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MEDICAL BULLETIN

UNIVERSITY OF *Minnesota*

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- CURABLE RENOVASCULAR HYPERTENSION
- NEUROGENIC VESICAL DYSFUNCTION

VOLUME XXXV, NUMBER 5

JANUARY 1964

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UNIVERSITY OF MINNESOTA
Medical Bulletin

Official Publication of
UNIVERSITY OF MINNESOTA HOSPITALS
MINNESOTA MEDICAL FOUNDATION
MINNESOTA MEDICAL ALUMNI ASSOCIATION
Circulation this issue 6,500

VOLUME XXXV

January 1964

NUMBER 5

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Published monthly from September through June at Minneapolis, Minn. No advertising accepted. Second class postage paid. Address all correspondence to The Editor, University of Minnesota Medical Bulletin, 1342 Mayo Bldg., University of Minnesota, Minneapolis, Minn. 55455.

Special Article

A Medical Student in Zululand

Robert S. Brown*

On June 20th, 1963, I arrived in the town of Nqutu, Zululand, South Africa, more than 9,000 miles away from my home in St. Paul, Minnesota, and the beginning of a three month training fellowship at the Charles Johnson Memorial Hospital. Thirty-one American medical students, myself included, were awarded Smith, Kline & French foreign fellowships in 1963 under the auspices of the Association of American Medical Colleges. It was my privilege to take mine in South Africa.

For two years I had contemplated such a trip. Suddenly, via a jet trip of 26 hours, I found myself in Africa, a continent whose previous meaning had been but a jumbled image of snakes, diamonds, the Desert Fox, black men with spears, and wild animals.

Zululand is a rather barren district about 50 miles long and 20 miles wide, located in the province of Natal. The country is rough and rugged, composed of rolling, rocky hills. Most of the soil is of poor quality. As the seasons are reversed from ours, I had arrived in winter, which is a very dry season. In fact, rain is unusual in Zululand from May to October, but it rained continuously for one week in July—an event which had not occurred there for some 15 years. In spite of the rain, the countryside remained a composite of varying shades of brown, and it was not until my final weeks that greens began to appear. Although it appeared dry and barren, I found a great deal of beauty in Zululand. I admired its ruggedness, its simplicity, and its utter lack of "civilization," i.e., T.V. aerials and never-ending billboard signs.

The population of Zululand is 40,000, of which 8,000 are Basuto, about 70 are whites, and the rest are Zulu. The Zulu language is structurally straight forward, but very difficult due to its large vocabulary and clicks of the tongue employed for the letters c, q, and x. Thus, "Nqutu" is pronounced "N-click-utu."

*Member of the Class of 1964, University of Minnesota Medical School.

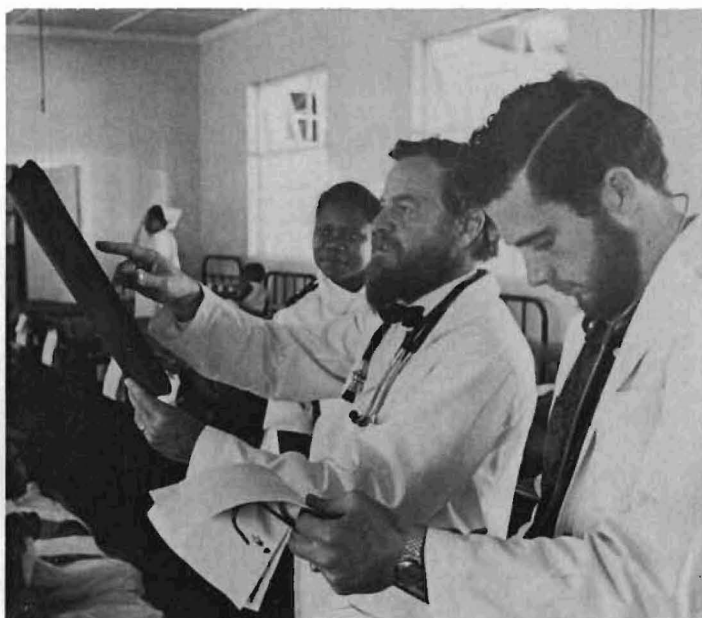


The author makes friends with a young Zulu who is learning to walk again after a disabling illness.

Other than the everyday greetings and a few medical phrases, I did not progress very far in learning the language.

The Zulus live in kraals, a grouping of several huts made of branches and mud which shelter the members of one family group. The kraals are scattered about the countryside, and generally located on the sides of hills. A family may own several cows, a few chickens, and occasionally a pig. The basic item of diet is mealie, or corn, out of which they make porridge, sour mash and beer. Quite often the adult males are absent for long periods of time, traveling the 200 miles south to Johannesburg in search of work in the gold mines. This way of life puts a great burden on the Zulu women, and is responsible for many of the problems of the Zulu, both medical and social.

The town of Nqutu is unimpressive. A hotel, several stores, a post office, a jail, and several churches serve the local and area population. The dominating feature of the town is the Charles Johnson Memorial mission hospital, founded in 1936 by Bishop Lee of the Anglican Diocese of Zululand and Swaziland. The hospital is run by Drs. Anthony and Margaret Barker, a husband-and-wife team of physicians who arrived from England 18 years



Dr. Anthony Barker, director of the hospital, examines an x-ray film during rounds, as the author records the findings on the patient's chart.

ago. In 1945, the hospital consisted of a single building and had seven patients. The Barkers are responsible for its growth to the present inpatient capacity of about 550 beds, and the continuing construction of bigger and better facilities. Dr. Anthony holds the British F.R.C.S. and a doctorate from Birmingham University in England. There are two other doctors on the staff, Dr. Celia Fiennes, a graduate of Trinity College, Dublin, Ireland, and Dr. Jan de Kock, a graduate of Capetown University. Since 1961 the hospital has also functioned as a nurses training school for the South African Nursing Council, with 150 student nurses in training. The over-all hospital staff consists of 250 people.

The hospital is presently being enlarged by the addition of an annex for pre-natal and maternity care. The maintenance staff is building the \$50,000 addition. Dr. Barker, author of the book, "The Man Next To Me," visited the United States in 1962 to help raise the funds for the addition. About \$15,000 is still needed.

Patients are cared for in wards of the Nightingale pattern.

Frequently the wards are overcrowded, and it becomes necessary to sleep two children in one cot and to discharge patients who are almost well to make room for those who are very ill. There are men's and women's general wards, men's and women's tuberculosis wards, a maternity ward, three children's wards and an outpatient department. Routine pathological investigations were carried out on urine and stool specimens, but most hematological, bacteriological and other special investigations are sent away to a government laboratory.

A ROUTINE DAY

I was quickly integrated into the hospital routine. The typical day would begin with the 6:30 church service. I usually attended the Thursday morning communion service which was conducted in Zulu. At 7 a.m. we began the morning medical rounds, a combined rounds with all doctors present, if possible, and starting in a different ward each morning. At 8 a.m. we would stop for breakfast, after which we would return and finish the ward in which the combined round was taking place. At this point we would split up, each doing a round in one of the other wards, and one doctor going to the Outpatient Department.

