, John Collins Warren and James Jackson. In the preceding year, these energetic men had founded and incorporated the Massachusetts General Hospital. By 1823, the second date on the Journal’s seal, the first issue of the weekly Boston Medical Intelligencer appeared. In January of 1828, it was announced that on February 19th of that year, the first issue of the Boston Medical and Surgical Journal would appear as a continuation of the New England Medical Journal and the Boston Medical Intelligencer. Drs. John Warren, John Ware and Walter Channing purchased the Intelligencer for $600, and Warren took on the editorship of the new journal. It remained under private control until 1914 when it affiliated with the Massachusetts Medical Society through an agreement to publish its proceedings. The Society actually purchased the Journal in 1921 for $1 which, according to one historian, was never actually paid. In 1928, the final date on the Journal’s seal, a century of publication was celebrated by dinner and change of name to the present title. At that memorable occasion, Dr. Morris Fishbein, editor of JAMA, quoted Oliver Wendell Holmes’ 1878 comment about the growth of periodicals in his day: “We must have the latest thought in its latest expression; the page must be newly turned like the morning bannock; the pamphlet must be newly opened like the antependial oyster.”

It is precisely this degree of pleasure and excitement in fresh information critically selected and clearly presented which Reiman wants to maintain as the Journal approaches the end of its second century of publication. Reiman demands clear writing. “Because we seek to attract readers from all fields of medicine,” Reiman said, “we wage a constant war against technical jargon, abbreviations, and inside language, which erect barriers between one field and another.” We constantly try to make our journal readable, simple and interesting.

The New England Journal of Medicine has flourished for nearly 70 years under the Massachusetts Medical Society, enjoying the Society’s legal and administrative support, but retaining complete editorial independence. That independence, Reiman stresses, allows him to deal with any issue he wants. The NEJM takes no official editorial stand on any public issue. The editor, deputy editor or an invited editorial writer take stands if they choose, but their articles are signed as their personal opinion. The NEJM never publishes under the anonymous “editorial we.” In addition to signed editorials, the correspondence section carries commentary and opinion. Letters must be concise, temperate, meaningful and under 400 words.

There are some 240,000 journal articles published annually that make up the corpus of substantive papers published in the health sciences the world over. Of this quarter million or so papers, the NEJM publishes some 500, less than one percent of the total output. However, the Journal is the source for approximately half of the stories about new medical developments which appear in the lay press and media. “We are, apparently, the major source of new medical information given to the public,” Reiman said. Being a source of medical news for the popular press is not the Journal’s principal responsibility, and Reiman does not let it interfere with his editorial stewardship. “Most of our readers are physicians; our writers are physicians writing for physicians,” Reiman said. “The fact that the media and lay people are reading us, too, shouldn’t change the standards that we apply to the selection of our material.”

It is the Journal’s selectivity which has led to its disproportionate impact on scientific careers as well as on the lay media. The NEJM must be highly selective to maintain its special ability to communicate to a large and busy constituency. The papers published are newsworthy, relevant and original; the ideas are fresh and new. They are also representative and cut across all specialties. “The variety of a general journal’s content puts added responsibility on its editor in the selection of material,” Reiman said. The general journal must also be readable, a challenge that becomes more difficult as medical research and practice become increasingly more specialized and the technical language of each field grows more arcane.

Peer review is an important part of the selection process of the New England Journal of Medicine.
LAENNEC ON THE CHEST.

JUST published and for sale by CAR­
TER & HENDEE, A Treatise on the
Diseases of the Chest, and on Mediate
Auscultation. By R. T. H. LAENNEC,
M.D., Regius Professor of Medicine in
the College of France, Clinical Professor
of the Faculty of Medicine at Paris, Ph.
Physician to her Royal Highness the Duchess
of Berri, &c. &c. Translated from the latest
French edition, with Notes and a
sketch of the Author's Life, By JOHN
FORBES, M.D., Member of the Royal
College of Physicians, and Senior Physi.
cian to the Chichester Infirmary. With
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Medicine. Each year, the Journal receives approximately 3,500 unsolicited manuscripts. The editorial staff screens them and selects those to be sent to reviewers. "Some we reject right away," Reiman said, "because they are not suitable for a general readership — too specialized, or not original — perhaps an extension or duplication of work which has appeared in the literature." Reiman said that the NEJM publishes 12 to 13 percent of all the manuscripts that are submitted. The Journal of Clinical Investigation publishes approximately 25 percent.

The NEJM maintains a constantly updated computerized list of approximately 1,000 names of reviewers and experts willing to give advice about papers. "We also keep confidential notes about the quality of the reviewers' comments, how quickly they return their manuscripts, and so on," Reiman said. He regards reviewers as consultants to the editor, rather than to the author. He prefers that the reviewers remain anonymous to the authors; however the policy of the New England Journal of Medicine is to let the reviewer decide whether or not to remain anonymous. Fifteen percent of the reviewers choose to sign their reviews. "But we insist that all communications between reviewer and author before publication pass across the editor's desk and be monitored by the editor," Reiman said.

Each manuscript is sent to at least two reviewers. On the basis of their appraisals, the editor attempts to make a decision, which is difficult, as reviewers tend to disagree more than they agree. A few years ago, a study of NEJM undertaken by its former editor, Dr. Franz Ingelfinger, indicated that the degree of agreement between two reviewers of a manuscript was barely more than one would expect by chance. Technical matters can usually be resolved on an objective basis, using scientific knowledge and judgment. However, the decision also hinges upon the interest, relevance and originality of the work requiring editorial judgments. The peer review system does not automatically produce editorial judgments; reviewers' recommendations must be moderated, adjudicated, and sometimes even circumvented.

Peer review and editorial policy determine the character of a journal. There is a hierarchy of journals, and authors and readers readily perceive which are the more discriminating. There is also a broad spectrum of journals, publishing different kinds of research. The fact of the matter, according to Reiman, is that most physicians and scientists know that they can keep up with their fields by reading very few journals, not the hundreds or thousands which, in principle, might have something in them that is relevant. The chosen few are the journals that have the standards for quality and content of interest to the scientist-readership. Thus, contributor, editor, reviewer and reader all play important roles in shaping a journal.

What happens to the manuscripts that are rejected? The Journal of Clinical Investigation and the NEJM have, independently, studied this question. Both found that some 85 percent of their rejected manuscripts are published elsewhere, often with relatively little change. Thus, the whole system of scientific publication appears to act not like a filter but like a sponge. These findings are further evidence of the hierarchical and varied nature of journals. For the researcher, the problem is to match the manuscript with the appropriate publication. Today, the NEJM is printed in Hanover, New Hampshire; London, England, and Waukegan, Minnesota; it is dispatched weekly to some 10,000 members of the Massachusetts Medical Society and to more than 200,000 other paid subscribers — 50,000 of them in foreign countries. In an age of medical specialization, the NEJM's circulation figures indicate that the general medical journal still has considerable appeal. Under the 10-year editorship of Reiman's predecessor, Dr. Franz Ingelfinger, circulation almost doubled, reaching 175,000 by 1977. It has climbed further during Reiman's tenure.

Ingelfinger's insistence that reports of findings be published in NEJM not be released to the media prior to publication led to the basic tenet of medical/scientific journalism which bears his name — the Ingelfinger Rule. In a 1980 editorial on the purposes of the Ingelfinger Rule, Reiman explained its goals: first, to protect the Journal's newsworthiness — a critical characteristic for determining the success of a biomedical journal; second, to make sure that published medical research has withstood the test of peer review before it is released to the general public. As Ingelfinger, himself, said in his 1977 Shattuck Lecture before the Massachusetts Medical Society: "If the Journal ... believes itself an important link in the transfer of information from the investigator's clinic or bench... the Journal must also hold itself responsible for not emphasizing the sensational or the premature." The "rule" has proved to be controversial in some quarters; but Reiman believes it is right "and, more important, that it serves the best interests of the public and the medical profession."

Despite its international outlook and audience, the NEJM has retained its quintessentially American character and its Bos-
Arnold Reiman, M.D.

