One of many restaurants in the Washington University Medical Center redevelopment area.

On the cover:
Elizabeth Blackwell was the first woman to receive a medical diploma in the United States. She received the M.D. in 1849 from Geneva Medical College. She was the first of many women who endured discrimination, gave up family life or juggled family and career to compete successfully in the male-dominated field of medicine. See story on page one.

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Women in medicine are no longer rare. Females now contribute 25 percent to medical school enrollment and they enter the full range of specialties. In the early years they often had to make the choice between a full-time career and a family. More recently, many women are feeling they can have both.

The obstacles are getting fewer, but is it still a male physician's world? Outlook Magazine surveyed 365 women with medical degrees including alumni and faculty, and 121 female medical students, some of whom graduated last May. More than 30 percent (151) responded to our inquiry. They revealed some definite trends regarding how women physicians feel about medicine, their careers and families and the responsibilities of each.

"As a physician, I am in a similar position as other working women; I can have the best of both worlds, family and career, but I have to work harder and make more allowances than my male counterpart. Why? Because even if you have a husband who shares the responsibility of family, the buck has to stop somewhere and usually it's with the woman." M.D. '62

The fact is that woman physicians are torn between their families and their careers. Societal pressures and the actual facts of life put them in limbo if they try to combine marriage/children and careers.

But they are coping. The number of women entering medical schools is increasing annually, but the problems these young future physicians foresee are the same problems the 50-year alumnae experienced.

A survey of 151 women in medicine, from the first year medical students to women who graduated more than 50 years ago, showed that while there are definite differences between younger and older physicians, many of the problems they encountered were similar.
Women in Medicine

ago, ranging in age from 21 to 84, reveal that the problems and ways of dealing with them are for the most part the same.

Why did these women then and now go to medical school? What motivated them? Did they and do they face discrimination? Did they and will they marry, have children? Does being a woman affect career plans and most importantly, is it all worth it?

"I have found combining medicine and family pretty hectic, but very rewarding." M.D. '31

"In my first job in a small Catholic Hospital, one of the elderly doctors said to me 'When I went to medical school we wouldn't even speak to women students. We called them hen medics. You have been of so much help here, I told them never to let you go!'" M.D. '37

"I expect it will take another 25 to 50 years before negative feelings about women in medicine are entirely gone." M.D. '36

Discrimination. Once a major obstacle for aspiring young women doctors was discrimination. The atmosphere at medical schools ranged from hostility to indifference. Many women felt discrimination, while others in the same class said they did not. Some felt any such problems were their own fault, others quietly endured, some fought back in rage.

There were just two women in the class of 1935. One of them says, "We were second-class students but managed to survive."

"Basically there was no discrimination," says a graduate from the class of '36. "But we were not permitted to dissect male cadavers and were ushered aside during an examination of a male patient for hernia."

Many women who graduated in the 40s and 50s expected and accepted whatever prejudice they found.

"I must admit that I sort of expected discrimination and more or less accepted it as part of being born female. I decided not to let it stop me from what I wanted to do." M.D. '43

Others remember a specific event such as a 1941 graduate who recalls being asked to remain outside the patient's room while on rounds in the genitourinary ward. "My presence would embarrass the patients, he said. The head nurse saw me standing there and asked why I wasn't with my group. I told her why and she laughed and told me the chief resident on men's GU was a woman. I walked in and made the rounds with my group while the instructor stared daggers at me."

As the sixties approached women became more accepted and overt discrimination became limited to certain personalities. "One professor informed me I was in man's field and that I had to produce like a man." M.D. '59

Male classmates also became more accepting and women were surprised. "There was far less discrimination than I had expected. Most of our male classmates were very accepting and so was the faculty." M.D. '65

"I felt special, not a victim of discrimination." M.D. '67

The women of the early seventies hardly noticed any prejudice, but the current medical students, perhaps because of increased expectations, feel there is an undercurrent of sexism in the school.

"There is very much a subtle discrimination among classmates. I don't feel as much like a colleague, but rather like a woman in a man's world. The attitude seems to be 'isn't that cute.'" WUMS II

"Women as a whole are still the primary target for crude jokes in lecture as well as lab. For example, during the lecture on obesity, only pictures of fat women were shown as well as one slide of 'sexy' women of today's media. The locker room atmosphere of gross anatomy lab disturbs me because I don't think these men would make comments as they do in front of 'normal' women." WUMS II

All in all, women have adapted to whatever atmosphere exists in order to meet their goals. They have dealt with it in different ways dependent upon individual personalities. Many credited excellent women faculty members with being advocates for their success — women who themselves knew the sacrifices necessary for a career in medicine.

Medicine requires disciplined motivation for the brightest students, even those with multitudinous advantages. What then
were the factors that influenced these women to be pioneers in medicine and today what attracts women to medicine?

Elizabeth Blackwell, daughter of a prominent reform-minded family in 1849 became the first woman to receive a medical diploma in the United States. Shortly afterward, her alma mater, Geneva Medical College, closed its doors to women.

But Blackwell started something that couldn't be stopped. By 1870, a handful of medical schools accepted women on a regular basis; and by 1900 the number of female physicians grew to an estimated 7,387. Medicine had attracted more women than any other profession except teaching in the nineteenth century America.

In her book *Doctors Wanted— No Women Need Apply: Sexual Barriers in the Medical Profession, 1835-1975*, Mary Roth Walsh says the nineteenth century hostility to women doctors did not catch up with them until the twentieth century. Indeed the medical field did decrease after 1900.

Walsh attributes the drop in the number of female physicians to a "male backlash" and suggests that a male-dominated medical establishment, appalled at the high percentage of female physicians in 1900, systematically limited women's opportunities thereafter.

Lacking proper support, all but one of the women's medical schools did close down. Although coeducation was a possibility, truly equal opportunities were non-existent. Medical schools established quotas, rarely exceeding a token five percent female enrollment. Barriers were lowered occasionally in cases of war or manpower shortages.

Except briefly after World War II, when the percentage doubled, the national proportion of female students graduated each year remained nearly static until 1965.

Washington University accepted their first female medical student, Harriet Stevens, in 1906 long before any policy had been set concerning female applicants. However, there is no record of her admission or attendance and performance.

Stevens transferred to Rush Medical College in Chicago after three years and graduated from there in 1910. She returned to St. Louis and practiced medicine there for many years.

Nine years after Harriet Stevens transferred to another school, a special committee on admission of women to the Medical School reported to a general faculty meeting on Jan. 16, 1918. They had surveyed other Class A schools and found 47 out of 68 currently admitted women students.

However the committee voted four to seven not to recommend to the General Faculty the acceptance of women students.

There are reports that quite a controversy ensued and that finally it was decided to allow women to enter medical school at Washington University.

Carol Skinner Cole entered the School of Medicine in 1918 and Faye Cashatt entered in 1919 as a third year student. Cashatt was the first woman to graduate (1921). Since that year, records show that there has been at least one woman in every graduating class.

The motivations for seeking a medical career were pretty much the same for those early women as for the female students today. They had dreams of being doctors dating back to early childhood; they were bright and fascinated with science; they were compassionate and wanted to work with and help people and many wanted a career in which they would always be needed and stimulated.