Generally I spent the rest of the morning doing the pathological examinations or helping in "Outpatients," where work began at 9:30 and continued until 4 or 4:30. The outpatients lived reasonably near to Nqutu or on a bus line that enabled them to reach the hospital. We usually saw approximately 100 patients per day, depending a great deal upon the weather. The number seen yearly is 40,000, and the average inpatient load is 4,000 per year. As in any outpatient department, the majority of patients were either new patients with minor complaints, or old patients in for check-ups and for renewal of their medicines. There were usually seven or eight patients who were obviously sick and in need



Robert Brown measures the blood pressure of an expectant mother at a prenatal clinic in the hospital yard.



Dr. Barker's beard fascinates a young patient. Watching are Dr. Margaret Barker and the author.

of hospitalization. The real challenge was spotting the three or four patients with serious illnesses among those with only minor complaints. We watched carefully for the suspicious cough or persistent tachycardia among the customary 30 or 40 crying infants presented daily. And there was usually the one woman among 20 complaining of "bladder trouble," who had a lump in her breast, or a carcinoma of the cervix.

The term "bladder trouble" illustrates the communication problem frequently faced when

taking a history from the Zulu patients: They would very often localize their complaints to the "bladder," or if the answer to "*What is troubling you?*" was not "my bladder," it might easily be "*Something has been let loose in my stomach.*" Obviously, in many cases the history was of little value. Histories are not ignored, but often the Zulu reply to "*What is the matter?*" was essentially "*That is why I came to you, here I am; it is up to you to find out!*"

Rather than having a "coffee-break" I soon became accustomed to the "tea-break." In fact, I was awakened at 6:30 a.m. with tea, had tea at 10, again at 3:30, and usually after meals. Coffee was often available in this English-supervised hospital, but tea was *the* drink.

After lunch I occasionally spent an hour or two more in the pathology lab or in Outpatients, but most often I would examine newly admitted patients. In fact at any time during the day I might be handed a note by one of the nurses saying that there was a new patient for "Mr. Brown's opinion and advice." This was valuable experience for me, for although I did many routine admissions, the majority of cases were ones that the Barkers thought would be of interest and prove the most profitable as a teaching case. An evening round was always done before supper by the doctor on call, and I frequently joined in, especially when Dr. Anthony made the round. Thus the patients were seen twice a day, every day by one of the doctors.

Two or three times a week Dr. Anthony would hold a ward class after supper. This would usually be held at 8 p.m. because he gave lectures to the student nurses from 7 to 8. During the month of July there were two medical students from Johannesburg at the hospital so that three of us at the medical student level usually joined the discussion with the medical staff. Dr. Anthony would choose one or two patients that he thought were interesting or puzzling teaching cases. One of the other students or I would take a history, demonstrate the physical findings, state a differential diagnosis, and suggest a course of investigation and treatment. These sessions were invaluable to me from every standpoint, and often to the patient as well.

Wednesday afternoons were reserved for operating. The surgery schedule would start at 2 p.m. and frequently not be completed until 8 or 9 p.m. The operating theater was often in use at other times during the week for Cesarian section, trauma cases, and other emergencies.

CLINICS

The Hospital sponsors ten clinics which are held on specific days biweekly at small country stores anywhere from 15 to 40 miles from the hospital. The storeowners provide Dr. Barker a small room or building in which to hold a clinic. The clinics serve principally to bring routine outpatient care to those patients who live some distance from the hospitals, and also for screening patients for admission; providing a resemblance of follow-up care for such diseases as tuberculosis, malnutrition, and epilepsy; providing antenatal care; and immunizing the children who have been born at home. Dr. Anthony travels to the Clinics by pick-up truck with a nurse and a driver who acts as a dispenser. The average number of patients seen at a clinic is 100-120 per day in good weather. I went to one clinic in a driving rain which was attended by only three patients. However Dr. Anthony never misses a clinic because "the very sick will attend in spite of the most inclement weather."

The majority of the clinic patients have minor complaints, e.g., infants with a cough or slight diarrhea, old people with "aches all over," teeth to be pulled, "pregie mums" to be checked, and numerous patients who just want a "jova" or injection, to "cure their aches" or "keep illness from them." However, out of these 120 people with the minor complaints, or the usual "bladder trouble," one must uncover the two or three cases of kwashiorkor, typhoid fever, or acute rheumatic fever. Sometimes these are obvious; often they are not, and one must spot the slight clue that identifies an ill patient. The heavy



The author and Dr. Fiennes try in vain to save the life of a newborn Zulu baby. Over two-thirds of all babies born alive in Zululand die in the first two years of life, mainly from disorders preventable by modern methods.

responsibility that weighs on Dr. Anthony's shoulders becomes apparent when one realizes that if the "clue" is missed at clinic the patient may return to his kraal, become worse, yet not get in touch with the hospital because the doctor has already "failed."

For the most part, the Barkers have gained the confidence of the Zulu people. It has been won during 18 years of often frustrating and discouraging setbacks in their efforts to educate the Zulus in the ways of health. Even now there is the occasional mother who will refuse to allow her desperately ill child to be admitted, expecting instead an injection to return it magically to good health. Progress continues, however, and the clinics, although time consuming and physically tiring, are a major contribution.

TUBERCULOSIS

The three main causes for admission to the hospital are tuberculosis, malnutrition, and pregnancy.

Tuberculosis was a disease I had seen only three or four times prior to going to Africa, and although knowing that it was common among the Zulus, I had no idea of the role it would

play. It was no surprise to find two adult tuberculosis wards at the hospital, and that a large percentage of the children were stricken. However I *was* surprised by the many manifestations of the disease.

Pulmonary tuberculosis was commonplace in both children and adults. Suspicious chest on auscultation, or loss or failure to gain weight, was sufficient evidence to investigate. I soon learned, however, that tuberculosis was not confined to the lungs, and after missing numerous "spot diagnoses" presented to me by Dr. Anthony, I realized that among the Zulu, tuberculosis must be strongly considered in the differential diagnoses.

Many lives have been saved because the majority of tuberculosis patients can now be treated successfully by chemotherapy. Adequate treatment in Zululand, as elsewhere, requires long periods of hospitalization and continued care on an outpatient basis. These requirements cause a great deal for frustration in treating a population which, for the most part, is uneducated. Frequently after treating a critically ill Zulu for months, to the point where the disease was controlled, but not cured, suddenly the patient was missing, having decided that "now that he was feeling better he might as well go home." It is also hard to convince the Zulus of the importance of attending the clinics after discharge from the hospital so they can continue to be observed and supplied with medicine. The number of defaulters is high, and consequently the number of recurrences is high as well.