The authority of Dr. Good is worthy of the highest respect. We cannot believe, however, that the most powerful and penetrating mind should be able to view with equal accuracy the vast number of diseases comprehended in Nosology. His definition of Neuralgia appears to be essentially wrong, in making the disease consist of muscular contractions. Such contractions...
Before Barnes:
Washington University Hospital

When the Medical Faculty of Washington University ran its own hospital and found that it was a more complicated business than they had first imagined.
During most of its history, Washington University School of Medicine has maintained contracts with autonomous private hospitals, whereby the hospitals serve as teaching institutions and limit their medical staffs to the faculty of the school. Today, Barnes Hospital, St. Louis Children's Hospital, and Jewish Hospital of St. Louis are associated with the School of Medicine, forming together the Washington University Medical Center. A century ago, each of the two medical colleges which were to merge with Washington University had an exclusive teaching contract with a hospital. Missouri Medical College was associated with St. John's Hospital while St. Louis Medical College maintained ties with St. Louis Mullanphy Hospital.

For a relatively brief period there was an exception to such arrangements. From 1905 to 1914 Washington University Medical Department, as it was known then, operated its own hospital. The history of Washington University Hospital is an important episode in the larger history of the School. Both the circumstances of its founding and the circumstances which led to its closing were crises which posed grave threats to the existence of the Medical Department itself.

Even after it was decided that the hospital was not to be a permanent institution, it still had a major role to play. In several major respects, the institution provided a kind of “dress rehearsal” for the opening of Barnes Hospital in 1914.

The circumstances which led to the founding of Washington University Hospital can be traced to an institution known as the St. Louis Post-Graduate School of Medicine, Polyclinic, and Hospital, which opened in 1884. The Polyclinic, as it was commonly referred to, exemplified a trend in medical education that had started a few years earlier in New York City. At that time, a sizable proportion of the practicing physicians in the United States had little or no formal training. Many of those who had degrees lacked familiarity with current medical technology. Medical entrepreneurs in several American cities discovered that there was substantial demand for “postgraduate” refresher courses. Unlike the continuing medical education courses of today, few of these polyclinic schools operated within hospitals or under the auspices of medical schools. Most were established in rented quarters in buildings which were designed for general commercial purposes. With respect to patient care, most polyclinic schools functioned chiefly as dispensaries where the urban poor could come for inexpensive treatment.

The St. Louis Post-Graduate School of Medicine, Polyclinic and Hospital was better equipped than many institutions of this kind. It was housed in a two-story building erected for the purpose, located on Jefferson Avenue at the corner of Lucas Avenue. The school catalog boasted “a number of wards and rooms especially maintained for the reception of patients. . . . In this way, the most interesting cases are kept under observation for further study, and not lost sight of, as is usual in dispensary practice.” Among the course offerings were surgical clinics with at least some of the operations studied performed in the school amphitheater. Thus, the school building functioned, to a degree, as a general hospital from the very beginning. The majority of the patients, however, were treated on an outpatient basis in rooms off a large dispensary hall on the first floor. In 1890 the Polyclinic merged with Missouri Medical College; many of the faculty had already been accredited to both. The curriculum for practicing physicians remained largely the same as before the merger. But now the “postgraduate” students had the opportunity to attend clinics at the Medical College and at St. John’s Hospital, which were adjacent to one another two blocks away on Lucas Avenue. The Medical College operated its own dispensary which, as a training facility, was opened to Polyclinic students.

Missouri Medical College could trace its history to the founding of the first school for the training of physicians west of the Mississippi River, the Kemper College Medical Department, in 1840. By the 1890’s, the college needed larger and more modern quarters than the building next to St. John’s Hospital. Accordingly, the Missouri Medical College Association, the organization through which the leading faculty owned the institution, financed the construction of a new building. The new building, located adjacent to the Post-Graduate School on Jefferson Avenue, opened in 1894. Dr. Robert J. Terry, who for over forty years would head the Department of Anatomy of Washington University, was a student at Missouri Medical College at the time. He was later fondly to recall “the flourishing condition of the college in its new quarters: good laboratories, new equipment, a large clinic and enthusiastic faculty.” A passage was made connecting the new building with the Polyclinic. With regard to clinical practice, the two institutions functioned as one.

In St. Louis in the 1890’s, ten medical colleges competed for students and clinical facilities. After Missouri Medical College, the oldest was St. Louis Medical College, founded in 1841 as a department of St. Louis University; it became an independent institution in 1855. In 1891, St. Louis Medical College was officially designated to be the Medical Department of Washington University although little was changed in the day-to-day governance of the institution. The chief financial backer of St. Louis Medical College was, and remained, an organization known as the Medical Fund Society which was.
made up of certain of the faculty. In 1892 the Medical Fund Society built a new college building on Locust Street near Eighteenth Street. The site was close to where the undergraduate college of Washington University was then located and, perhaps only by coincidence, only a short distance from Missouri Medical College.

In 1899, despite rival traditions, separate financial backers and investments in new physical plants which set them apart, talks began about merging the two medical colleges. Pressures toward merger weighed most heavily on Missouri Medical College. As Dr. Terry put it, "it was clear that the fullest development of the school could not be attained by continuing as an independent institution. The advantages of university connection were strongly impressed upon the trustees and faculty, and in 1899 our organization passed into Washington University, joining forces with the St. Louis Medical College." The agreement called for all the clinical, instructional and laboratory equipment of Missouri Medical College and the Polyclinic to become property of the new school. Ownership of the former Missouri Medical College buildings and grounds was retained by the Missouri Medical College Association which leased the structures to the Medical Fund Society. The latter, in turn, made them available to Washington University by a sublease contract. By such terms, Washington University Medical Department, as the institution was officially known, entered into a new century with three buildings at its disposal.

The problem of duplication of equipment and space was not easily overcome following the merger. This was particularly true with regard to the clinics. The old St. Louis Medical College dispensary, known as the O'Fallon Dispensary, continued to operate separately from the Polyclinic, although both offered largely the same services. Typical was the situation with the obstetrical clinics. Both dispensaries had obstetricians on their staffs, but neither was large or equipped enough to boast a true maternity department. The need was fully recognized; in fact, the first major reorganization of Medical Department facilities in 1903 was to establish a "Washington University Lying-In Hospital." The unit was located on the second floor of the former Missouri Medical College building.

In that same year, a major impetus toward a complete reorganization of clinical facilities came from outside Washington University. Across town, St. Louis University regained a medical department by absorbing Marion Sims-Beaumont Medical College. As a consequence, Washington University Medical Department found that its historic affiliations with the two teaching hospitals were in jeopardy. Both St. John's and Mullanphy Hospital were operated by Roman Catholic religious orders — the Sisters of Mercy and the Sisters of Charity respectively. At St. John's, the Mother Superior regretfully indicated that she had been prevailed upon to transfer association to the Jesuit university. This development shocked the Washington University faculty. Crisis discussions were held to make "provision for those of St. John's staff who have remained faithful." The same notice was expected from Mullanphy Hospital. As a stop-gap measure, ten beds were rented for three years at that institution so that the Department would not immediately be deprived of clinical space. Attempts were made to associate with other St. Louis hospitals, but no satisfactory arrangement could be made on such short notice.

It was in this crisis situation that plans were laid for converting the Missouri Medical College building and the Polyclinic into the Washington University Hospital. Little thought was given at first to making structural changes. The faculty did, however, recognize that there would be considerable costs to equip the hospital, more indeed than they had at their disposal in Medical Department accounts. For the necessary funds, they turned to the Board of Directors of Washington University. With some initial misgivings, the Board agreed to lend the Medical Department the funds needed to establish the hospital. In return, "the Board also deemed it advisable to have the affairs of the Medical Department in its relation to the University gone over carefully." Thus, as a rather significant by-product of the hospital crisis, the central University administration assumed for the first time a measure of authority in the governance of the school.