**W**hen I was in high school, I took courses that would help me in my father's shoe store, but I found them dull and dreary. When I took biology and zoology I was fascinated and I gave up the idea of being a bookkeeper." M.D. '41

"My mother and grandmother were working women; and I grew up across the street from an old class C Medical School. Going into medicine didn't seem that unusual at all." M.D. '43

"My earliest recollections include a desire to be a doctor. Conscious memory of this ambition predates entering school." M.D. '45

For others it was natural: "Both my parents are physicians. Because my mother is a doctor, I never thought a woman doctor was unusual." WUMS II

"As a child of missionaries in India, I saw many American women physicians working in the hospitals." M.D. '50

Most women reported enjoying the support of family and friends while hurdling the obstacles of medical school. But most found that their newly acquired M.D. behind their names didn't make life that much easier. They had proven they could become doctors, but now the harder decisions of family versus career often faced them.

Eighty percent of those surveyed who graduated from
Women in Medicine

medical school prior to the seventies have married. Only 50 percent of the graduates from the 70s have married yet. However, one of the trends indicated by the survey is that women in medicine generally marry later in life, usually in their late 20s or early 30s, although there are exceptions ranging to those who marry while in school.

More than 75 percent of those who do marry, marry men who are also physicians. Others have married lawyers, dentists, teachers, professors and accountants.

"I always thought I would have to marry another physician for him to accept me and for me to get along with him. As it turns out, I'm engaged to a fellow student." WUMS III

"Medicine will definitely be a handicap to getting married. I feel I am already married to medicine." WUMS IV

"Sacrifices will have to be made in one area or the other. I have to set goals in my career, yet my marriage will be very important to me. My career will not be above all else." WUMS II

Perhaps by putting their marriages before their careers and working diligently in both areas, women in medicine have seemingly been more successful at keeping their marriages intact than women in general. Out of 112 survey respondents who have married, only 10 have divorced. In many of these instances, it was after years of marriage when the woman was returning to full-time work after raising children.

"When my children were all in school I became increasingly restless. I found I could take psychiatric training on a daytime only basis and did so. My husband was overtly accepting, covertly opposed, which eventually led to divorce." M.D. '40

Most of the marriages seem to last, however. The reason does not seem to be a raised consciousness on the part of men who marry physicians. Judging from the surveys, these men seem to expect the same traditional performance from their physician/wife/mothers. But rather the success of these marriages seems to be based on the determination of their wives; the same determination that got them through medical school gets them triumphantly through the daily juggling act of priorities — home, family and career.

"I could not finish a residency because of having children and deciding it was more important to spend time with them than doing the inhuman schedule demanded." M.D. '46

"Marriage is something I have planned for all along. Thus, I have been fully aware that my relationship both with my work and my husband would be different than if I had no career or never married." M.D. '74

"There are bound to be conflicts for time. This is also true for male medical students, but problems in raising a family are worse for women because of traditional expectations." WUMS III

These so-called traditional expectations are definitely not a thing of the past for the majority of female physicians. Of those who are married, 85 percent surveyed said they have the prime and ultimate responsibility for home and children.

"When my four children were young, I practiced as much as possible. My biggest problem was difficulty in detaining a mother substitute. I have essentially raised my children with my husband giving me moral, but little physical support." M.D. '48

"I had a housekeeper who went home at nights while the kids were small, but I did the
cooking, shopping, chauffeuring, etc. I cut back on cases when they were young but never considered myself part time."
M.D. '50.

"My husband considered his professional life fully as important and satisfying as his home life and spent less time with the children than I wished. Having children was my decision and I enjoyed them much more than he." M.D. '43

Of course, women in medicine are financially able to afford the help they need to care for home and children. The majority of the women do opt for substitute care so they can continue their careers, either part- or full-time. They are often cautious and reluctant to take this route but see few alternatives. However, a few see no other alternative but to put their career on hold and drop out of medicine for some length of time.

"Every professional woman who has children has to decide how much of her life and time she gives to each. I wanted to raise my children myself and did relatively little professionally until our youngest was in kindergarten. I never got back into medicine full time. I regret how limited my professional life has been, but would probably make the same choice again." M.D. '43

To be a mother has always meant a change in lifestyle. For the physician-mother it often means a drastic modification of career plans.

"I had my first son six weeks before graduation in 1959. I took my finals while in hospital and state boards one week postpartum. I have practiced medicine sometimes full time, sometimes part time, depending upon the family situation. I have found that practicing part time and taking care of my family has been a very satisfying situation." M.D. '59
Women in Medicine

"I chose to specialize in dermatology in part because this field allows more free time and independence than most specialties. M.D. '72

I decided against private practice and elected to go into institutional practice (student health) with regular hours, feeling it would be more compatible with family responsibilities. M.D. '41

"Because of my children, I chose group practice and a three-fourths schedule at that." M.D. '38

"At the time, I chose psychiatry mainly because it was a field in which I had a major interest, but also one in which I had some control of time and hours." M.D. '64

"I had my first child about six weeks before I graduated from medical school. My first love was surgery, but under the circumstances I felt anesthesiology would be a more logical specialty choice." M.D. '50

Current medical students and graduates not yet married realize in advance that career modifications will have to be made to have a family and most have already determined that it is worth it.

"I am not married but I hope to be someday as well as raise a family. I would hope to be able to take some time off while my children are young. Many would argue that I will not be as productive a physician in terms of the number of years or hours I will practice. However, my productivity as a good physician cannot be measured in terms of hours or years, but rather in terms of quality of care regarding patients' emotional and physical health." M.D. '78

"Any family life conflicts require sacrificial balancing with one's professional life — traditionally, the burden is greater for women, but it's an important issue for physician mothers and fathers. For me, I think I would be a better doctor for having a family." WUMS IV

Women who could perhaps have been renowned surgeons have chosen an easier route so as to have the opportunity and time for motherhood. Others have stuck with their highest ambitions while insisting they could still have a family. Both routes and many in between have worked for these women.

"Marriage and children have certainly influenced my career; they have expanded it, enhanced it and altogether have generally kept me very busy." M.D. '67

"In our present society, a woman needs both family and career to find contentment." M.D. '62

"Marriage and children have made things much more difficult, but I'm glad I did it because my marriage is a good one and I am a grandmother and love it. I can say I had everything I wanted and now I am retired. Not many people can say they had it all." M.D. '41

"... It is not easy to be a pathologist, a mother, a wife, a homemaker, etc., etc., etc., and probably the hardest thing to overcome is the rather prevalent opinion that you are probably neglecting something; among your medical colleagues, it must be medicine, and among your lay friends, it must be your husband and children." M.D. '67
Daughters of doctors and women from every imaginable background are in increasing numbers seeing medicine as a viable career field.

"Women are thinking about a medical career for several reasons: increasing acceptances to medical schools; increasing acceptance (I hope) by a younger male peer group; high salaries that leave enough money for adequate household help after the taxes are paid; the ability to be your own boss, because of movies like 'Coma' and television that glorify women doctors and present them as intelligent and sexy at the same time." M.D. '52

"To combine a career in medicine and homemaking, one requires a strong back and a firm ego." M.D. '48

"Women view medicine as a possible and rewarding career because there is no other area of endeavor where you can deal with life at its very worst and its very best. There is much personal satisfaction which overshadows the frustrations. Medicine enables one to form a true link with all humanity." M.D. '63

Many of the women responding to the survey felt that either women do not consider medicine as a career possibility or they feel it is a possibility for other women but not themselves.