MALNUTRITION

In children, malnutrition was also one of the common reasons for admission. During my stay, I did a brief study of kwashiorkor, a disease of children caused by insufficient intake of protein. I was able to learn some interesting things about this disease, both from the medical and sociological points of view. Kwashiorkor is usually found in children between 1½ and 4 years of age, and most commonly develops after the child has been weaned from the breast. The Zulu diet is basically carbohydrate, consisting of sour milk and porridge, which is made out of "mealies," or corn, from which the protein-containing portion has been removed. In the cases I studied, I found that the mother had left home to visit her husband who was working in one of the big cities. The young child was left in the care of the "gogo" or grandmother. The care given by the gogo was often inadequate, and when the mother returned one or two months later she found a child who was edematous and generally quite ill. The main features of kwashiorkor are edema, frequent enlargement of the



Medical missionaries must be versatile. Robert Brown tries his hand at dentistry on a woman who attended one of the traveling clinics sponsored by the hospital.

liver, skin changes, hair changes and a rapid weak pulse. The mild cases could be controlled merely by giving an adequate diet, but the severe cases often were in a state of collapse and required intravenous fluids, steroids, and antibiotics for complicating infections. Occasionally, even this regimen was not sufficient to save the child. Other malnutritional diseases which were encountered were rickets, pellagra and scurvy.

OBSTETRICS

My greatest experience was gained in the field of obstetrics. Dr. Margaret is an excellent obstetrician with a wealth of practical information garnered from

the experience of 18 years with a people who have a high percentage of complicated deliveries. The Zulu women have small pelves without a corresponding decrease in the size of the infants, and therefore, there is an increased incidence of obstructed labor. There is an average of 100 births per month at the hospital with a 6 percent incidence of Cesarean section. Normal deliveries are handled by the midwifery students, but all "trials" are delivered by a doctor. A "trial" would be any woman with a contracted pelvis, poor obstetrical history, or other complicating feature about her pregnancy. While at the hospital I delivered my first breech, my first set of twins, and later two additional breeches and a second set of twins. I assisted at 15 or 20 Cesarean sections, and under Dr. Anthony's supervision performed one Cesarean section myself. I also assisted in the use of the hospital's new vacuum extractor. There were four cases of ectopic pregnancy during my stay, and I assisted at the operation in all four cases. There was also a case of placenta previa and a case of abruptio placenta. The later was a very interesting case in which a Cesarean section was necessary—the mother developed hypofibrinogenemia which was corrected with blood and plasma;

she had a Couvelaire uterus and the fetus proved to be no larger than that of 26 weeks by measurement.

To perform a Cesarian section on these women was a serious step to take and was avoided if at all possible. The difficulty stems from the lack of certainty that the Zulu mother will realize the seriousness of having a scarred uterus, and may fail to come into the hospital for subsequent deliveries. Thus, there is the fear that in a later pregnancy similar conditions may arise necessitating Cesarian section, but due to ignorance, the mother may remain in her kraal, obstructed, and go on to develop a ruptured uterus. Therefore, in cases of fetal distress the choice becomes one of cutting to save the baby's life or taking a chance on a vaginal delivery and safeguarding the mother's life, not an easy decision to make.

INTERNAL MEDICINE

I was most surprised by the common type of cases in the general medical wards. Some were unique to Africa, but a large percentage of the diseases are found in any hospital in the United States; diabetes, pneumonia, rheumatic fever and rheumatic heart disease, acute nephritis, hypertension, carcinoma, and heart failure, to name a few.

Diabetes is a difficult disease to treat in the Zulu for several reasons. His diet is basically carbohydrate, and it is difficult to establish any control of diet, even to the extent of meals at regular intervals. In addition, it is not easy to teach an uneducated person how to regulate his self-medications. Nevertheless, during my stay several diabetics were taught how to give themselves insulin injections and they were discharged in fair control. Hopefully, with frequent outpatient check-ups they will remain so and be able to live fairly normal lives.

In three years of Medical School I examined perhaps two or three cases of lobar pneumonia, and saw many cases of bronchopneumonia. By comparison, in the three months in Nqutu I saw about 40 cases of classical lobar pneumonia. I saw three or four cases of carcinoma of the breast, as well as carcinomas of the prostate, skin, stomach, lung, endometrium, cervix and pancreas. And, as one might expect, nearly all cases were beyond hope by the time the patients came to the hospital.

Although I did not see any cases of coronary heart disease, there were numerous cases of heart failure. Most of these were cases of cor pulmonale secondary to tuberculosis or emphysema, and cases of failure due to rheumatic heart disease. There were also two cases of aortic aneurysm secondary to syphilitic aortitis.

Measles proved to be a killer among the hospitalized Zulu

children. Each new admission would be segregated to a small ward for four to five days before being transferred to the main children wards. Although these precautions were taken, a case of measles would occasionally enter the main wards. In spite of heroic efforts at isolation, the disease usually would soon be spread throughout the wards. As in America, the healthy African child is little affected by measles. For the ill child, however, the consequences are often severe. How frustrating for the staff to treat for several months a young child near death from tuberculosis or severe malnutrition only to have measles negate his recovery, if not cost him his life.

During these three months I saw many diseases which had previously been only "textbook" diseases to me. From the day I arrived until the day I departed, there were always two or three cases of typhoid fever in the wards, and in all, I saw some 50 to 60 cases. Many cases were obvious, typhoid being the presumptive diagnosis on taking one look at the patient. Others were diagnosed only because one of the doctors was highly suspicious and therefore had blood and stool specimens sent off to the laboratory.

There were many cases of syphilis with primary chancres, secondary sores, and tertiary central nervous system and cardiovascular disease. One case presented with a gumma of the nose which healed quite well under treatment. Hansen's Disease, or leprosy, was commonly seen, ranging from moderate involvement, to those with loss of hands and feet. Although it was winter and many of the river beds were virtually dry, there were still occasional cases of bilharzia, or schistosomiasis. Numerous cases of amebiasis in children and adults were admitted. There were several with amebic abscesses of the liver; from one I removed five pints of purulent fluid on different tapplings. He was extremely ill at one point, but was eventually discharged after appropriate treatment.

SURGERY

Approximately 800 operations are done at the Charles Johnson Memorial Hospital annually, with 250 to 300 being major procedures. The theatre was small and the lighting only fair—one of the needs of the hospital is a bigger and better operating theatre. One doctor would take care of outpatients on Wednesday afternoons, and the rest would take part in the operating schedule, either as a surgeon or as anesthetist. I administered my first anesthetic in Zululand. Overall I gave nearly 50 general anesthetics, of which at least a dozen were major cases.

The operating lists varied a great deal, ranging from simple procedures such as lumbar punctures and node biopsies to lapa-

rotomies and radical mastectomies. One of the "African" operations is the suturing up of torn ears. Many of the women have holes made in their ear lobes which are stretched and wooden ornaments placed in them. These would frequently need repairing due to overstretching, fighting, or because they wanted to have the holes closed again.

PUBLIC HEALTH

We held several mass inoculations at the clinics during my stay, usually giving diphtheria-pertussis-tetanus injections. From 300 to 1,000 people would appear. There were several outbreaks of smallpox on the outskirts of our district, and we had two cases of presumptive smallpox although the laboratory tests were equivocal. We also held mass vaccinations for small pox, one of which I ran by myself in Dr. Anthon's absence, in which I vaccinated at least 250 children.