The alterations and new equipment were ready by September 1904, and the hospital was officially opened on January 1, 1905. Its 125 beds were distributed among 12 wards and 20 private rooms. The wards included two each for maternity patients, surgical patients, and children. As was usual for hospitals in St. Louis at the time, the institution was racially segregated, with one ward for black men and one for black women. In the hospital proper, there was only one operating room. But next door in the former Polyclinic, renamed the Washington University Hospital Dispensary, the surgical amphitheater was fitted for use as part of the larger unit. The rear portion of the dispensary building was expanded to house new laboratories and x-ray equipment. The total cost of the renovations creating Washington University Hospital was $50,000.
Physicians who were accredited clinical faculty of the Medical Department received the following notice concerning the opening of the hospital:

"Dear Doctor:
The Washington University Hospital is now ready for the reception of patients in the practice of the teachers and assistants connected with the Medical Department.
The rates have been fixed at $7.00 per week for ward patients and from $10.00 to $15.00 per week for room accommodation. This rate includes ordinary nursing and medication, and materials for surgical dressings. A fee of $5.00 will be charged for the operating room.
The patients admitted remain under your charge and control, or may be referred if you so elect. All patients are to be considered as material available for clinical teaching and demonstration. Such presentation, however, can only be done by a member of the staff qualified as a teacher.
We solicit your support and co-operation in the interest of the school, and invite you to call and inspect the Hospital at your early convenience."

Once the hospital began to function, certain deficiencies in the building became apparent. The institution was without a lobby where patients could wait before being admitted. There was also no room for an administrative office. Corrective measures were ordered whereby the entrance hall of the building was partitioned to provide a seating area. The old faculty meeting room was sacrificed to create an office. Related to this latter change, perhaps, is the fact that a superintendent was appointed to administer the day-to-day affairs of the hospital.

Dr. O. Wayne Smith, a 1902 graduate who held the position of registrar, was given this as an additional assignment. By the end of 1905 it was determined that the hospital was operating at a deficit. For both the hospital and the school, the faculty found it necessary to borrow additional money from the University. Once again the Board of Directors responded affirmatively but this time demanded, in return, complete supervision and control of the Medical Department. Changes were affected all along the chain of command. For his part, Dr. Smith was requested to prepare a hospital budget as a step toward controlling hospital expenses. In connection with this, efforts were made to improve coordination between the dispensary and the hospital. For example, it was discovered that the eye clinic of the O'Fallon Dispensary, which continued to operate in the former St. Louis Medical College building, was referring patients to a hospital other than the University's. A circular was issued to all clinical staff requesting a stop to this practice.

In October of 1906, after another year of hospital operation, the faculty decided to conduct a thorough inspection of the institution, without the prior knowledge of Dr. Smith and his staff. The inspectors were generally pleased with what they found. Patients were being well-cared for and most rooms of the building were maintained in a sanitary and neat condition, according to the report written by the inspectors. They noticed several problems with the plumbing and heating systems, and were rather surprised to learn that Dr. Smith was accustomed to making repairs with his own hands. One inspector complained that that hospital had no icebox. Dr. Smith responded that he had earlier requisitioned an icebox but had been turned down. He promised to build one, a solution which seemed to satisfy everyone.

In the years from 1907 to 1910 the records report relatively few changes in hospital operations. In this period, which was before any plans to affiliate with Barnes Hospital were made, the University facility apparently lived up to most expectations of the Medical Department and the Board of Directors. The hospital continued to run at a deficit but this came to be regarded as a necessary factor considering that medical education was its primary objective. The 1907 annual report explicitly stated that the hospital assumed the entire expense of rent and maintenance of lecture and clinic rooms used on the premises by the junior and senior students. The Bulletin of the Medical Department described the institution in glowing terms: "the facilities for clinical study in this department are
Robert Brookings, president of the University board of directors and leading financial backer, asked Flexner to provide a more detailed critique and additional recommendations.

Late in 1909 an event occurred which altered this assessment radically. The Council on Medical Education of the American Medical Association authorized the Carnegie Foundation for the Advancement of Teaching to conduct a survey of the status of medical schools throughout the United States and Canada. The Carnegie Foundation appointed a prominent educator by the name of Abraham Flexner to be the investigator. Flexner was not a physician, but he quickly expressed the knack for writing terse, accurate reports about the qualities of each institution that he visited. Most of the reports were highly critical; many schools, indeed, were judged to be irredeemably bad in terms of standards, course offerings and facilities. Flexner’s views were widely greeted with outrage and
disbelief. But backed by the American Medical Association and published at a time of fierce competition among medical schools, his ratings could not be ignored.

The "Flexner Report" on the Washington University Medical Department was devastating. The institution may not have been among those judged absolutely irredeemable, but there was little that was praiseworthy about it in Flexner's analysis. His general commentary ran as follows: "(The) medical department is entirely out of harmony with the spirit of the rest of the university. Unless this department is to be a drag and a reproach, one of two courses must be adopted: the department must be either abolished or reorganized.

Concerning his visit to the hospital, Flexner wrote: "The clinical branches are, to state the facts candidly, in wretched condition. The hospital facilities are inadequate and, such as they are, are poorly used. They ought to yield an immensely better training than students now get from them. The dispensary, which ought to furnish the student the very foundations of his clinical education, now does more to demoralize than to train him: the methods employed in it, as in much of the hospital work, are decidedly slipshod. The word is, of course, not all equally poor, but the point is that there is no 'team work,' no training in method, no governing purpose . . ."

The University and its chief backers were dismayed at the report and not a little surprised. After three years of heavy investment in the Medical Department and its facilities, they had expected kinder words from Flexner.

The President of the Board of Directors of the University, Robert Brookings, was also its leading financial backer. Brookings persuaded Flexner to return to St. Louis for the purpose of providing a more detailed critique of the Medical Department and for making recommendations toward its reform. Characteristically brusque, Flexner's advice was to "abolish the school," following which a new faculty could be formed, the clinical facilities reorganized, and an endowment raised, all on the model of the Johns Hopkins School of Medicine in Baltimore. It was a tall order. But Brookings, an extraordinarily committed and generous philanthropist, had the wisdom to see that there was little choice if the school were to succeed. In this conviction he had the enthusiastic support of other generous, wealthy men on the Board. They included the brewing magnate Adolphus Busch, the chemical manufacturer Edward Mallinckrodt, and Brookings' former partner in the merchant trade, Samuel Cupples. Together, they and others, later with financial support from the Rockefeller-backed General Education Board, set forth to follow Flexner's recommendations in an exact manner.

The timing was fortunate when it came to planning new clinical facilities. As it happened, Samuel Cupples was serving on the Board of Trustees of the estate of Robert A. Barnes, as well as on the Washington University Board. Privy to plans for a new hospital endowed by the late Mr. Barnes, Cupples kept Brookings and others of the University Board informed of developments in that regard. Property had been acquired for Barnes Hospital on Kingshighway Boule-
The ear clinic below, and the nose and throat clinic at right.

ward in the West End of St. Louis, and an architect had been commissioned to draw plans for the building. Following the uproar caused by the Flexner Report, negotiations were begun to associate the new hospital with Washington University as the chief teaching facility of the reorganized Medical School. A simultaneous, but quite separate, development was a series of negotiations which led to the affiliation of St. Louis Children's Hospital with the University. As with the Barnes arrangement, personal connections on the directorial level eased the way toward making St. Louis Children's Hospital the clinical pediatric faculty of the Medical School. Grace Jones, the wife of University Board member Robert McKittrick Jones, was President of Children's Hospital. With the financial support of Broekings and others of their philanthropic circle, funds were raised for a new Children's Hospital building adjacent to Barnes Hospital on Kingshighway Boulevard.

The upshot of all this, as far as Washington University Hospital was concerned, was that the institution, so recently hailed as modern and progressive, stood almost literally condemned for its inadequacies. One of the first items on the agenda of the new Executive Faculty of the reorganized Medical School, when they took control in 1910, was a thorough inspection of the hospital to see what could be done. The preliminary findings, ironically, were penned by Dr. Terry, who had been associated with the building since it first opened and who now was the lone member of the old regime to be rehired to head a department. The hospital was found to be "in shocking condition, in poor repair, poorly organized from a medical and administrative standpoint." The report focused the blame on Dr. Smith. With a cutting reference to the fact that Smith had been promoted within the ranks, the document stated that "a hospital of this kind does not afford the training essential to a superintendent." Although Smith was allowed to keep his position for another year, a search was immediately begun for a qualified successor.