"Women, in general, do not view medicine as a possible and rewarding career because many of them want to be wives and mothers and they don't think they can do all things well." M.D. '52

"For other women, medicine is a career choice, but I think most women don't regard it that way for themselves. They feel it just too much time, they couldn't do it, it would interfere with families, they might not get married, etc., because these ideas have been beaten into their heads." WUMS II

"Many women underestimate themselves or just make the decision that medicine does not offer them the type of lifestyle that would be fulfilling. Many, perhaps most, women view marriage as very important and certainly the amount of time and responsibilities required by medical education and actual practicing medicine can make marriage or any relationship difficult to maintain and nourish." M.D. '78

"Where else can we find something that genuinely improves people's lives, is intellectually stimulating, has financial reward and is always fresh and different and even fun? To be able to combine scientific curiosity with a humanistic approach to the world is rare; to be able to do this as a profession makes us indeed fortunate." M.D. '64

"Many hesitate because they still think (medicine) is a man's world. But it seems to be getting easier to convince young women to tackle the field." M.D. '36

"Is it still a man's world? Well the evidence seems to indicate that sometimes it is; sometimes it isn't. Women now comprise a fourth of the enrollment in medical schools and thousands become physicians every year.

However, the American Association of Medical Colleges report that females are still under-represented in higher paying jobs and the higher academic ranks in medical school. There are 34 women department heads in 122 medical schools.

"I don't see these percentages changing in this century. Men comprise the great majority of those who will decide on department heads and they will select males until more women are in the decision-making positions of the schools." M.D. '41

"There will be more. Women themselves, however, may limit this because of their desire to fulfill other needs in their life outside of their profession." M.D. '76

"As long as the old male guard is responsible for appointing faculty, they will continue to favor men. Only governmental pressure has helped in this aspect for women. If that pressure ceases, women will lose the small gains they've made." M.D. '62

"Many women have been victims of the academic dropout syndrome, finding difficulties in competition in what they regard as an institutionalized sexist environment. By that I mean that although the people are basically of goodwill, the institution, attitudes and behaviors are based on a male-dominated system." M.D. '64

"It would be nice to see more if they were truly committed and gifted teachers. It does no good to make a woman department head as a status award or a token if she does not have the potential qualities of leadership and skill in teaching." WUMS III

"I see it slowly changing. Most of the women I know don't want to be at the top administratively." M.D. '52

"Few female medical students need to see women in responsible leadership positions within our schools as role models for their own career direction." M.D. '50

"Far female medical students aspire, at least not at this point, to academic stardom. They seem more people-oriented and many admit that this obsession may be tempered as their youthful idealism matures." WUMS II

"Men comprise the great majority of those who will decide on department heads and they will select males until more women are in the decision-making positions of the schools." M.D. '41

"There will be more. Women
"Plastic surgery fascinates me and I enjoy it." WUMS IV

"I unexpectedly loved basic research in immunology. I like the medical center environment, teaching and keeping up with scientific development." WUMS IV

"I'm going into pediatrics because I enjoy it. However, when I first made my decision I had to overcome the fear of being stereotyped." WUMS IV

"I'll probably choose a primary care specialty because I want to work with (conscious) patients." WUMS III

"Family practice is the closest thing to my ideal of the best kind of doctor I could be." WUMS IV

"I'll pursue radiology. I've enjoyed reading x-rays ever since I've been exposed to the subject. In addition, it will give me a lifestyle where I can be competent and contributing and yet not completely detract from a family." WUMS III

Family. The woman who wants it all can't escape from the ever-present question of where the family fits in with the career. The majority of the students listed family as top priority in their long-range plans.

"Wife, mother, diagnostic radiologist. I feel that the interpersonal relationships of a family are my number one priority. Medicine is important but must take second place in my priority scheme." WUMS III

"I would like to be a good doctor, a good mother and wife (someday) and make some social and/or medical contributions." WUMS II

"I plan to 1) establish my career 2) establish my family 3) nurture both assiduously!" WUMS III

"I hope to finish an internal medicine residency, do some research and a fellowship in either allergy or rheumatology, and probably get a faculty position at a medical school. I aspire to being a chairman (I never liked chairperson) of a department of medicine someday, but I may change my mind and decide to become the team physician for the Green Bay Packers." WUMS IV

Some of today's women medical students have goals that their earlier counterparts might not have dreamt of. But basically, little has changed. Women then and now have the same determination which makes their goals attainable. The conflict between career and family is age-old and endless. However, these women are, for the most part, at peace with themselves because they have come to terms with the problem.

"I do not think our creator says women must be limited in what they do, but that they must first accept their role as that of woman. He did not create me to be inferior; He did not create me to become dependent upon another being. He did not create me to 'take on the world' to prove my worth. He did create me to use my special God-given talents to the very best of my ability.

"I am fearful of a society that fails to recognize the difference in the talents given us on a sexual basis. I am first a woman, secondly a wife, thirdly a mother and lastly a physician, I am happy because I know this. It is the individual who does not recognize this divine order who is unhappy and will never be content with his or her place in society. God has very carefully and wisely bestowed upon each of us our own special talents, and when we as individuals seek His will to use these gifts we will be content and full of joy, be it as physician, department head, housewife, ad infinitum. And sex will not be a factor that limits choice." M.D. '62

In their concluding remarks, the women who responded to the survey indicated that they were content, that they would pursue the same course if they had it to do over again and that they were wiser for it all.

"Until I was 50 I really thought it was possible to do everything and be everything. Now I realize time and energy are finite." M.D. '49

"I love my work. I can't imagine anything else that would be so satisfying." M.D. '43

"I have found medicine to be a very rewarding profession and would go into it again if I had it to do over." M.D. '63

"I feel that times really are changing. I don't feel isolated or ostracized because I am a female medical student. I've always felt that as many options are open to me as to a man. The combination of family and medicine is perhaps more worrisome to females, but this problem is not insurmountable." WUMS II

Optimism, determination, competence and the flexibility to keep it all in perspective is what gives these women the personal success they seek; maybe not success as rated in a man's world, but the success of knowing you've done what you set out to do to the best of your ability. These women have proven you can have the best of both worlds, but you have to work for it.
Paula Clayton: Female Physicians and Depression

By Glenda King Rosenthal
When Paula Clayton, M.D. '60, professor of psychiatry, presented her research on mood disorders in women professionals at the annual meeting of the American Psychiatric Association last spring, she began this way: "In the fall of 1978, two St. Louis women physicians committed suicide within a six week period." The deaths of these two young physicians highlight the fact that suicide is surprisingly common among women physicians in the United States.

This fact was first noted in 1968 when a study noted an increased suicide rate in women physicians as compared with the general population. Subsequent studies have indicated that the suicide rate among female physicians was three times that expected on the basis of population values. Clayton says there definitely appears to be a statistical correlation between career achievement and suicide rate.

Suicide is frequently the end result of an affective disorder, such as depression. Clayton's study examined the lifetime prevalence of affective disorders in a study of women physicians and women Ph.D.s matched by age, race and marital status in an effort to shed more light on the disturbing frequency of depression and suicide among female professionals.

One hundred forty-one women M.D.s and 116 women Ph.D.s in the St. Louis area were contacted to participate in the study; 98 percent of the physicians and 97 percent of the Ph.D.s agreed to the interview.