The rich experience of my three months in South Africa will add meaning to my future as a doctor and my life as a whole. I can never forget the hospitable way in which the people of Zululand welcomed me. They gave me an immediate sense of "belonging" and the satisfaction of being part of a "living" medical service rather than merely sterile buildings, equipment, and drugs.

One is easily inspired by the devotion of Anthony and Margaret Barker to each other and to all men. They are truly pioneers, and have built an island of peace, hope, and understanding in a backward, troubled land.

And there is Africa itself, a young giant, complicated, frustrated, struggling to emerge from adolescence, and eager for acceptance in the modern world. The setting, the cast of characters, and the drama of this far off land are impressed forever on my memory. Someday I hope to return.



A handsome Zulu woman is pleased with her stylish hair-do and her giant ear lobe ornaments. Surgical repair of stretched and torn ear lobes is a common operation in South Africa.

Staff Meeting Report

Use of High Energy Light in the Treatment of Ocular Disease*

Charles B. Carter, M.D.† and John E. Harris, M.D.‡

Photocoagulation has become, with increasing clinical experience and perfection of the instrument, an established adjunct in the treatment of many ocular diseases, particularly those conditions involving the retina. It is of value, then, to consider briefly the technique of photocoagulation and our experiences with it.

The first light coagulation in human beings was carried out in the spring of 1949 by Meyer-Schwickerath after three years of experimental work. Many modifications in technique, patient selection, and equipment have brought us to our present state of knowledge. At the present time the instrument in greatest use is the Zeiss light coagulator with a xenon high pressure lamp. The laser is being adapted for use in treatment of ocular disease and will have certain advantages.

The technique is based on developing heat of sufficient degree at the exact point desired in a chosen tissue. This heat is great enough to coagulate this tissue. In so doing it also causes exudate to be produced at the point of treatment and use is made of this exudate to cause the development of tissue adhesions around the coagulated area. This is very similar to the coagulation of tissue by high frequency current as used in diathermy, with subsequent production of exudate and the development of adhesions.

The light generates practically no heat in tissue such as that of the cornea, through which it passes unabsorbed. An appreciable amount of pigment must be present for heat to be generated.

It follows then that for treating the posterior segment of the globe in which the refractive power of the eye is being used to focus the beam accurately on the retina, the refractive media (cornea and lens) and transmitting media (aqueous and vitreous) must be quite clear to allow successful use of this method. Ex-

*Presented at the Staff Meeting of University Hospitals on January 24, 1964

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perimental work has shown that no damage occurs through absorption of radiation by the refractive media with the dosage of light necessary for coagulation of the retina. Delayed lens damage, as in radiation cataract, is not expected from the physical characteristics of the radiation used, and so far none has been reported.

The fundusoscopic appearance of a light burn in its different stages is fairly constant. The first sign of the coagulation appears in the center of the exposed area and then spreads peripherally. This is essentially edema which presents a white, slightly prominent area.

Five or 10 days following coagulation, with fairly wide individual variations, the burns begin to show pigmentation at their periphery, and a few days later the central white portion darkens. The pigmentation increases for the next 10 to 20 days, and following this period the entire burn becomes pigmented and loses its prominence. The degree of pigmentation of the scar shows considerable individual variations.

Our series consisted of 113 patients involving approximately 195 treatments. These are presented to demonstrate the types of conditions we have been treating, and therefore what appears, at the present time, to be indications for light coagulation.

The individual disease states which we have treated are arbitrarily divided into the following categories: (1) retinal detachments after surgery, (2) retinal detachments without surgery, (3) degenerations, and (4) tumors, and (5) a miscellaneous category including diabetics, iris cysts and certain vascular problems.

1. *Retinal detachment with previous surgery*

Following surgical procedures residual tears or parts of tears may have to be coagulated. This can be applied at a very early stage following operation. Localized, residual retinal detachments can be limited by a barrage of light coagulation. Photocoagulation may be used along or adjacent to a buckle to strengthen the attachment. Of the 30 patients that were treated, 20 were followed adequately and, of these, 18 showed no further separation or detachment.

2. *Retinal detachment without surgery*

In selected cases photocoagulation is done to prevent further detachment. In general, these are cases where an operative procedure is contraindicated or not desired by the patient or where it is felt that surgery is unlikely to bring the retina back into place. Five of the seven patients who were treated showed no progression of their detachment.

3. *Retinal degenerations, holes, or tears*

Degenerations, as well as frank holes and tears, predispose to retinal detachment so examination must be directed to consideration of prophylactic photocoagulation. Twenty of the 27 patients in this category were adequately followed. All of these showed a good reaction and none of them have had subsequent detachments.

4. *Tumors*

Angiomatosis of the retina is probably one of the most satisfactory indications for photocoagulation. The main advantage of light coagulation in this situation is that it can easily be repeated, making it possible to treat and destroy large angiomatous lesions in a gradual manner. Nine patients were treated and eight have been followed closely. One had a detached retina the same day, the others have had remission of their tumors.

Our results with photocoagulation have been encouraging and suggest certain criteria for consideration in prophylactic or therapeutic photocoagulation.



Staff Meeting Report

Assessment of Curable Renovascular Hypertension by Radiographic Techniques*

Kurt Amplatz, M.D.,† R. E. Stejskal, M.D.,‡
and Merle Loken, M.D., Ph.D.§

During the last ten years there has been an increasing interest in the radiographic diagnosis of curable renovascular hypertension. Many patients have been cured by surgery and the cure rate achieved seems to justify surgical repair of stenotic renal artery lesions in a selected group of patients. Unfortunately, all patients do not show significant improvement following surgery. It is the purpose of this presentation, therefore, to discuss two radiographic techniques helpful in selecting those hypertensive patients who will benefit from surgery, namely, (1) aortography combined with pressure measurements and (2) the urea washout test.

Renal artery stenosis is by far the most common and most important of the unilateral renal lesions causing malignant hypertension. This may be due to atherosclerotic plaques, congenital narrowing, fibromuscular hyperplasia or rarely by extrinsic pressure. Other unilateral renal lesions causing hypertension, such as stenosis of an accessory renal artery, renal branch stenosis, chronic atrophic pyelonephritis, perirenal constrictive disease, renal artery aneurysm with partial thrombosis and consequent constriction, and arteriovenous fistulas are much less common. The common denominator of these lesions seems to be either a reduction in blood flow to the kidney or decreased pulsation of the renal arterial tree. In either case, according to Tobian, special receptor cells in the juxtaglomerular apparatus of the kidney are stimulated to release the pressure substance, renin. It is important, however, to keep in mind that none of these lesions necessarily always result in hypertension.

*Presented at the Staff Meeting of University Hospitals on January 17, 1964, and supported by USPHS Cardiovascular Clinical Research Project HE 06314-02.

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§Assistant Professor, Department of Radiology.