A more detailed study was undertaken and completed in April 1911. It covered a wide variety of issues ranging from recommendations for changes in the layout of the main hospital building to the referral of patients from the dispensaries to the hospital. Noting that dispensary patients, including many with communicable diseases, were free to wander throughout the building, the study recommended the setting up of public passages between the former Polyclinic and the hospital proper. Improvements in the lighting and ventilation of many rooms were advised. The study called for a greater allocation of space to internal medicine and to surgery at the expense of rooms devoted to the specialty clinics. A complete reorganization of the old lying-in facilities was urged. Additional laboratory space was to be achieved by diminishing the size of an amphitheater. More orderly assignments of patients to beds and of interns to attend them were recommended. Finally, the study berated the chronic lack of coordination between the hospital and the O'Fallon Dispensary.

In December 1911, Dr. Charles E. Baur replaced Dr. Smith as hospital superintendent. Baur, a dentist, had served as Smith's assistant. The Executive Faculty had not yet found a "qualified" professional, but was still searching. As though to prove his worth, Baur vigorously applied himself to the task of improving the administration of the institution. He proposed, for the first time, centralized purchases of supplies and equipment. He reorganized the basement of the building so that a specific receiving entrance could be designated. He proposed hiring a storekeeper. In the process of making these reforms an old problem resurfaced: it was discovered that Dr. Smith's handmade icebox needed to be replaced. This time, the requisition for such a vital piece of equipment was not refused.
The delivery room of the Lying-in Department.

Samuel Cupples, Brookings' former partner in the merchant trade, served on the University board and was also a trustee for the estate of Robert A. Barnes. Cupples kept the University informed of plans for a new hospital to be endowed by Barnes.

A men's ward.

The dispensary waiting room.
By July 1912, contracts with both Barnes Hospital and St. Louis Children’s Hospital were signed and construction of the new buildings had begun. Still, refinements in the operation of the old hospital were being made. The issue of maintaining an inventory of patients’ bed clothing to meet current hospital standards was addressed. The first attempts were made to obtain reliable ambulance service. A new pump to maintain sufficient water pressure was requested. A new pump to maintain sufficient water pressure was requested. A new pump to maintain sufficient water pressure was requested. A new pump to maintain sufficient water pressure was requested. A new pump to maintain sufficient water pressure was requested. A new pump to maintain sufficient water pressure was requested. A new pump to maintain sufficient water pressure was requested. A new pump to maintain sufficient water pressure was requested. A new pump to maintain sufficient water pressure was requested. 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The Andrew J. Mellon Foundation has presented a $350,000 grant in support of teaching and research to the Washington University School of Medicine. The School is one of only 15 private medical schools in the nation to receive one of the three-year grants, which are designed to help retain outstanding young faculty investigators in medical education and biomedical research. With the conclusion of this grant, Washington U. medical school will have received Mellon Foundation funding for 12 years. The grant will support a select few teacher-scientists who plan careers in medical education and basic research.

Michel M. Ter-Pogossian, Ph.D., director of the division of radiation sciences in the Mallinckrodt Institute of Radiology and professor of radiology, has received a five-year grant of $4,700,000 from the National Heart, Lung and Blood Institute. The grant will support research efforts in labeling compounds of importance in biology and medicine with cyclotron-produced isotopes to study major metabolic pathways which sustain the function of vital organs. The investigative program involves projects headed by radiology professors Michael J. Welch, Ph.D., and Marcus E. Raichle, M.D., and professor of medicine Burton E. Sobel, M.D.

The Barnes Hospital Society presented $10,000 to support construction of the medical school’s Clinical Sciences Research Building. The society consists of 800 doctors pledged to secure the development of Barnes as a source of community service and medical progress.

Gerald D. Fischbach, M.D., Edison Professor of Neurobiology and head of the department of anatomy and neurobiology has been elected president of The Society for Neurosciences which has 8,000 members. He will assume office in 1983.

Roy R. Peterson, Ph.D., professor of anatomy, has completed work on two projects which can be used to accompany his 1980 book on cross-sectional anatomy. A workbook for student use is available in the school’s bookstore or by writing to the department of anatomy. A slide presentation consisting of 105 color slides and a 16-page user’s guide complement Peterson’s earlier textbook. The slide presentation and the text are available from Year Book Medical publishers in Chicago. The textbook, slide show and workbook were prepared, Peterson said, "to stimulate more interest in cross-sectional anatomy because it is the basis for more and more diagnostic procedures, such as ultrasound, CAT scanning, PETT scanning and nuclear magnetic resonance."

Mark Willard, Ph.D., associate professor of anatomy and neurobiology and assistant professor of biological chemistry, received an $18,000 grant from the National Spinal Cord Injury Foundation of Lauderhill, Florida. Willard’s research involves purifying and studying specific proteins which are induced during nerve regeneration. A total of 72 applications were submitted to the foundation, and seven were approved for funding.

Mildred Trotter, Ph.D., professor emeritus of anatomy and neurobiology, received the physical anthropology section award at the 34th annual meeting of the American Academy of Forensic Sciences in February. She was cited for her research in anatomy and physical anthropology for its application to forensic analysis.

David M. Kipnis, M.D., chairman of the department of medicine, has been elected to the Society of Scholars, Johns Hopkins University in Baltimore. The society honors former post-doctoral fellows of Johns Hopkins who have gained distinction in their fields.
M. Gilbert Grand, M.D., clinical assistant professor of ophthalmology, is one of seven U.S. ophthalmologists recently elected to active membership in the Retina Society. There are now 147 active members of the Society which was founded in 1968 for the exchange and dissemination of information about retinal diseases. Grand is in practice with Retina Consultants, Ltd., and is on the staff of Barnes Hospital.

Thomas B. Ferguson, M.D., clinical professor of surgery in the division of cardiothoracic surgery, delivered his presidential address, "The Crisis of Excellence," at the 62nd annual meeting of the American Association of Thoracic Surgery in Phoenix, Arizona, early in May. He was the special guest lecturer in the department of cardiothoracic surgery at Long Island Jewish-Hillside Medical Center in New Hyde Park, New York, on May 22. And in June, Ferguson was the Mayo Visiting Professor in the department of surgery at Northwestern University Medical School in Chicago.

Eli Robins, M.D., received the Foundation's Fund Prize for Research in Psychiatry at the 138th annual meeting of the American Psychiatric Association in Toronto. The Foundation's Fund Prize is one of the most prestigious honors awarded by the association. Robins was honored for his contributions to the study of depression and psychiatric disorders and his contributions to the field of psychopathology. Earlier this year, Robins was awarded the medal of the Salmon Committee on Psychiatry and Mental Hygiene.

Charles B. Anderson, M.D., professor of surgery and head of the renal transplantation team at Barnes Hospital, was elected vice president of the Missouri Chapter of the American College of Surgeons. He will serve a one-year term, and has previously been secretary-treasurer, council member and education program chairman for the 550-member chapter.

Virginia V. Weldon, M.D., has been elected to the Institute of Medicine of the National Academy of Sciences. She is associate vice-chancellor for medical affairs, vice president of the Washington University Medical Center, and professor of pediatrics in the School of Medicine. Weldon is one of 49 new members of the institute which was created in 1970 to examine public health policy matters. The new members' terms begin January 1, 1983. Current institute projects include a study for meeting the nation's need for nurses, plans for a major review of medical education, and help for the Secret Service in developing behavioral research for dealing with potential assassins.

Richard V. Bradley, M.D., '52, has been elected to the Executive Faculty of the School of Medicine, the school's governing body. He succeeds Richard H. Fallon, M.D., who served two terms. Bradley is clinical assistant professor of surgery and is on the staffs of Barnes and St. Louis Children's hospitals. He is a past president of the Barnes Hospital Society, the Missouri State Medical Association and the St. Louis Medical Society.

Correction: In the last issue on page 28, Chromalloy American Corporation treasurer Carl Sherman was incorrectly identified as Howard Nykiel. We regret the error.
Dear Colleagues:

I have already had the pleasure of serving as president of the Medical Center Alumni Association for three months, and look forward to an exciting and productive term.