"We obtained lists of female physicians from the American Medical Association directory, the St. Louis County and City Medical Societies and the Directory of Specialty Boards," Clayton says. "We sent letters to the societies, the two medical schools, all St. Louis area hospitals, clinics and group practices explaining the study and requesting the names of women physicians. We also emphasized the necessity of obtaining names of women not in practice or not licensed."

Names of Ph.D.s in the area were contacted in a similar manner. The interview was structured to cover several aspects of the women professionals' personal and professional lives: education and training history, history of work contentment, sex discrimination during their training and careers, marriage and childbirth, family history and psychiatric symptoms.

The major statistic to come out of Clayton's study was the striking number of these women who had suffered from a primary affective disorder. A primary depression was diagnosed in 39 percent of the women physicians and in 30 percent of the Ph.D.s. "This is a high percentage," Clayton says, "but it is less than the 65 percent that has been predicted from studies of completed suicide. However, it should be noted that there are still young women in the well group who have not passed through the age of risk for depression and that any M.D.s who committed suicide are not part of the study. So, the real rate of depression may be higher than reported there."

The postpartum period appeared to be a time in some of these women's lives in which they faced a depression. "Eleven of the 43 M.D.s with a history of depression had at least one episode associated with the postpartum period and 41 percent of the M.D.s and 33 percent of the Ph.D.s with a depressive history reported an episode of illness following a delivery," Clayton says.

"This underscores one possible explanation of why depression is more prevalent in women than men and should encourage further neuroendocrine research to better understand the connection."

Childbirth cannot be seen as an explanation for these professional women's depression, however, because half of the depressed women with affective disorders in Clayton's study were childless.

Another striking aspect of Clayton's study is the strong correlation between depression and family history. The rate of depression in these women's families is similar to that which is found in the families of manic-depressives.

"Judging only first degree family members — parents, siblings and children — 51 percent of the M.D.s with depression had at least one family member with affective disorder compared to only 11 percent of the well group," Clayton says. "In the Ph.D.s 32 percent of the depressed had at least one depressed relative compared to eight percent of the well group. "Eight percent of all M.D.s and five percent of all Ph.D.s had at least one suicide in a first or second degree relative."

Clayton feels this relationship between family history and the prevalence of depression cannot be overemphasized. "More research is necessary in this area," she says. "By emphasizing a frequently overlooked aspect of depression, its heredibility, it raises the question of self-selection for professional careers of women at high risk for depression. Possibly the family experience of psychiatric illness, coupled with their own depressive episodes, influenced some of these women and directed them into a field of work oriented toward relief of pain and suffering."

Besides a family history of affective disorders, these women have other things in common. They tend to be high achievers with high intelligence and generally from an upper socioeconomic background. "The association between high socioeconomic status and high educational achievement and affective disorders is controversial," Clayton says. "No careful studies have been done in this area. We also don't know if a more stressful background drives a person to be a high achiever or lures them into the health care field, because there are always siblings of these people who don't exhibit the same traits."

However, Clayton does feel there is a good possibility that the woman who is more in tune with her own feelings finds medicine attractive. "When I discussed my research at the last American Psychiatric Association meeting, I found similar research which indicated that women physicians are more sensitive to their own feelings and the feelings of their patients. Women in general suffer more from depression, and possibly this sensitivity is the reason behind that statistic."

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"The women in this study reported a great deal of symptomatic depression," she says. "A possible explanation for this is that they are overly sensitive to changes in mood."

This mood awareness and sensitivity also applies to the way in which female physicians relate to their patients. Clayton found that most women physicians seem to feel they relate differently, not necessarily better, to their patients and that in turn their patients respond differently to them."

In addition to being more sensitive to themselves and others, other studies indicate that the female physician is more attuned to moral and ethical issues and values individuality and independence to a greater degree than her male colleagues. "Women do bring a different perspective to medical school and the practice of medicine," Clayton says. "Women physicians tend to be very compliant and very conscientious. She must overcome the general cultural resistance to her role in a predominantly male occupation. In many instances, she must try harder and stand up for her convictions to a greater degree. These are the same problems encountered by women working in other professional areas."

The professional woman generally has to balance her professional and personal life more than a male in the same profession. In many instances, the female physician must plan what specialty she will enter around an existing home life or an anticipated one. "This is really something the male physician doesn't have to consider," Clayton says. "However, our data indicates that for the most part the woman physician is happy with her choice. She has to commit herself very early. Only a small percentage of the M.D.s and Ph.D.s with a history of depression were unhappy with their career choices."

Most of the women surveyed were not particularly encouraged to enter these career choices by either family, friends or professors. Even though most of the cases of discrimination against women reported were isolated, individual instances, many encountered professors who encouraged them not to go into medicine. "Many of the women M.D.s were told they should really aim for a Ph.D. so they wouldn't have the long hours. Discrimination can be on many different levels and these women generally had someone in their background trying to push them in a direction away from the practice of medicine," Clayton says.

"The most important factor we have to report from our findings," Clayton says, "is the importance of the female M.D. and Ph.D. to be aware of the possibility of depression. In their introductory lectures to the students, the faculty should encourage students to be attentive to significant mood changes in themselves and others. Possibly this awareness could help lower the suicide rate among the female M.D. and Ph.D. Our study hopes to bring this problem to the front where it can be dealt with by medical educators and physicians alike."
One out of 400 black babies is born with sickle cell disease. Ten percent of them will die before they are 15 years of age. The remainder will live a life punctuated with pain, frequent infections and chronic anemia.

Although the disease has been known and diagnosed for years, not much is really known about the disease and there is no cure. Washington University School of Medicine researchers at St. Louis Children’s Hospital are now participating in a national study of sickle cell disease to determine the natural history or clinical course of the disease from early childhood through adulthood.

Harold Zarkowsky, M.D., associate professor of pediatrics, has received a $700,000 five-year grant to participate in the 23-hospital study funded by the NIH. The goal is to recruit 3,500 patients, including newborns, children, adolescents and adults to participate. The St. Louis study will enroll 100 children.

Investigators have begun screening newborns at Jewish Hospital of St. Louis, Barnes and City hospitals.

Sickle cell disease is hereditary and can be detected at birth although it usually isn’t diagnosed until a complication arises. An abnormality of the hemoglobin, the problem is once oxygen is delivered to the tissues the sickle hemoglobin turns into a jell. This jell-like consistency renders the red blood cells very stiff and they can no longer pass through...
small blood vessels, thus leading to an obstruction of blood flow.

If the cells continue to circulate and receive oxygen from the lungs they unsickle. In the normal course of events a sickle cell will get oxygen from the lungs, be perfectly normal shaped, then release oxygen to the tissue and sickle.

It is a constant process. During the process the cell is injured so the red blood cell survival is shortened resulting in anemia.

Other results of this cycle of chronic obstruction of blood flow is organ damage and bouts of pain called crises.

“The painful crisis is probably the best known of all complications of sickle cell disease,” says Zarkowsky. “Painful crisis is probably due to the reduced blood flow to the blood vessels in the bone or bone marrow, creating intense pain in the long bones and back.

“The pain results from tissue injury just like if a person has pain from a heart attack; tissue is dying which results in pain,” Zarkowsky says.