The most definitive radiographic procedure for demonstration of renal artery abnormalities is aortography, preferably together with selective renal arteriography. The presence of a renal artery stenosis alone does not necessarily indicate that this lesion is causing this patient's high blood pressure. If the stenosis is not severe and there is no evidence of delayed flow of contrast medium through the involved kidney, we may be dealing with a hemodynamically insignificant stenosis. Such a narrowing is considered insignificant if no pressure gradient is present across the area of narrowing. From experimental blood flow studies done by us and others we may deduce that at least 50 to 60 percent constriction must be present in order to decrease pulse pressure and blood flow to the involved kidney in the experimental animal. It must be emphasized that the degree of renal artery narrowing in humans is often difficult to assess angiographically because of the varying length and location of stenotic lesions which can be only visualized in one projection.

The hemodynamic significance of a questionable area of renal artery narrowing can often be assessed by taking pressure measurements during aortography. If no pressure gradient is found between the two sides of the narrowed segment, the lesion can be considered hemodynamically insignificant and not responsible for the patient's hypertension. During selective renal arteriography a tiny catheter can be passed beyond the area of narrowing and pull back pressures can be recorded. Cases with involvement of peripheral arterial branches, of course, must be excluded from this procedure. Although even a small pressure gradient may be significant, most authors agree that in curable disease the gradient is usually in excess of 40 mm. of mercury.

We have evidence to believe that hemodynamically significant renal artery stenosis may be present in normotensive patients and in patients with essential hypertension. These patients, however, characteristically have normal split renal function studies and surgical correction of their lesions does not result in cure. The urea washout test, a simple radiographic procedure, parallels closely split renal function studies and is, therefore, of great prognostic significance. In order to fully understand the characteristic pyelographic changes, we must familiarize ourselves with the functional characteristics of unilateral renal artery stenosis causing hypertension.

In significant renal artery stenosis the pulse pressure distal to the area of constriction is decreased and consequently the filtration pressure in the glomerulus is decreased. This results in a slower plasma filtration rate, which allows the intact tubular apparatus to reabsorb an excessive amount of water and sodium.

This characteristic abnormality was recognized by Howard and associates, who suggested arbitrarily that in renal artery stenosis causing hypertension there is 50 percent decreased water and 15 percent decreased sodium excretion on the involved side. The excessive ischemic water reabsorption on the involved side results in marked hyperconcentration of substances which are filtered through the glomeruli, but not reabsorbed by the tubules. The diatrizoate contrast media, Hypaque, Renografin, etc., as used in intravenous urography, fulfill these requirements. The diagnostic accuracy of the standard intravenous urogram in the detection of unilateral renal artery stenosis varies from 50 to 86 percent depending on investigators. Discrepancy in kidney size from 1 to $1\frac{1}{2}$ cm. may or may not be present. A delayed nephogram, which is a specific phenomenon for functioning renal tissue, may be present. Unfortunately, the important hyperconcentration of the contrast medium in the renal collecting system of the involved kidney rarely can be appreciated on routine IVP.

Because of dissatisfaction with the radiographic findings on conventional urography, a modification of the standard hypertensive intravenous pyelogram, the urea washout test, was developed at the University of Minnesota. The difference in urine flow and the hyperconcentration of contrast medium were found to be dramatically demonstrated by a suddenly induced diuresis following complete opacification of both collecting systems. By using a more highly concentrated contrast medium and in a larger amount than used in standard examinations, early and usually very good opacification of the collecting system results, so that any anatomic abnormality of the collecting system can be appreciated. Films are taken at $\frac{1}{2}$, 1, 3, 5 and 8 minutes without the use of the usual abdominal compression. Following the 8 minute film, diuresis is induced by rapidly infusing 500 cc. of saline containing 40 gm. of urea. The slower urine flow rate, together with the hyperconcentration of contrast medium present in the collecting system on the involved side, results in a delayed washout. Characteristically, the washout test becomes normal following successful surgery and return of blood pressure to normal. Diuretics resulting in this pronounced rapid diuresis belong to the osmotic group; urea is preferred, since Stamey has demonstrated convincingly that urea emphasizes specifically the difference between normal and abnormal kidney.

The most common difficulty in interpretation has been the unilateral larger kidney pelvis, which invariably shows a delayed washout because of the larger diameter of the pelvis casting a denser shadow. The rotated kidney results in a similar appearance. Other factors, such as shifting gas shadows over the collect-

ing systems and unilateral transient contraction of the kidney pelvis, may cause minor difficulty in interpretation. The very few false positive examinations we found early in our experience can be explained by these factors. In our experience with 277 patients who were examined between 6/6/62 and 12/31/63 we have 13 positive washouts from this group of unselected hypertensive patients, nine of whom have gone to surgery, one only recently so no followup is yet available. Of the others, six have had a definite decrease in elevated blood pressure, three of whom have become normotensive. Of the two who did not improve, one died postoperatively with renal shutdown and bilateral renal infarcts and the second developed a renal infarct on the operated side and has remained hypertensive. In three patients a severe renal artery stenosis was found on aortography in the presence of a normal washout test. One patient, also suffering from unilateral pyelonephritis with renal calculi, is being controlled by medial management and did not have further studies such as differential renal function tests. A second patient had normal split renal function studies suggesting that we were not dealing with surgically curable disease. The third patient represents a complex problem of coarctation of the abdominal aorta and renal arteries with incomplete surgical correction. Split renal function studies were attempted unsuccessfully. Renogram was normal.

Radioactive renograms have been performed on 109 of these patients, and will be considered in more detail in a later report. It suffices to state here that the interpretation of renograms is not always easy and in no instance have we found that the renogram has demonstrated a significant stenotic lesion which was not detected by the urea washout test. Combined with the IVP and aortography, however, this test represents a very useful tool in the preoperative evaluation of patients with hypertension.



Staff Meeting Report

Diagnosis of Neurogenic Vesical Dysfunction*

William E. Bradley, M.D.†

A new method of the treatment of urinary bladder dysfunction after spinal cord injury has been developed in the experimental laboratory and is undergoing clinical investigation. The technique relies upon implantation of an electronic device which electrically stimulates and evacuates the bladder at regular intervals. Pharmacologic agents are also available for treatment and their use is based upon accurate diagnosis.

The introduction of this method of treatment raised the problem of the diagnosis of urinary bladder difficulty secondary to disease of the nervous system. Our efforts to determine the cause and degree of bladder dysfunction occurring in many neurological diseases took us back into the laboratory to evaluate current methods and explore new ones. In our experiments we were able to relate the amount of bladder tissue damage to function. A group of patients with various neurological diseases was then evaluated.

Physiology: The diagnosis of neurogenic vesical dysfunction rests upon the physiology of micturition. The micturition reflex involves coordination of muscle contraction by the autonomic nervous system under voluntary control.

The supraspinal control of the micturition reflex appears to occur from the integration of several levels of activity in the brain. In voiding, the central nervous system effects bladder smooth muscle contraction which is sustained long enough to effect complete evacuation. Voluntary control is mediated by relaxation of the detrusor and closing of the sphincters.

The smooth muscle of the bladder is supplied by the nerves of the autonomic nervous system. By release of a neurohumoral agent the nerves bring about smooth muscle contraction. The overall coordination of muscle contraction is produced by the frequency and timing of impulses in the autonomic nerves. The

*Presented at the Staff Meeting of University Hospitals on February 7, 1964, and supported in part by USPH grant NB 03364. Biochemical determinations by Dr. Kenneth Swaiman, Division of Neurology, with support by Research & Training Grant No. 2, Vocational Rehabilitation Administration, Washington, D.C.