Our kick-off event, a reception welcoming new house officers, was held on a typical, sultry August evening, around the pool in Queeny Tower. The weather didn’t discourage attendance; a record number of more than 150 house officers, alumni and guests enjoyed a buffet dinner and the view of Forest Park.

Our annual party for the incoming class was also a success. Scheduled this year at the conclusion of registration week, the party gave students the opportunity to meet alumni and faculty. It is a special way for youngsters to embark on their medical education.

Your response to the 1981-82 Annual Fund was excellent, with 1,653 alumni contributing $223,852 to the Medical Center. Many new members have been added to the Medical Century Club, the Dean’s Committee, and the Eliot Society rosters. The Medical Annual Fund Committee hopes for a record-breaking year for 1983-84. I hope you will give this your special consideration. Gifts can be designated to the Medical Teaching Fund which supports the areas of greatest need, or to individual departments.

With the first Alumni Endowed Professorship having been accomplished, we are working on endowing a second professorship and hope to meet the goal within the next three years. The ultimate plan is to have an Alumni Endowed Professor in all of the departments.

In the last eight months, more than 130 emergency loans totaling $70,000 were made to medical students. These loans are made possible by your generous contributions, and I wish to thank everyone who contributes to the Medical Center.

The Alumni Placement Service program has been reinstated. You should have received at least one letter from Jack Barrow, M.D. ’46. I encourage you to register available practice positions with the WUMCAA. The listings will be made available to current house staff.

Many thanks to those who have agreed to participate in the Alumni-New Graduate program. We are trying to match alumni in various cities with new graduates just beginning their training. Such a pairing helps new trainees get acquainted with their new surroundings. If you wish to participate in the future, please contact the Alumni Office.

In St. Louis, a special-interest series is being offered to alumni and guests. We will have receptions and special tours on November 9 at the Art Museum, and on February 6, the Missouri Botanical Garden. Join us if you will be in town in November or February. Plan, too, for the Annual Clinical Conference in Cancun, Mexico, in January, and the annual class reunions on May 5, 6 and 7.

— Richard P. Parsons, M.D. ’58
President
Medical Center Alumni Association
Network Cities

The Alumni Association's Network Cities program is beginning to make progress. On May 6 the School of Medicine hosted a reception and dinner in Los Angeles and on May 7, a similar program in San Diego, California. Most of the people who attended are alumni or alumnae of the school or former housestaff. Graduates of the schools of Occupational Therapy and Physical Therapy and of the Program in Health Administration, and parents of current medical students were invited to attend. Most of them were enthusiastic about the concept of organizing local medical alumni chapters in cities throughout the country.

Paul Lacy, M.D., Ph.D., Edward Mallinckrodt Professor and head of the Department of Pathology, gave presentations on his work in transplanting islets of Langerhans to combat diabetes.

Joseph Natterson, M.D. '48, was the coordinator for Los Angeles. At the cocktail reception and dinner he met another alum, Leon Kahn, M.D. '41, who happens to live across the street from him.

William Quillin, M.D. '71, (r) took advantage of the opportunity to talk with one of his former professors, Paul Lacy, M.D., Ph.D., at the reception in San Diego.

The Los Angeles reception was attended by approximately 80, including nine parents of current medical students. Seated above are: Ellen Lacy and her husband, Paul Lacy, M.D., Ph.D.; Florence and Herbert Anderson, M.D.; and Lynn Kienzler, Director of Medical Annual Giving in the Office of Medical Alumni and Development Programs. Standing, from left to right: Harvey Crystal, M.D., Dennis Cantwell, M.D. '65; Phyllis Rokaw, Susan Cantwell, Stanley Rokaw, M.D. '49, and Joseph Natterson, M.D. '48. Rokaw is chairman of the Parent's Annual Fund.
Letters to Outlook

Alan Livingston, Washington University School of Medicine Class of 1960, died rather suddenly in February of 1980. Those of us who knew Alan and were both friends and associates have been working on a project to dedicate a Glaucoma Research Laboratory at the University of Rochester School of Medicine in Dr. Livingston’s honor. I would be most appreciative if you could allow as many of Dr. Livingston’s medical school classmates as possible to be aware of his untimely death and of our aim to dedicate a glaucoma laboratory in his honor.

Henry S. Metz, M.D.
Professor and Chairman
Department of Ophthalmology
University of Rochester
School of Medicine and Dentistry

“It is unfortunate that the WUMS class chose for this year’s graduation address the speaker and the subject as reported in Outlook Magazine, Summer 1982. The address contains numerous misstatements . . .

I have been concerned with health preparedness for the past 30 years, at the state level as Director of Emergency Health Services in Florida; at the national level as the Director of the Health Mobilization program until my retirement from the U.S. Public Health Service, and as a consultant for related projects with the NAS, the APHA and the FEMA since that time. As a result of my work, I am aware of many of the erroneous statements contained in this address. Some of which are:

1. “It takes about eight days to evacuate any large city.” With the exception of Los Angeles with its peculiar geography, any city can be evacuated in a maximum of four days. Actually, 2,000,000 people leave New York City, and 700,000 leave Washington each workday between the hours of 4 and 7 p.m.

2. “Buildings and property remaining following a neutron bomb blast would remain radioactive for years.” The radioactivity from a neutron weapon arises from gamma radiation which is short lived and would present little, if any, problem for those entering the area within a few hours.

3. “Eighty percent of the world’s illness is caused by dirty water.” In the U.S., infectious diseases other than those airborne are responsible for an insignificant amount of illness. Even in China, all infectious diseases now run a poor fourth in overall causes of death.

4. “It is postulated that a 20-megaton bomb would drop on the hotel . . .” To the best knowledge available, Russia does not plan for these extremely large weapons, and most of her arsenal now consists of one- to five-megaton weapons . . .

5. “Twenty miles from the burst, every person will die . . .” At this distance, pressures are such that almost any protection will prevent serious injury. The estimate is for 36-mph winds, not 500 as stated.

6. “Out in the open, at 26 miles, your clothes will spontaneously ignite . . .” At 26 miles, the caloric content is calculated at a level which will cause skin reddening—far from the heat needed to spontaneously ignite clothing.

7. “If you look at the blast from 50 miles away, the flash will cause blindness.” Looking at the sun has the same effect. Natural reflexes protect the eyes and would normally prevent severe damage.

8. “There will be a firestorm of 1,500 to 3,000 square miles in extent.” The best estimate available is that the maximum area of major conflagration in any metropolitan area would cover no more than 150 to 300 square miles, with isolated fires going out perhaps to another five miles.

9. “The National Academy of Sciences thinks that the ozone layer would be destroyed and it would then be possible for life to cease on earth.” The conclusions of the National Academy were: ‘that man would survive nuclear war.’ Recent sophisticated computer calculations at the Lawrence Livermore Laboratory indicate that the present smaller weapons would have less significant effect on the ozone layer and the danger is much reduced, if not eliminated.

10. “Most of the doctors will be dead and most of the hospitals will be destroyed . . .” Studies in 1973 indicated that physicians and health personnel in general would survive to a higher percentage than the general population. For the greater part of the 24 hours they are not in their offices or hospitals and tend to sleep, eat and spend their leisure hours away from the target centers.

In conclusion, nuclear warfare is horrible enough without exaggerating or distorting the consequences. As physicians, we have been taught to do everything possible to assure survival of each patient.

If the need should come, each of us will want organized medicine and governmental authorities to have taken action which will enhance the probability of survival of our nation and those we care for. To have done less would be socially irresponsible.

Henry C. Huntley, M.D. ’37
Chevy Chase, Maryland
Julia Lindsay Adams, M.D. '33, of Muncie, IN, celebrated her 50th wedding anniversary in November 1981.

Edward Kloess, M.D. '33, of Belleville, IL, is retired and works with a local Retired Senior Volunteers Program.

Nathan Kahn, M.D. '36, writes in praise of a "festive and informative" dinner party in Palm Beach with four other WUMS alumni and Chancellor and Mrs. Danforth.