Little is known concerning the conditions which surround the onset of painful crises. One of the goals of the study will be to document the occurrence of painful crisis and to investigate the conditions and events surrounding it.

“There is a feeling among investigators,” Zarkowsky says, “that there are a number of patients with sickle cell disease who do reasonably well; they are not troubled with all these things, and do not come to the emergency room month after month with a painful crisis. We have some children that we rarely see, so the idea of this study is to get a broader view.”

In the past the problem was always that Centers would report on 50 to 200 patients, the concern being that these were selected patients. This study is an effort of getting large numbers of patients from various backgrounds; rural, urban, and different areas of the country to get a better picture of possible regional differences.

“We know very well what the inheritance pattern is — the genetics, the abnormality in the hemoglobin, but we don’t seem to know why some of the clinical events occur,” Zarkowsky says. “Why some patients do better than other patients even though they have the same basic abnormality in hemoglobin.”

In the current study, evaluation of some of the participants will start at birth. Some studies show that children with sickle cell disease have retardation in growth and development during their first five years and again at puberty.

The early years do seem to be the worst for those afflicted with sickle cell disease. “Probably ten percent will die before the age of 15,” Zarkowsky says. “The most common cause is an overwhelming infection.

“In early childhood there are certain infections which seem to take hold and the sickle cell child is at a disadvantage in fighting them. Beyond this age we deal with much less acute problems. What happens then are things like chronic organ damage: liver failure, kidney failure, etc.”

These complications probably shorten the lifespan of a sickle cell patient, but researchers are unsure as to how much. The old information indicated that patients did very poorly and lived relatively short lives.

“That information, however, was based on data from patients who were probably the sickest,” Zarkowsky says, “and thus was one-sided.”

“I think it also reflects the poor medical care in the 30s and

While the St. Louis study will evaluate infants and children the nationwide study will consider all age groups.

This research project is an information gathering mission and will not be involved in testing treatments. Investigators are looking for the total picture of the course of sickle cell disease and the way it affects the health and lifestyle of patients. At the end of the five-year study, scientists may know more about the disease and what interventions might be beneficial to improve the quality of life of patients.
Half an aspirin shown to prevent blood clots

Washington University researchers received nationwide news coverage after announcing the results of a study which indicates that low-dose usage of aspirin is an effective, non-toxic antithrombotic regimen.

Philip W. Majerus, M.D., professor of medicine and biological chemistry and head of the Division of Hematology, and Herschel R. Harter, M.D., assistant professor of medicine and director of the Chromalloy American Kidney Center, were the principal investigators of the study.

Other studies have shown that aspirin reduces thrombosis, but in doses of two to four tablets a day. This amount of aspirin causes adverse side effects such as bleeding in the stomach and kidney damage.

The Washington University team found that a half an aspirin will prevent blood clotting without adverse side effects. The team published their research in the Sept. 13 issue of the New England Journal of Medicine.

Majerus and Harter chose to study hemodialysis patients with arteriovenous shunts because they have a 75 percent chance of developing shunt thrombosis.

A double blind study of 44 patients indicated that a half an aspirin or 160 mg a day significantly reduced the incidence of blood clotting. Clots formed in 72 percent of the patients on placebo, but occurred in only 32 percent of those taking aspirin.

Several years ago, Majerus and his colleagues were the first to show that aspirin acts on blood platelets, those cells which cause clotting, at a much lower dosage than on other tissues of the body. Small doses of aspirin block platelet function without affecting other tissues.

The report also implied that use of aspirin in low doses significantly reduces the chance of a second blood clot in people with thrombotic disorders.

"The larger implication is whether we all should take a half an aspirin a day," Majerus says. "No one will ever be able to answer that question."

To attempt to study a healthy population would be expensive and the results would be scientifically debatable, he says.

But Majerus and Harter are both convinced of the value of aspirin. They each take half of one a day as a preventative measure.

Mycology Center established, one of two in country

The School of Medicine recently received a five-year grant for more than $1.2 million from the National Institutes of Health to establish one of two Mycology Centers in the country. Gerald Medoff, M.D., head of the Division of Infectious Diseases is the principal investigator.

The other Center, funded simultaneously, is at UCLA.

"Mycology is really a neglected, unchartered area in infectious disease," Medoff says. "This grant is an effort by the NIH to try and interest molecular biologists, immunologists and biochemists to start working on medically important fungi."

Many people are not aware of the fact that there has been a major increase in the kinds of fungal infections across the country recently. "Fungi are free-living forms found in soil, decaying vegetation and bird excreta," says Medoff. "Because of the rapid urbanization of our society, we are impinging on regions which humans ordinarily would not inhabit."
As our cities expand, we are moving into areas where birds and bats have lived for centuries. We are taking over farmland and building garden apartments. We are digging up soil that is contaminated with bird droppings and is a source of histoplasmosis.

"As we dig up this soil, we aerosolize and inhale it, and inhalation is the primary path of entry for fungal pathogens. It's safe to speculate that systemic mycotic infection will continue to increase and that it is becoming a significant cause of human distress," Medoff says.

Medoff and his multidisciplinary team will focus on the study of histoplasmosis because the midwest is most affected by this fungal disease. "Histoplasmosis is from bird droppings. The methods of diagnosis are really complicated and indirect," Medoff says. "The idea is to study these things intensively so we can learn more about them and improve diagnosis and treatment."

There are many varieties of fungal infections. Some are indigenous to different parts of the country. In addition, some fungi cause trivial infections, such as athlete's foot, which is probably the most common infection in the world. "They're not life threatening, but they represent as much of a bother and a problem as the common cold," Medoff says. "Perhaps more so, because people plagued with these things are bothered by them all of their lives."

"Fungal infections can, however, be serious and in some cases fatal."

"The ultimate goal is a vaccine to immunize people against the fungal disease most indigenous to their part of the country. We can definitely improve the diagnosis and the mode of treatment. Currently the treatment of the fungal infection is almost as bad as the disease."

"This Center represents an effort to bring the basic science available and channel it into this area of research to quickly get results that will be clinically applicable." •

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**Memory, Aging Project receives $370,000 grant**

The Memory and Aging Project of the School of Medicine has recently received a three-year grant of $370,000 from the National Institute of Mental Health. A study of this kind and of this duration is unique in gerontology research.

The main focus of the research is the serious problem of memory loss experienced by many older adults. Adults between the ages of 65 and 75 who either show no memory impairment or who demonstrate mild memory loss will be studied periodically during the three years by means of clinical assessments, psychometric tests, new methods of recording brain waves (EEG) and specialized computerized x-ray scans of the head (CAT scans).

Leonard Berg, M.D., clinical professor of neurology, is the principal investigator of the project and will be assisted by physicians representing various specialties.

The research project relates directly to the enormous public health and socioeconomic problems posed by moderate or severe memory loss in the aged. For the individual, loss of memory may lead to a deteriorating quality of life, impaired interactions with others and personal suffering. A major goal of the study is the determination of those factors which might be predictive of severe memory loss or of the normal changes associated with aging.

The eventual goal of this and related research is the development of treatment methods for people experiencing memory loss.

The Memory and Aging Project is actively seeking volunteers between the ages of 65 and 75 who either show no memory impairment or who demonstrate mild memory loss and are willing to be tested periodically over the next three years.