†Assistant Professor, Division of Neurology.

timing and frequency of impulses along the nerves is influenced in turn by the arrival of impulses from the centers in the brain and by afferent impulses from the bladder wall. The sequence of emptying is contraction of the dome of the bladder and concurrent opening of the outlet of the bladder.

Clinical: As a neurologist faced with the problem of a clinical symptom involving possible neurogenic vesical dysfunction, the following outline may be used as an aid to diagnosis.

- (1) Level of impairment of neurologic function.
- (2) Usual disease entity producing dysfunction at that level in the particular age group.
- (3) Estimation of degree of dysfunction.

The importance of the neurologic history and examination directed to the evaluation of bladder dysfunction cannot be overemphasized. Neurologic examination of the areas and reflexes supplied by the same spinal segments as those innervating the bladder is important. In the general evaluation of these patients, two investigations were of particular value, cystometry and a test for denervation sensitivity.

Tests: Cystometry is a clinical test whereby saline at body temperature is passed into the bladder via an indwelling catheter at a known rate and the resultant changes in pressure are recorded. Two observations are of value to the clinician: (1) the slope of the tonus limb; (2) the threshold of the micturition reflex. The rate of injection of fluid into the bladder may be slow or rapid. From the organization of the micturition reflex it would appear that slow filling cystometry is more physiologic and is a method of distinguishing between the visco-elastic properties of bladder and abnormalities of neural integration. Because of the time consuming nature of the procedure, slow-fill cystometry has tended to fall into disuse. A prototype design of semi-automatic cystometer to minimize clinical supervision has been constructed and is being evaluated.

The second test of estimating level of involvement of the bladder depends upon denervation sensitivity. Cannon stated that "when in a series of efferent neurones a unit is destroyed an increased irritability to chemical agents develops in the isolated structure or structures, the effects being maximal in the part directly denervated." The equivalent in bladder physiology, devised by Lapedes, has been the measurement of response of denervated bladder muscle to rapid stretch after a loading dose of parasympathomimetic agent. Denervated bladder gives an exaggerated response over normal bladder to rapid stretch after a loading dose of this drug.

Elevation of outlet resistance by increased tone of the skeletal musculature of the pelvic floor can be measured by measuring sphincter resistance.

Degree of dysfunction is difficult to estimate but overall efficiency of the detrusor may be estimated by the measurement of the maximal contractile pressure developed by the bladder during voiding and by residual urine estimation.

Results: Using these techniques, a group of 37 patients with a possible diagnosis of neurogenic vesical dysfunction was investigated. These patients were categorized by the following diseases: multiple sclerosis, traumatic paraplegia, diabetics with and without peripheral neuropathy, and meningomyelocoele.

In the patients with multiple sclerosis the presenting complaint was frequently urinary incontinence. Cystometry demonstrated faulty supraspinal integration with uninhibited neurogenic bladder contractions. Increased sphincter tone was common. The tonus limb of the bladder muscle was commonly altered. The usual alteration of the tonus limb was flattening secondary to loss of visco-elastic properties of the tissue. A smaller number had elevation of the tonus limb secondary to fibrosis. An analysis of the presenting complaint of incontinence showed that most were due to uninhibited neurogenic bladder contractions and a smaller number due to overflow incontinence. Diabetics with and without obvious neurologic involvement showed no consistent alteration in tonus limb but frequently showed denervation hypersensitivity.

In all our patients, particularly those with long histories of bladder dysfunction, alterations of the tonus limb of the cystometrogram were observed. These alterations took the form either of flattening or marked elevation. Patients having marked elevation of the tonus limb secondary to fibrosis would be less suitable for implantation. Bladder fibrosis would also have value in predicting the results to be obtained from pharmacologic therapy. This conclusion has been investigated in experimental studies in the laboratory, where induced bladder fibrosis has been correlated cystometrically with response to direct electrical stimulation. Bladder fibrosis was estimated by biochemical assay.

Summary: A group of patients with neurogenic vesical dysfunction has been investigated for etiology and degree of involvement. Specific tests of value have been slow-fill cystometry and tests for bladder denervation.

Medical School News

Dr. Myron M. Weaver, former assistant dean of the College of Medical Sciences, died December 25, 1963 after a heart attack. He was 62 years old and was dean of the Union University Graduate School, Schenectady, N. Y.

A native of Detroit, Mich., he was on the faculty of Carleton College and was a research executive with Eli Lilly & Co. before he came to Minnesota in 1942. He served as assistant dean from 1944 to 1949, when he left to become dean of the new medical school at the University of British Columbia, Vancouver, Canada.

Grants totaling \$66,770 from the Life Insurance Research Fund have been awarded to University of Minnesota investigators for research in heart disease. Sharing in the grants were Dr. Ralph T. Holman of the Hormel Institute; Dr. C. Walton Lillehei, Department of Surgery; Dr. Ivan D. Frantz, Jr., Department of Medicine; and two Medical School students, Ronald E. Blackmore and Harold J. Hofstrand.

PATHOLOGY

Dr. John I. Coe, assistant professor and chief pathologist at Hennepin County General Hospital, has been appointed Hennepin County Medical Examiner, effective January 1, 1964.

MEDICINE

Dr. Wesley W. Spink, professor, served as the first Samuel Grant Visiting Professor January 6-10, 1964, at Washington University School of Medicine, St. Louis, Mo. The professorship honors Dr. Grant, alumnus and faculty member at Washington U., for many years. Dr. Spink was recently elected to a three term on the Alumni Council of Harvard Medical School.

Dr. B. J. Kennedy, associate professor, addressed the annual Clinical Conference of the Ontario Cancer Treatment and Research Foundation, Toronto, Canada, November 8-9, 1963. He spoke on "The Rationale and Practical Application of Hormone Therapy in Carcinoma of the Breast."

New appointees in the department include Drs. Solomon J. Zak, John I. Levitt, Frank A. Wollheim, and Robert S. Eliot, all instructors, and Dr. Ralph C. Williams, Jr., who was named an assistant professor.

Dr. James P. Lillehei, who has been an assistant professor in the chest disease section at Minneapolis V.A. Hospital, is now at the Medical School in a new position in pulmonary diseases sponsored by the Minnesota Tuberculosis and Health Association, and associated groups.

SCHOOL OF PUBLIC HEALTH

Dr. Stewart C. Thomson, professor, gave the annual AOA Lecture on November 20, 1963 at the University of Nebraska College of Medicine. His topic was "William Hunter and the Great Windmill Street School."

SURGERY

Dr. Owen H. Wangensteen, professor and chief of surgery, and his colleagues will conduct expanded research on gastric freezing techniques as a treatment for peptic ulcer under a three-year grant of \$164,787 from the John A. Hartford Foundation, New York City. The technique was developed at the University of Minnesota in 1961.