Lawrence Breslow, M.D. '36, has been secretary, Health Service Agency 7, suburban Cook-DuPage counties, Illinois, since 1976.

Vernam Terrell Davis, Jr., M.D. '36, is honorary clinical professor of psychiatry at Jefferson Medical College, and director of the department of psychiatry at Wilmington Medical Center in Wilmington, Delaware. He hopes to retire as director when a search committee has found a replacement. He plans to continue the private practice of psychiatry in Wilmington. He and his wife, Evelyn Parker Ivey-Davis, M.D., who is also a psychiatrist, will continue as consultants to the National Institute of Mental Health. The doctors Davis traveled to Petchubue, Thailand, in 1980, where they found and photographed the gravestone of his grandfather, James B. Thompson, M.D., an 1886 graduate of the U. of Pennsylvania. Thompson died of cholera in 1898 while serving his second seven-year assignment as a medical missionary in Siam. Thompson was a classmate of William Dorland, dictionary publisher, and was married to Dorland's sister. The Davises also visited China with a group from the American Psychiatric Association.

Alfred Gellhorn, M.D. '37, continues as part-time visiting professor at the Harvard School of Public Health and also teaches at the City College School of Biomedical Education in New York City. He spends weekends raising sheep.

Philip Rosenblatt, M.D. '38, of Jamaica, NY, says he "got tired of retirement and went back to work as director of laboratories at Hempstead General Hospital."

Marion Dakin, M.D. '38, of Key Largo, FL, is enjoying retirement, sailing and playing tournament bridge. He learned SCUBA at age 68, and competes in shell shows.

Harry Baers, M.D. '38, retired from his practice in Los Angeles and now lives in Hawaii with his wife, Donna, a 1938 graduate of the nursing school. He enjoys golf, SCUBA and traveling throughout the Pacific.

Sidney S. Boyers, M.D. '39, wrote that he and his son, Jerold E. Boyers, M.D. '74, are in practice together, otolaryngology and head and neck surgery, in Las Vegas.

Irving Berger, M.D. '39, of Beechwood, OH, retired in 1981 but continues doing some teaching and supervision at Case Western Reserve. He is learning how to sketch and do watercolors.

Robert Hago, Jr., M.D. '41, attended the Transcultural Psychiatric Meeting at Madurai Kamraj University, Madurai, India, in August '81. Mental health workers from many countries concluded that psychiatric problems are similar throughout the world, more alike than unalike.

William G. Reese, M.D. '42, has been named the first Marie Wilson Howells Professor of Psychiatry at the University of Arkansas for Medical Sciences in Little Rock. Reese joined the medical center staff as chairman of Psychiatry in 1951. Under his chairmanship, the staff increased from three to 37, research and education grants increased to several million dollars to support work in learning disabilities, hyperactivity and minimal brain dysfunction.

James Cravens, M.D. '43, of Quincy, IL, had quadruple coronary bypass surgery last March, and has been able to carry on a full pediatric practice and walk 18 holes of golf with no problems except that his score hasn't improved much. He is secretary of the Illinois chapter of the American Academy of Pediatrics and is treasurer and director of the Physicians and Surgeons Clinic of Quincy, IL.

Louis Gottschalk, M.D. '43, is listed in Who's Who in America and Who's Who in World Science for his founding chairmanship, Department of Psychiatry and Human Behavior at the U. of California, Irvine in 1967, and for more than 300 scientific publications in neuropsychopharmacology, drug abuse and psychoanalysis. He has written 14 books. He is professor and director of psychiatric consultation and liaison at the UCI medical center.

Edward Kowert, M.D. '43, writes: "One of my favorite professors, Dr. Francis Schmitt, once said that there are two definitions of retirement. The other is "put new tires on the old chassis and get going again." And so ... I'm moving this spring into a new office in the new Barnes Pavilion, suite 16303. This is the closest suite to the Tower Restaurant. If any of my old classmates come by, I'd like to take them to lunch."

Leslie Rose, Jr., M.D. '43, of Richmond, VA, wrote to urge that reunions be held on a weekend because midweek meetings take a full week from practice.

Gordon Todd, M.D. '43, notes: "After 30 years in a partnership, I have been in solo practice, consulting and primary care, in Toledo, OH, since June '80. Medical College of Ohio keeps me on the clinical teaching faculty, providing the always challenging stimulation of bright residents and medical students. Emily and four grown children keep life interesting as well."

Bernard S. Lipman, M.D. '44, has received the Maimonides Award from the State of Israel Bonds organization in Atlanta, Georgia. Previous Maimonides Award recipients have included Jonas Salk, Albert Sabin, Gene Stollerman, Rozalind Yalow and other prominent individuals. Lipman is in private practice, internal medicine and cardiology, in Atlanta. He is a fellow of several medical colleges, has lectured extensively and written many articles for medical journals, and is active in philanthropic organizations. He was a member of the first Israel Bond Hospital Delegation to Israel in May 1981.

Edgar N. Lockett, Jr., M.D. '45, writes that John Stanford Lockett, M.D. '74, will be appointed a Lt. Colonel in the U.S. Air Force in June 1982. He is chief of the department of anesthesiology at Eglin AFB in Florida.
James O. Davis, M.D. '45, professor and chairman of the physiology department at the U. of Missouri in Columbia, School of Medicine, has been elected to the National Academy of Sciences for his distinguished and continued contributions to research on the physiology of hypertension and congestive heart failure. After receiving his M.D. degree, Davis went on to work at the NIH for 19 years, and joined the UMC School of Medicine in 1966. He is president of the International Society of Hypertension, and has 250 publications to his credit, covering his research in renal physiology, hypertension and heart failure.

Sanford Tuthill, M.D. '45, has a new address in Bogalusa, LA; it is 537 Kentucky Ave. He reports recent promotions to associate professor of family medicine at LSU School of Medicine, and also Assistant Professor of Internal Medicine.

Mary Bublis, M.D. '46, reports that she has achieved “ancestor status...having seven grandsons, three great-grandsons, and one great-granddaughter.” She is still medical director of Central Plains Comprehensive Community Mental Health/Mental Retardation Center in Plainview, TX, and for the past three years has been the “Hale County Jail Doctor.”

Eugene P. Johnson, M.D. '46, of Casev, IL, writes that Albert Ishii, M.D. '46, died of a heart attack in November 1981.

George W. King, M.D. '46, of Tucson, AZ, writes: “The good news is that we are still here!”

Purdue L. Gould, M.D. '48, of Nashville, TN, has been in administration full time since 1978 as medical advisor for Hospital Corporation of America, responsible for international activities.

Ward Breidenthal, M.D. '49, is retiring after 20 years of service with the State of North Carolina at Broughton State Hospital in Morganton, NC. He will limit practice with Avery County Mental Health Clinic and Cannon Memorial Hospital Psychiatric Unit in Banner El. He has been director of the Adolescent Unit at Broughton since 1973.

Public Health Service in December 1981. In January 1982, he was appointed director of regulatory medical affairs for F.R. Squibb and Sons, Inc. He is listed among 1000 Contemporary Scientists Most Cited for Research, 1965-1978.

Robert C. Schaun, M.D. '53, attended the Alumni Association meetings in Hawaii in February and wrote that the location, weather and travel arrangements were excellent.

Herbert L. Winograd, M.D. '53, of Phoenix, AZ, pediatrician, is serving his first term as a member of the Maricopa County Board of Health, which is also the governing body of the county hospital.

Gerald Hoxworth, M.D. '55, of Mexico, MO, writes that his daughter, Karen Rice, was inducted into Alpha Omega Alpha at WUMS, class of '82.

Jules Kernen, M.D. '55, of Los Angeles, CA, reports that he was married on October 25, 1981, to Rita Dennehy of Los Angeles, formerly of Galway, Republic of Ireland.

David G. Murray, M.D. '55, of Syracuse, NY, is president of the American Academy of Orthopaedic Surgeons for 1982-83.

Nina Steg, M.D. '55, reports that her son, James H. Steg, a 1982 graduate of Boston University School of Medicine, was elected to Alpha Omega Alpha, and plans to specialize in internal medicine.