For information regarding participation in the Memory and Aging Project, please call Warren Danziger, M.D., at (314) 454-2384.
On June 13, 1979, Washington University received a $1,000,000 endowment from James S. McDonnell, Jr., to establish the McDonnell Laboratory of Biochemical Genetics. Heading the laboratory will be Robert G. Roeder, Professor of Biological Chemistry and of Genetics, who will become the first James S. McDonnell Professor in Biochemical Genetics.

Mr. McDonnell's generosity has made Washington University one of the finest centers for genetics in the world. The addition of the endowed chair in biochemical genetics brings the number of endowed professorships at the Medical School.

It does, in addition, focus attention on a serious problem confronting the School of Medicine. Endowment income has not kept pace with inflation for the past ten years, and, each year, endowment income provides a smaller share of our budget.

A plan to deal with this problem has evolved in the form of the Alumni Endowed Professorship Program. Alumni will be asked to donate $1,000 per year. One hundred alumni contributing $1,000 annually for five years will, with interest, provide the $600,000 required to establish a Professorship. If one half of our alumni participate, in five years we should have enough money to establish an alumni professorship in every department in the Medical School, which is the goal of the program.

Cover Note
A commemoration of 100 years of service by St. Louis Children's Hospital to the community. The logo symbolizes 1979 as the International Year of the Child.
In preparation for this year's annual report, I reviewed previous ones. Some comparisons are striking. In 1968, there were 1495 students in Medical Center training programs; the figure for 1978 was 2269, a 52% increase. In 1968, $10.4 million was spent for research from government grants; the figure for 1978 was $31.55 million, a 203% increase. In 1968, we employed 6907 people and spent $40.2 million for salaries; the figures for 1978 were 10,833 employees and $124.16 million, increases of 57% and 209% respectively. In 1968, our total operating budget was $67.1 million; in 1978, $251.32 million, a 275% increase. During these years, we spent $151.39 million for capital improvements, with many more millions scheduled to be spent during the next few years on projects already planned.

These figures testify to our vitality and strength. They should add to our confidence as we face new problems and challenges. We have a record in teaching, patient care, and research of which we may all be proud; I am sure we shall do as well in the future.

Table I
WUMC Expenditures
(in millions of dollars)
Fiscal 1978

<table>
<thead>
<tr>
<th>Institution</th>
<th>For Research</th>
<th>For Total Operating Costs (Including Research)</th>
<th>For Capital Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gov't. Funds</td>
<td>Private Funds</td>
<td>Total</td>
</tr>
<tr>
<td>Barnes Hospital (1)</td>
<td></td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>The Jewish Hospital of St. Louis</td>
<td>1.6</td>
<td>1.01</td>
<td>2.61</td>
</tr>
<tr>
<td>St. Louis Children's Hospital</td>
<td>.75</td>
<td>.05</td>
<td>.8</td>
</tr>
<tr>
<td>Central Institute for the Deaf</td>
<td></td>
<td>.05</td>
<td>.8</td>
</tr>
<tr>
<td>Washington University School of Medicine</td>
<td>29.2</td>
<td>3.1</td>
<td>32.3</td>
</tr>
<tr>
<td>TOTALS (rounded)</td>
<td>31.55</td>
<td>4.17</td>
<td>35.72</td>
</tr>
</tbody>
</table>

(1) Includes Barnard Free Skin and Cancer Hospital
West Pine Place is an attractive new townhouse development with 14 units on a small site (36,000 square feet).

At the west end of Laclede Place (4400 Laclede Avenue) four new condominium townhouses will replace a deteriorated structure. In addition, another eight condominium units in an adjacent building should be ready for occupancy this fall.
Plans for a new townhouse project between Lindell and West Pine Boulevards along Newstead. The drawing pictures three of the units that will front on Lindell Boulevard across from the Cathedral.

Planning With The Community

A remodeled interior of a house in the 4400 block of Laclede Avenue. This house had been partially demolished prior to its purchase for $6,000. Its resale value is estimated to be $85,000.

This is an interior picture of an apartment in an 83-unit complex, being renovated by Paraquad, Inc., which will open in the fall with apartments designed for independent living by handicapped individuals.

An attractive feature of the street improvements in the Euclid-Laclede Avenue commercial area is a new sidewalk cafe (The Consulate). The building in the background was recently renovated and the lights and trees have been newly introduced to make the area appealing for pedestrian trade.
Dr. Paul E. Lacy, Professor and Head of the Department of Pathology, using techniques developed in collaboration with Dr. Joseph M. Davie and Edward H. Finke, has obtained insulin-producing pancreatic islet cells from healthy black rats, maintained the cells at room temperature for seven days, and then transplanted them to diabetic rats of various strains with a single injection of an immunosuppressive antibody. The diabetic rats invariably produced their own insulin and survived without rejecting the "foreign" islet cells.

Under the leadership of Michel M. Ter-Pogossian, Ph. D., at the Mallinckrodt Institute of Radiology, with the assistance of physicists, computer experts, and clinicians, five generations of positron-emission transaxial tomography (PETT) scanners have been developed. These scanners make possible exacting non-invasive assessment of biological processes in patients and human volunteers. They represent a major methodological "breakthrough" in biomedical research.
In the Department of Genetics, Dr. Donald C. Shreffler, the James S. McDonnell, Jr., Professor of Genetics and Head of the Department, is studying the H-2 histocompatibility gene complex of the mouse. These genes control a diversity of products that have specific immunologic functions, such as survival of organ transplants, regulation of immune responses to bacteria and viruses, etc. The mouse H-2 system is remarkably similar (homologous) to the human HLA histocompatibility system. Findings in one system appear to be directly applicable to the other. Further definition of the H-2 system will thus enhance the understanding of many clinically important features of the HLA system relating to transplantation and disease resistance.

Table II
A Five-Year Summary of Care Provided by Washington University Medical Center Patient Services

<table>
<thead>
<tr>
<th>Year</th>
<th>Beds</th>
<th>Discharges</th>
<th>Days of Care</th>
<th>Clinic and Emergency Room Visits</th>
<th>Amount of Free Patient Care Provided #</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974</td>
<td>2,006</td>
<td>64,603</td>
<td>654,860</td>
<td>270,576</td>
<td>$5,723,054</td>
</tr>
<tr>
<td>1975</td>
<td>1,947</td>
<td>66,933</td>
<td>643,389</td>
<td>277,918</td>
<td>7,963,832</td>
</tr>
<tr>
<td>1976</td>
<td>1,963</td>
<td>65,047</td>
<td>647,252</td>
<td>282,766</td>
<td>5,568,028</td>
</tr>
<tr>
<td>1977</td>
<td>1,964</td>
<td>65,323</td>
<td>626,995</td>
<td>271,612</td>
<td>7,592,513</td>
</tr>
<tr>
<td>1978</td>
<td>1,976</td>
<td>66,066</td>
<td>628,931</td>
<td>268,241</td>
<td>7,844,813</td>
</tr>
<tr>
<td>TOTALS</td>
<td></td>
<td>327,972</td>
<td>3,201,427</td>
<td>1,371,113</td>
<td>$34,692,240</td>
</tr>
</tbody>
</table>

*Excluding free professional care provided by medical staffs of the Center.