Dr. Wangensteen also delivered the first annual Harry B. Zimmermann Lecture on November 22, 1963 at West Virginia University School of Medicine, Morgantown, W. Va. The lecture was established in honor of Dr. Zimmermann a member of the University of Minnesota's surgery staff for 40 years. His son, Dr. Bernard Zimmermann, received his surgical training at the University of Minnesota, and is now chairman of the Department of Surgery at West Virginia.

Dr. C. Walton Lillehei, professor, recently returned from a 21-day lecture trip around the world under sponsorship of the U.S. Department of State and the American College of Cardiology. He lectured in medical schools in India, Pakistan, Thailand, China, Japan, and Hawaii.

Dr. William D. Kelly, professor, has been awarded a \$290,594 USPHS research grant to study improved techniques of transplanting organs. He and his associates will study the effectiveness of overloading the transplant recipient with antigens from the donor to achieve acceptance of the transplant.

DERMATOLOGY

Dr. Alvin Zelickson, clinical instructor, has received a new grant of \$16,456 from the National Cancer Institute for electron microscopic study of human skin and cutaneous tumors.

LABORATORY MEDICINE

Dr. Paul Alexander is on a two year leave of absence and is establishing a department of clinical laboratories and laboratory medicine at the University of Airlangga, Surabaya, Indonesia. The Alexander family began its stay in Indonesia in June, 1963. Mail will reach them c/o American Embassy (SU), APO 156, San Francisco, Calif.

**PRIVATE PHYSICIANS TEACHING
IN COMPREHENSIVE CLINIC**

The Comprehensive Clinic training program at the University of Minnesota Medical School has been strengthened recently by adding a number of full time practicing physicians to the teaching staff on temporary appointments.

Under a program called "Sabbatical Leaves from Practice," several pediatricians and internists have taken temporary full time teaching appointments at the Medical School to contribute their special skills and broad medical perspective to the training of undergraduate medical students.

Physician appointments are for varying periods, with a minimum of one month, and appropriate stipend provided. Although the appointment involves full time teaching, the doctor may also find time to attend various staff functions, seminars, rounds, conferences, and use the study facilities of the nearby Biomedical Library.

The Comprehensive Clinic consists of approximately 50 third or fourth year medical students who spend six months in managing the medical care of outpatients at University Hospitals. The program began in 1960, and is supported in part by a grant from the Hill Family Foundation, St. Paul, Minn.

Other physicians are welcome to participate in the "Sabbatical Leaves from Practice" program. Those interested may apply to Dr. Richard M. Magraw, Director, Comprehensive Clinic Program, P.O. Box 381, University Hospitals, Minneapolis, Minn. 55455.

NOTICE TO READERS

As a service to graduates of the Medical School, the physicians practicing in Minnesota, and to towns in Minnesota, the MEDICAL BULLETIN will accept brief notices for publication regarding towns needing physicians, physicians desiring locations to practice, locum tenens, associates wanted, etc.

Notices will be limited to 50 words, and are subject to the usual editorial privilege.

There will be no charge for publication. Submit notices to:

Managing Editor
UNIVERSITY OF MINNESOTA MEDICAL BULLETIN
Box 193, University Hospitals
Minneapolis, Minnesota 55455

1963 CONSOLIDATE FUND DRIVE TOPS GOAL IN MEDICAL SCIENCES SECTION

Sixty solicitors collected a total of \$18,114.95 from the academic and civil service employees of the College of Medical Sciences, University of Minnesota, for the 1963 Consolidated Fund Drive. The results topped 113 percent of the goal, and represent the largest sum ever contributed to the joint fund appeal. Mr. Eivind Hoff, Jr., and Mrs. Louise M. Lambie were co-directors of the drive.

Benefitting from the drive will be the United Fund of Hennepin County (\$13,375.75); the American Cancer Society (\$2,300.54); and the Minnesota Heart Association (\$2,438.66).

Dr. N. L. Gault, Jr., Assistant Dean, was general chairman of the University of Minnesota drive, which raised more than \$90,000.00, or more than 108 percent of quota.

WHEN YOU CHANGE YOUR ADDRESS

To avoid missing the University of Minnesota MEDICAL BULLETIN when you move to a new address—please tell the editors, well in advance, what your new address will be.

Graduates of the University of Minnesota Medical School can accomplish this by sending the customary change-of-address notice to the American Medical Association, 535 N. Dearborn St., Chicago 10, Ill. (The MEDICAL BULLETIN obtains current addresses of all alumni from that source).

If you are not a graduate of the University of Minnesota Medical School, be sure to send your change-of-address directly to the MEDICAL BULLETIN, Box 193, University Hospitals, Minneapolis, Minn. 55455. Be sure to give us your old address, too. Even better, enclose a clipping of your address label from a recent issue.

COMBINED APPEAL GIFTS AT RECORD LEVEL

Graduates of the University of Minnesota Medical School had contributed \$9,286.61 to the 1963-64 Combined Appeal to Alumni when accounts were tallied on January 15. This amount compares to a total of \$7,700.00 donated to the entire 1962-63 campaign, and assures that a new level of giving will be achieved by the current drive.

The Combined Appeal, now in its third year, affords an opportunity for alumni to designate gifts to the medical funds or medical projects of their choice at the University of Minnesota. Contributors can choose from among 38 different funds in a variety of special fields or purposes. The campaign is conducted annually in behalf of the Medical School by the Minnesota Medical Foundation, which channels the gifts in accordance with donors' wishes. All gifts are tax deductible.

Late gifts are welcome and may be sent to the Minnesota Medical Foundation, 1342 Mayo Building, University of Minnesota, Minneapolis, Minn. 55455. The list of projects is as follows:

Minnesota Medical Foundation Funds

1. *Undesignated Fund*
2. *Robert Adler Fund for Medical Student Exchange*
3. *Diehl Hall Biomedical Library Fund*
4. *George E. Fahr Endowment Fund*
5. *Minnesota Medical Foundation Emergency Loan Fund*
6. *Ralph T. Knight Anesthesiology Research Fund*
7. *Medical Alumni Student Center Fund*
8. *Mediclinics Foundation Loan Fund*
9. *Minnesota Dermatologic Society Research Fund*
10. *Scholarship Endowment Fund*
11. *C. J. Watson Research Award Endowment Fund*

University of Minnesota Special Medical Projects

12. *Artificial Kidney Fund*
13. *E. T. Bell Pathology Museum Fund*
14. *Luthard N. Bergh Memorial Fund*
15. *Marlow Bergstrom Arthritis Research Fund*
16. *Frank E. Burch Ophthalmology Research Fund*
17. *A. J. Chesley Lectureship Fund*

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18. *Wallace H. Cole Orthopedic Surgery Fund*
19. *Crippled Child Rehabilitation Center Fund*
20. *Eye Pathology Fund*
21. *General Diabetes Research Fund*
22. *Robert A. Good Pediatrics Research Fund*
23. *Heart Disease Research Fund*
24. *Heart Hospital Equipment Fund*
25. *Hodgkin's Disease Research Fund*
26. *J. C. Litzenberg Memorial Room Fund*
27. *Malignant Disease Research Fund*
28. *McQuarrie Pediatrics Research Fund*
29. *J. Arthur Myers Tuberculosis Research Fund*
30. *Neurology Research Fund*
31. *William A. O'Brien Scholarship Fund*
32. *Physical Medicine Research Fund*
33. *Radiation Therapy Research Fund*
34. *Special Cardiac Research Fund*
35. *Special Research Fund, Internal Medicine*
36. *H. Longstreet Taylor TB Research Fund*
37. *Richard L. Varco Surgical Research Fund*
38. *O. H. Wangensteen Surgical Research Fund*