Donald Tilson, Jr., M.D. '55, writes that he is "still chief of orthopedics at Bess Kaiser Hospital in Portland. Like the Marines, we are looking for a few good men (or women) for our service." He lives in Vancouver, WA.

John S. Meyer, M.D. '56, has completed a term as treasurer of the Cell Kinetics Society and is currently chairman of the breast cancer pathology subcommittee of the Southeastern Cancer Study Group. His primary academic interest is in cell kinetics of breast carcinoma. He is professor of pathology and on the full-time staff of the Jewish Hospital of St. Louis.

Havner Parish, Jr., M.D. '56, is on the advisory board of the state PSRO, the Georgia Medical Care Foundation, and is president of the Albany Symphony Association.

Theodore Sadler, Jr., M.D. '56, is president of the Denver Medical Society and speaker of the house, Colorado Medical Society.

Robert Meredith, M.D. '57, was appointed assistant clinical professor of neurosurgery at the U. of California, San Diego, in the Fall of 1981. He was appointed chief of the neurological service, Naval Regional Medical Center, also in San Diego, in January '82. And he is assistant regional executive of the San Diego Region of the Sports Car Club of America.

Dixon Spivy, M.D. '57, was appointed assistant clinical professor at the University of Illinois School of Medicine. He specializes in psychiatry and lives in Chicago, IL.

Donald Terry, M.D. '57, is chief of cardiology and director of the cardiac laboratory at Wichita General Hospital, Wichita Falls, TX.

Byron J. Masterson, M.D. '58, chairman and professor of the Department of Obstetrics and Gynecology at the U. of Louisville School of Medicine in Kentucky, was awarded the 25th Citation of Merit by the U. of Missouri Alumni Association. Masterson is the author of a text on gynecologic surgery that has been translated into Spanish, Italian and German, and he is the inventor of surgical instruments.
used throughout the world. He became chairman of the Ob/Gyn department at Louisville in 1981. He was one of the pioneers in the use of lasers in gynecologic surgery and has established a clinical unit for treating pre-cancerous lesions and a laser research unit for enzymes and wound healing studies at the University since his arrival.

John A. Headrick, M.D. '58, vice president of medical affairs for Christian Hospital Northeast-Northwest in St. Louis, has been named to membership in the American College of Physician Executives, a non-profit education and accrediting organization. He has been on the staff of the Christian Hospitals since 1969, joining as an internist in private practice and holding positions as medical staff secretary-treasurer, associate chief, chief and medical director of the alcohol care unit. In 1976, he left his private practice to become full-time administrator as vice president of medical affairs. His membership in the American College of Physician Executives recognizes excellence in the practice of medicine and the management of a health care organization.

William Martin, M.D. '58, and Gerald Weaver teamed up for group practice in Red Bluff, CA, in July '82.


Stephen Farmer, M.D. '59, is head of the section of otolaryngology at Rutgers Medical School in New Jersey.

1960s

Robert Fechner, M.D. '60, has been appointed the William Stamps Royser Professor of Pathology at the University of Virginia School of Medicine. "This is thought to be the first endowed chair of surgical pathology in the country," he writes.

Karl Muench, M.D. '60, spent two weeks in Kuwait last March as visiting consultant and lecturer in medical genetics at the University there. His wife accompanied him.

Alan Londe, M.D. '61, was appointed to the executive board of the St. Louis Council, Boy Scouts of America, and was awarded the Silver Beaver for voluntary service to the scouting movement.

Richard Marchick, M.D. '61, became chairman of the Ob/Gyn department at Alta Bates Hospital in Berkeley, CA, in January '82. Alta Bates is the maternity high-risk center for the San Francisco East Bay.

Bruce Dunn, M.D. '62, is president of the Santa Cruz, CA, County Medical Society. He specializes in Urology.

Stephen Pakula, M.D. '62, wrote from Saratoga, CA, that his class 20th reunion coincided with his brother’s 25th and his father’s 53rd!

R. Christie Wray, Jr. M.D. '63, was promoted to professor of surgery, plastic and reconstructive, at Washington U. in St. Louis, as of July '82.

Paul P. Sher, M.D. '65, is editor of a new journal, The Journal of Clinical Laboratory Automation, which has been named Most Outstanding New Journal for 1981. The award was the result of the Sixth Annual Professional and Scholarly Book Awards sponsored by the Association of American Publishers. Sher is director of clinical laboratories at the University Hospital and associate professor of clinical pathology, New York University Medical Center.

Brian Gross, M.D. '65, writes from Winchester, Mass., that he has been practicing for a week or two at a time at French Hospital in San Francisco. In the Boston area, he plans to set up a freelance anesthesiology group, a new concept there.

Jeannie Kinzie, M.D. '65, is on the committee on education of the American College of Radiology, Commission on Radiation Therapy. She lives in Grosse Pointe, MI.

Allan Campbell, M.D. '67, writes from Peoria, IL, that he is vice president of the Illinois Society of Pathologists, president of the medical staff at the Methodist Medical Center of Illinois and editor of the Methodist Medical Center Journal, which will publish its first issue in March. He is associate director of the department of pathology and laboratory medicine at the Methodist Medical Center and clinical assistant professor of pathology and dermatology at the Peoria School of Medicine, University of Illinois.

Gary Rachelefsky, M.D. '67, in Pacific Palisades, CA, has completed the first year in a conjoint board of Allergy and Immunol-
ogy and completed production of an asthma self-management program for children entitled *ACT For Kids (Asthma Care Training)*. The program uses the analog of safe driving and traffic rules.

**Joel Karlin, M.D. '68,** was appointed by the president to a 4-year term on the National Advisory Allergy and Infectious Diseases Council, reviewing the activities of the NIH. He is in Denver, CO.

**Lynn Taussig, M.D. '69,** writes that he is professor of pediatrics and associate chairman of the department of pediatrics at the university in Tucson, AZ. "We would enjoy seeing classmates visiting sunny Arizona."

**C. Garrison Fathman, M.D. '69,** was appointed associate professor of medicine at Stanford in July '81. He is associate editor of the *Annual Reviews of Immunology.*

**William Neubauer, M.D. '69,** is chief of surgery at El Dorado Medical Center, vice-president of the Puma County Medical Society, and has a faculty appointment in the department of surgery at the U. of Arizona Medical Center. He is on the board of directors of the American Cancer Society.

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**'70s**

**Lance Lenbeck, M.D. '71,** is in Escondido, CA. He sends a "Hi!" via a drawing of Mickey Mouse accompanying his dues payment.

**Sydney T. Wright, Jr., M.D. '72,** was promoted to Associate in the department of Psychiatry and Behavioral Sciences, Northwestern U. Medical School, where he is an attending physician for the Consultation/Liaison Psychiatry Service. He also maintains a part-time private practice.

**Thomas C. Namey, M.D. '73,** has been elected to Fellowship in the 54,000 member American College of Physicians. He has been living in Toledo, Ohio, for two years and is Associate Professor of Medicine and Radiology at the Medical College of Ohio and Director of the Division of Rheumatology. He was one of 642 physicians elected to Fellowship in the College's Annual Session in Philadelphia last April.

**Allan J. Shapiro, M.D. '73,** is presently assistant professor of pediatric cardiology at the State University of New York-Downstate, in his spare time, works as owner of Semaphore Gallery on West Broadway in Soho, New York.

**Lloyd Taustine, M.D. '74,** was recently appointed clinical instructor in the department of ophthalmology at the U. of Louisville School of Medicine, and is also in private practice in Louisville, KY.

**David Weil, M.D. '74,** was recently elected to the board of Northwest Permanente, P.C. Physicians and Surgeons. Northwest Permanente is a professional corporation of physicians responsible for providing medical and surgical care to more than 250,000 members of the prepaid Kaiser Foundation Health Plan in the Portland, OR area. Well specializes in Ob/Gyn.

**Thomas W. Woodrow, M.D. '74,** has been elected to Fellowship in the American College of Cardiology. He is currently in the private practice of cardiology in Tampa, Florida.

**Roslyn Kaplan Yomtovian, M.D. '74,** reports the birth of her second daughter, Ezat Lubu, on December 28, 1981. Yomtovian lives in St. Cloud, MN, and specializes in pathology.