In the Division of Bone and Mineral Metabolism of the Department of Medicine, located at the Jewish Hospital, and headed by Dr. Louis V. Avioli, Shoenberg Professor of Medicine, he and colleagues are studying a diversity of subjects, including the nutritional aspects of bone disease in geriatric populations, skeletal lesions of osteoporotic fracture-prone post-menopausal women, and calcium transport and mineral metabolism in a species of fish that lacks parathyroid hormone.

Dr. William R. Fair, Professor of Surgery (Urology) and Acting Head of the Department of Surgery, and colleagues are studying the nature and role of zinc found in the prostate gland. Men with little or no zinc in prostatic secretions appear to be more prone to infections of the prostate. Feeding zinc to such patients does not increase the zinc level in the gland; some "carrier molecule" is apparently required to incorporate the zinc into the prostate. Efforts to identify this carrier and to study its potential role in other prostatic diseases, such as benign prostatic hypertrophy, are under way.
### Table III
Care Provided by Washington University Medical Center — 1978

<table>
<thead>
<tr>
<th>Hospitals</th>
<th>Beds</th>
<th>Discharges</th>
<th>Days of Care</th>
<th>Average Length of Stay</th>
<th>Clinic and Emergency Room Visits</th>
<th>Amount of Free Medical Services Provided #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barnes Group (1,2)</td>
<td>1,204</td>
<td>40,554 ±</td>
<td>367,579</td>
<td>9.06</td>
<td>150,107</td>
<td>$3,297,924</td>
</tr>
<tr>
<td>The Jewish Hospital of St. Louis (3)</td>
<td>590</td>
<td>17,333 ±</td>
<td>179,818</td>
<td>10.4</td>
<td>50,083</td>
<td>1,646,211</td>
</tr>
<tr>
<td>St. Louis Children's Hospital (4)</td>
<td>182</td>
<td>8,029</td>
<td>57,534</td>
<td>7.2</td>
<td>64,051</td>
<td>2,405,678</td>
</tr>
<tr>
<td>Central Institute for the Deaf (5)</td>
<td>150</td>
<td></td>
<td>24,000**</td>
<td></td>
<td>4,000</td>
<td>495,000</td>
</tr>
<tr>
<td>TOTALS</td>
<td>1,976</td>
<td>66,066</td>
<td>628,931</td>
<td></td>
<td>268,241</td>
<td>$7,844,813</td>
</tr>
</tbody>
</table>

*Does not include newborn
* Students attending School Division of C.I.D.
** Days of attendance at School Division of C.I.D.
# Excluding free professional care provided by medical staffs of the Center.

(1) Barnard Free Skin and Cancer Hospital; Barnes Hospital; Renard Hospital; David P. Wohl, Jr Memorial Hospital; David P. Wohl, Jr. Memorial — Washington University Clinics.
(2) From Mr. Robert E. Frank, President, Barnes Hospital.
(3) From Mr. David A. Gee, President, The Jewish Hospital of St. Louis.
(4) From Mr. Lenn B. Perkins, Executive Director, St. Louis Children's Hospital.
(5) From Dr. Donald R. Calvert, Director, Central Institute for the Deaf.

### Table IV
Care Provided by WUMC to Patients from Outside Metropolitan St. Louis — 1978

<table>
<thead>
<tr>
<th>Institution</th>
<th>Discharges</th>
<th>Number from Outside Metro. Area (1)</th>
<th>Percent from Outside Metro Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barnes Hospital (2)</td>
<td>40,554 ±</td>
<td>12,087</td>
<td>30</td>
</tr>
<tr>
<td>The Jewish Hospital of St. Louis</td>
<td>17,333 ±</td>
<td>1,590</td>
<td>9</td>
</tr>
<tr>
<td>St. Louis Children's Hospital</td>
<td>8,029</td>
<td>1,879</td>
<td>23</td>
</tr>
<tr>
<td>TOTALS</td>
<td>65,916</td>
<td>15,556</td>
<td>24</td>
</tr>
<tr>
<td>Central Institute for the Deaf</td>
<td>1200(3)</td>
<td>500</td>
<td>42</td>
</tr>
</tbody>
</table>

* Does not include newborn.
(1) Outside St. Louis Standard Metropolitan Statistical Area
(2) Includes Barnard Free Skin and Cancer Hospital.
(3) Includes 150 students and 1,650 clients in treatment programs.
Our Medical Center represents an important national resource for training in the Biomedical Sciences (see table VI). Bright, ambitious students can thrive here and become excellent practitioners or researchers. Washington University can be singularly proud that, in the last decade, two Medical School graduates have won Nobel Prizes.

In 1971, the late Earl Sutherland, M.D., 1942, received the award in Physiology or Medicine for his discoveries concerning the mechanisms of hormone actions. Dr. Sutherland, who won the prize while at Vanderbilt University, was on the faculty here for eight years and began his investigations of hormone action in the laboratory of Nobel Laureate Carl Cori.

In 1978, Daniel Nathans, M.D. magna cum laude, 1954, shared the prize. Nathans is Professor and Head of the Department of Microbiology at Johns Hopkins University School of Medicine. He shared the award with Hamilton O. Smith, M.D., also of Johns Hopkins and Werner Arber, M.D., from Basel University, Switzerland. Dr. Smith also has a connection with Washington University Medical Center, having served as a house officer at Barnes Hospital during the 1956-1957 academic year. Nathans and his colleagues were cited for their discovery of restriction enzymes, important in molecular genetics research. Of 74 Nobel Prizes for Physiology or Medicine awarded in the past 77 years, 13 recipients or co-recipients spent some of their careers at Washington University Medical Center—either as students for the M.D. degree (2), members of the Medical School faculty during the time they did the work for which they received the award (5), or otherwise as members of the faculty or house staff (6).

Education

Dr. Daniel Nathans (left) meeting with Dr. Oliver H. Lowry and Dr. Philip Needleman during a recent visit to the Medical Center.
The newly installed second cyclotron, housed in the subbasement of Barnard Hospital.
At Jewish Hospital, a computerized Medical Information System (MIS) has been installed and is on line. This comprehensive communication system extends the resources of the computer on a broad scale into clinical areas. All communication activities related to patient care will be integrated into the system. In each department, printers are available to retrieve such diverse information as laboratory reports, pharmacy requests, and patient care plans. Major progress has been made in completing Jewish Hospital's Master Plan. Floors seven and eight of the Shoenberg Pavilion have been completed. Earlier this year, medical patients were moved to the seventh floor, and a 22-bed Medical Critical Care Unit has been activated on the eighth floor.

Work has continued on schedule on the $50 million Barnes Hospital West Pavilion project; completion is scheduled for 1980, although some areas will be occupied in late 1979. The new space will provide new nursing divisions to replace those currently in Wohl and Renard Hospitals, a special unit for organ transplant patients, a number of intensive care units, and additional operating rooms. There will not be an increase, however, in the number of beds at Barnes Hospital. In the subbasement of Barnard Hospital, a second cyclotron has been in use for the past year. Our Medical Center is the first in the country to have two functioning cyclotrons. The cyclotrons provide several very short-lived isotopes that make possible a wide range of research.

In order to provide new parking space and easy access for people of the St. Louis area, Central Institute for the Deaf has completed a new entry and parking facilities for its Speech and Hearing Clinics at 909 South Taylor Avenue. Dr. Donald R. Calvert, Director of the Institute, noted that Taylor Avenue is slated to be a major north-south street around the Medical Center.