**Linda Hershey, M.D. '75,** reports that she and Charley had their second son, William Matthew, on January 9, 1982. She is assistant professor of neurology and clinical pharmacology, and Charley is assistant professor of medicine, both at Case Western Reserve U.

**Peter Jacobson, M.D. '77,** has completed graduate training in electroencephalography at the Mayo Graduate School of Medicine in Rochester, Minnesota. He will practice neurology in Pinehurst, NC, and will be on the clinical faculty of the University of North Carolina.

**Thomas Hughes, M.D. '75,** is researching lipoproteins at the University of Alabama-Birmingham hospital in Birmingham, AL. He is now the father of four—three girls and a boy.

**Clarence Partuin, M.D. '75,** is currently associate professor and director of the nuclear medicine division at Vanderbilt U. School of Medicine in Nashville, TN.

**Kenneth Rotzko, M.D. '75,** is director of the Tempo Mandibular Joint and Oral Facial Pain Center in St. Louis, and he specializes in oral maxillofacial surgery.

**Mark Schreiber, M.D. '75,** announces his new son, Charles William. Schreiber is now chief of the department of psychiatry at DePaul Hospital in Norfolk, VA.

**Ian Hall Thorneycroft, M.D. '76,** is now associate professor of Ob/Gyn at Harbor-UCLA Medical Center.

**Allan Lee Goodman, M.D. '77,** has been appointed assistant professor of diagnostic radiology at Rush Medical College, Rush Presbyterian St. Luke's Medical Center in Chicago, III.

**Richard L. Siegel, M.D. '78,** has been appointed assistant professor of pediatrics, section of allergy and clinical immunology at the University of South Florida College of Medicine in Tampa.

**Renee Dolan, M.D. '79,** formerly of Demers, reports that Jennifer Ann was born to Patrick and Renee Dolan on January 30, 1982.

**James Owen III, M.D. '79,** was appointed chief resident for '82-'83 at Mallinckrodt Institute of Radiology, Washington University in St. Louis.

**Stephen Ratcliffe, M.D. '79,** is chief resident in family practice at the University of Utah, and in July began fulfilling his 2-year NHSC commitment in an inner city clinic in Salt Lake. He will also be a part-time fellow in the department of Family and Community Medicine at the U. of Utah. He married Anita Friend in July 1981.

**Barry Sidorow, M.D. '79,** started his cardiology fellowship at Loyola University in July.

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**'80s**

**Bruce Stewart Schlafly, M.D. '80,** is working as a first-year orthopedic surgery resident at Texas Medical Center, U. of Texas in Houston. His wife, Jeanne, is expecting their first child in September.

**Ellen S. Wasserman, '81,** who received her master’s degree in health administration and planning from the School of Medicine in 1981, has been appointed to the newly created post of Manager of Clinical Services at the Washington University School of Dental Medicine.

**Myron Tanenbaum, M.D. '81,** is finishing his internal medicine internship at the Good Samaritan Medical Center in Phoenix, AZ, and will begin an ophthalmology residency at Bascom Palmer Eye Institute, U. of Miami in Florida.
In Memoriam

Guy Norton Magness, M.D. '28 1899-1982

Guy Norton Magness was born in Lead Hill, Arkansas, November 20, 1899. He attended public school in Lead Hill, secondary school in Harrison and received a BS in Education from the University of Arkansas in Fayetteville in 1924. In retrospect, the foundation for Guy's subsequent relationship with education probably was laid in this undergraduate experience. The School of Medicine of Washington University awarded him the M.D. degree in 1928.

After graduation, he served an internship in Missouri Baptist Hospital for one year, and Barnard Free Skin and Cancer Hospital for one and one-half years. Guy developed a general practice. For 50 years he was the loved and respected servant and consultant of St. Luke's Hospital, and once served as president of its medical staff. The administration, staff and nursing departments of St. Luke's demonstrated their appreciation of the man's work by their kindnesses and solicitude during his terminal illness.

Magness was a member of the United States Army Reserve from 1928 to 1941, when he was called to active duty. Five and one-half years of active duty was followed by active reserve status until 1958. He eventually retired as a Colonel in the administrative office of the 102nd Infantry.

First employed by University City, Mo., as school physician on December 18, 1930, he served as director of medical services to his community for more than 50 years. In 1952 he was named Director of Health for the City of University City and became recognized as a leader in the field of health problems in public education. He served as American Medical Association representative on the NEA and AMA Joint Committee on Health Problems in Education.

Magness was a founding member and president of the St. Louis County Medical Society and a 50-year member and one-time president of the Missouri Medical Association. In 1954-55, he was president of the Washington University Medical Alumni Association. His outstanding service to Washington University was recognized by a Founder's Day Citation in 1969. Other prestigious honors include the William A. Howard Award from the American School Health Association, a community service award from the University City Rotary Club, an Award of Merit from the St. Louis County Medical Society, and designation as Physician Of The Year by the St. Louis College of Pharmacy Alumni Association in 1965.

His many years with the Washington University Medical Center Alumni Association— which included its presidency and repeated selection to the board of directors, motivated an understanding of the differences in philosophy and thinking between the school and its alumni. Guy worked incessantly to establish rapport and mutual understanding between academia and its alumni. His Founder's Day Citation is proof of appreciation of this effort by the University.

Guy Magness married Ella Mae Hott on June 12, 1949. They maintained contact with the members of the class of 1928 via correspondence, visits and reunions. He and Ella Mae frequently made their vacation travels to include stops to visit classmates. This cohesive loyalty was recognized at his 40th Class Reunion by an award as "Distinguished Graduate of the Class of 1928." In characteristic fashion he replied: "My Arkansas vocabulary doesn't let me fully express my deep and sincere appreciation. You all have been so nice and complimentary during all these years in giving me more credit than I deserve . . . Thanks . . ."

Following a prolonged illness, Guy died on June 7, 1982. A memorial service at University Methodist Church was a beautiful tribute to our friend and colleague, a loving human being. He was buried in Jefferson Barracks National Cemetery.

Let us not mourn his passing;
Let us appreciate his having been a part of our lives.

— Samuel D. Soule, M.D. '28

Faye Cashatt Lewis, M.D. '21 1896-1982

Faye C. Lewis, M.D. '21, the first woman to receive a medical degree at Washington University School of Medicine, died June 10 following a lengthy illness, at Hamilton County Hospital, Webster City, Iowa. Her husband, William B. Lewis, M.D. '21, had died in March 1982. The Drs. Lewis were married in 1923. Their children are Malcolm R. Lewis, M.D. '52, of Nashville, Tenn., Mrs. Elizabeth Matthew of Tampa, Fla., and Virginia Lewis of Webster City, Iowa.

According to the Freeman-Journal of Webster City, Faye Lewis, M.D., wrote five books: Doc's Wife, 1940; Patients, Doctors and Families, 1968; Nothing To Make A Shadow, which told of her girlhood in Oklahoma; A Doctor Looks at Heart Trouble, 1970; and All Out Against Arthritis, 1973. She served her internship and residency in Kalamazoo, Mich. She and her husband moved to Webster City and began a private practice there in 1927. Her husband served in World War II, and both interrupted their practices during the war years. They continued the practice of medicine until retiring in 1970. She was a member of the Hamilton County Hospital medical staff from 1942 until retirement. Last May she was honored as "The Most Outstanding Business Woman in Webster City in 125 Years," by the Business and Professional Women's Club.
The three new structures in the medical center are rapidly taking shape. At right, the Clinical Sciences Research Building now sports brick work on the lower floors while upper floor structural work continues. In the center, a helicopter hoists equipment to the top of the new St. Louis Children's Hospital. In the lower right is part of the extension to the Jewish Hospital parking garage. The view is west from Euclid Ave.

At left, from the driveway to the Barnes Hospital Emergency Room looking north, can be seen the part of the CSRB which occupies the old doctor's parking lot on the south side of Audubon Ave. The workmen have their ducts in a row, and other HVAC equipment awaits installation. Above, workers on lunch break reach new heights.