Children's Hospital's efforts to build its new tower over several lanes of Kingshighway have been stopped by an adverse decision from the Missouri State Supreme Court. The need to maintain a first-rate pediatric service is paramount to Washington University Medical Center, and plans are under way within the Medical Center to find an alternative site for Children's Hospital's badly needed expansion.

Soon to be completed is the second phase of the Department of Genetics' new facilities on the eighth floor of the McDonnell Sciences building. This fills the last 18,000 square feet of shell space in the McDonnell Sciences building and provides additional laboratories, offices, conference rooms, and specialized support facilities for the Department of Genetics.

The Medical Center In Transition

Table V
Greater St. Louis Outpatient Visits to Selected Hospital Clinics—1978

<table>
<thead>
<tr>
<th>(Clinic)</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington University Medical Center</td>
<td>198,854</td>
<td>36</td>
</tr>
<tr>
<td>City Hospitals (1)</td>
<td>145,998</td>
<td>26</td>
</tr>
<tr>
<td>St. Louis University (2)</td>
<td>75,678</td>
<td>14</td>
</tr>
<tr>
<td>St. Louis County Hospital</td>
<td>47,933</td>
<td>9</td>
</tr>
<tr>
<td>Others (3)</td>
<td>84,818</td>
<td>15</td>
</tr>
<tr>
<td>TOTALS</td>
<td>553,281</td>
<td>100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(Clinic)</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>David P. Wohl, Jr. Memorial—Washington University Clinics (4)</td>
<td>110,443</td>
<td>56</td>
</tr>
<tr>
<td>St. Louis Children's Hospital</td>
<td>59,835</td>
<td>30</td>
</tr>
<tr>
<td>The Jewish Hospital of St. Louis</td>
<td>28,576</td>
<td>14</td>
</tr>
<tr>
<td>TOTALS</td>
<td>198,854</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: WUMC Statistics from Member Institutions: all others from Hospital Association of Metropolitan St. Louis, Patient Statistics.

(1) Homer G. Phillips Hospital, St. Louis City Hospital
(2) St. Louis University Hospital, Cardinal Glennon Hospital
(3) Deaconess Hospital, Lutheran Hospital, Missouri Baptist Hospital, St. John's Mercy Hospital, St. Mary's Mercy Hospital
(4) Barnes Hospital
A product of our times is the Medical School experimental Vanpool Program, which has been in operation for the past year. This program provides 12 passenger vans to employees as an alternative method of commuting to work. One employee serves as driver-coordinator. The driver-coordinator drives the van, recruits passengers, and manages all aspects of his Vanpool operation. For this, the Vanpool driver-coordinator can use the van for personal purposes within a 100-mile radius of his home. Passengers pay a predetermined amount each month for the service, based on miles traveled.

Presently, six vans are in operation, bringing staff members from Fenton-Eureka, Ballwin, Hazelwood, Normandy-Bel-Nor, University City, and Florissant. Staff members of all Medical Center Institutions are eligible to ride as passengers. Driver-coordinators must be employed by Washington University.

Health Care

Providing highly specialized care for the most seriously ill patient is a special responsibility of Medical Center Hospitals. As a regional medical resource, with a service area extending 100 to 150 miles and beyond, Medical Center Hospitals daily handle patients with a wide range of problems, from critically ill newborn children to severely injured adults with extensive brain damage. This requires highly sophisticated equipment and highly trained personnel.

A cooperative effort between Barnes and Children’s Hospitals resulted in the successful separation of two sets of Siamese twins. Over 1,000 cardiac catheterizations were carried out at Medical Center Hospitals. Microvascular surgical technics were used to reattach two severely injured thumbs of a young man from a small Missouri town. Washington University Medical Center was one of the first in the nation to offer continuous ambulatory peritoneal dialysis. At Jewish Hospital, quadriplegic and paraplegic patients receive comprehensive restorative care in the St. Louis area’s first custom-designed facility for the care of spinal cord injuries. With such a mix of patients in the Medical Center, one might expect prolonged lengths of stay. An increase in the number of patients discharged, from 65,323 to 66,066, and an increase in total days of care, from 626,995 to 628,931, was accompanied by a slight fall in the average length of stay for the Medical Center Hospitals as a group, from 8.90 days for 1977 to 8.88 days for 1978.

Table VI
Teaching Responsibility of the Washington University Medical Center—1978

| Medical Students | 547* |
| Graduate Students in Biomedical Sciences | 158** |
| Students in Postdoctoral Educational Programs |
| Interns | 148 |
| Residents | 443 |
| Postdoctoral Fellows & Trainees | 159 750 |
| Students in Allied Health Professions |
| Health Care Administration | W.U. 63 |
| Dietetic Internship | Barnes 20 |
| Medical Technology | Jewish 10 |
| Nurse Anesthesiology | Barnes 38 |
| Nursing | Barnes 182 |
| Nursing | Jewish 290 |
| Occupational Therapy | W.U. 58 |
| Pediatric Nurse Practitioners | W.U. 14 |
| Physical Therapy | W.U. 39 |
| Audiology, Education of Deaf | C.I.D. 43 |
| X-Ray Technology | W.U. 44 |
| Nuclear Medicine | W.U. 5 |
| Radiation Therapy | W.U. 8 |
| TOTAL | **814 2,289*** |

*Includes 55 students in M.D./Ph.D. Medical Scientists Training Program
**Excludes the 55 students in M.D./Ph.D. Medical Scientists Training Program
***This total does not include 291 students in the School of Dental Medicine and 836 students at the St. Louis College of Pharmacy who are in training in close proximity to Medical Center institutions. Also, not included are a host of students-nurses, social workers, therapists, health care administrators and others who use Medical Center Institutions for Clinical training.
The Medical Center In Transition
Table VII
Number of Employees and Salary Expenditures — Fiscal 1978

<table>
<thead>
<tr>
<th>Institution</th>
<th>Number of Employees</th>
<th>Expenditures in Millions for Salaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barnes Hospital (1)</td>
<td>4,131</td>
<td>$42.8</td>
</tr>
<tr>
<td>The Jewish Hospital of St. Louis</td>
<td>2,583</td>
<td>28.2</td>
</tr>
<tr>
<td>St. Louis Children's Hospital</td>
<td>807</td>
<td>8.06</td>
</tr>
<tr>
<td>Central Institute for the Deaf</td>
<td>115</td>
<td>1.4</td>
</tr>
<tr>
<td>Washington University School of Medicine (2)</td>
<td>3,197</td>
<td>43.7</td>
</tr>
<tr>
<td>TOTALS</td>
<td>10,833</td>
<td>$124.16</td>
</tr>
</tbody>
</table>

(1) Includes Barnard Free Skin and Cancer Hospital
(2) Includes both full-time and part-time employees (including fellows); does not include 679 part-time voluntary faculty.

Taking stock should always remind us that our achievements have been based on the efforts and support of many people. Each year, I appreciate even more how much every segment of our Medical Center community contributes to our accomplishments. I want to again thank our boards of directors, our administrators, our faculty, our students, our staffs, and our benefactors.

Conclusion
The Washington University Medical Center redevelopment area can boast of a noticeable renovation effort on many of its streets. Pictured above is a house in one of the renovated neighborhoods and some of the rooms and redecorated areas of the home.