DONOR'S GIFT FORM

1963-64 Combined Appeal to Alumni

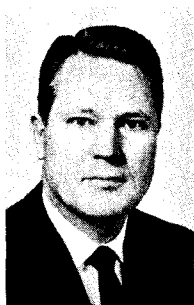
Name _____	CREDIT GIFT AS FOLLOWS:	Amount
Address _____	Undesignated _____	
_____	Designated to Medical Project	
_____	No. _____	
Class of _____	Total Gift	_____

*Detach and mail with check, payable to Minnesota Medical Foundation,
1342 Mayo Bldg., University of Minnesota, Minneapolis, Minn. 55455*

Alumni Notes

DR. NEIL M. PALM ELECTED MEDICAL ALUMNI PRESIDENT

Dr. Neil M. Palm, (Med. '50) is the new president of the Minnesota Medical Alumni Association. He is a surgeon in St. Paul, Minn., and is associated with a surgical group consisting of Dr. Vernon D. E. Smith (Med. '30), Dr. Malcolm M. Pearson (Med. '35), Dr. Gerhard E. Knutson (Med. '39), Dr. James R. Ralph, and Dr. H. Nippert Smith (Med. '57).



DR. N. M. PALM

Dr. Palm took over as president on November 19, 1963, succeeding Dr. Charles J. Beck (Med. '40). Other new officers are Dr. James C. Mankey (Med. '43), first vice-president; Dr. Robert Hugh Monahan (Med. '42), second vice-president, Dr. Duane C. Olson (Med. '38), secretary, and Dr. Linneus G. Idstrom (Med. '38), treasurer.

Dr. Palm flew 50 missions with the Army Air Corps during World War II in the Far East. He returned to the University after the war, entered Medical School in 1947, interned at Minneapolis General Hospital, and took four years of surgery residency training at Minneapolis V.A. Hospital.

The Medical Alumni Association, a constituent unit of the Minnesota Alumni Association, has a membership of 2,145 degree holders. Among events sponsored annually are the Homecoming Reunion for the 25th anniversary graduating class, and the Senior Class-Medical Alumni luncheon, to be held May 7th at the University this year.

During the last three years, the Association has conducted a successful fund campaign to build a Medical Alumni Student Center at the Medical School. The fully equipped, \$81,000 facility is to be dedicated later this Spring. Construction is now underway.

MEDICAL ALUMNI EXCHANGE

1960 GRADUATE will be released from military service in March, 1964. Desires locum tenens or other position for April, May, and June, 1964. Contact Editor, University of Minnesota MEDICAL BULLETIN.

Seven graduates of the Medical School were among those physicians beginning fellowships at the Mayo Foundation, Rochester, Minn. on October 1, 1963: They are **Edward O. Jorgenson** (Med. '54), obstetrics and gynecology; **Bruce H. Warren** (Med. '58), pathology; **Dennis M. Robertson** (Med. '60), ophthalmology; **Robert M. Morse** (Med. '60), psychiatry; and **Michael F. Koch** (Med. '60), **James J. Garber** (Med. '60), and **Gerhard J. Johnson** (Med. '62), all in internal medicine.

Other alumni making news at the Mayo Foundation were **Dr. Milton W. Anderson** (Med. '44), promoted to associate professor of clinical medicine; **Dr. Edward M. Litin** (Med. '46), promoted to assistant professor of psychiatry; **Dr. John A. Higgins** (Med. '52), promoted to assistant professor of medicine; **Dr. Bruce A. Kottke** (Med. '54), appointed an instructor in medicine; and **Dr. Allen A. Frethem** (Med. '46), appointed an instructor in medicine.

◆ 1913

George I. Badeaux, Brainerd physician and county coroner, has been honored by his fellow physicians at St. Joseph's Hospital for fifty years of service to the profession.

◆ 1919

Thomas J. Kinsella, Minneapolis chest surgeon, was awarded the 1964 St. Barnabas Bowl by the Hennepin County Medical Society. The sterling silver bowl is given annually to a physician for outstanding work. Dr. Kinsella has concentrated on the care and treatment of tuberculosis patients, and in 1963 published a book titled "Tumors of the Chest." He is a clinical professor of surgery at the Medical School.

◆ 1920

Ruth E. Boynton, Miami, Fla., was recipient of the 1963 Albert J. Chesley Award of the Minnesota Public Health Association, given for "distinguished service to public health in Minnesota." She is professor emerita of preventive medicine at the University of Minnesota and former director of the student health service. Dr. Boynton was on the staff at Minnesota from 1921 until her retirement in 1961. She was director of the health service for 25 years.

◆ 1924

Henry E. Bakkila, Duluth, Minn., has been elected president of the St. Louis County Medical Society for 1964.

◆ 1929

William E. Macklin is now located in Litchfield, Minn. In 1943 he left that city to serve as a Navy doctor. Since World War II, he has practiced radiology at the Mankato Clinic and been a consultant to various hospitals in west central Minnesota.

◆ 1926

Harold F. Flanagan, St. Paul, Minn., has been named president-elect of the American Academy of Pediatrics. He is chief of the medical staff at Ancker Hospital, and a clinical associate professor of pediatrics at the Medical School. He is also a member of the Board of Directors of St. Thomas College.

◆ 1930

Herman E. Hilleboe was the recipient of a 1963 Bronfman Prize for Public Health Achievement from the American Public Health Association. The award includes a cash prize of \$5,000. Dr. Hilleboe is DeLamar Professor of Public Health Practice, Columbia University, and adviser to Gov. Nelson Rockefeller of New York. He was also appointed recently to the Public Health Service's National Advisory Committee on Community Air Pollution.

◆ 1932

Mary Karp Kosky has been an anesthesiologist for 28 years. She practices in Chicago, Ill., and lives with her husband, Sam, and son, Robert, 18, at 2068 Windy Hill Lane, Highland Park, Ill. She also teaches at Northwestern University Medical School.

◆ 1935

Julius H. Winer was named president-elect of the Pacific Coast Fertility Society at its 1963 annual meeting. He is an assistant clinical professor of urology at UCLA Medical School, Los Angeles, Calif.

◆ 1935

Charles G. Sheppard, Hutchinson, Minn., received one of the two Harold S. Diehl Awards given by the Minnesota Medical Alumni Association at its 1963 annual meeting in Minneapolis.

◆ 1941

Thomas G. Petrick has become director of laboratories and attending pathologist at Genesee Memorial Hospital, Batavia, N.Y. He had practiced pathology at the Virginia, Minn. Municipal Hospital for the last three years. He formerly practiced in New Jersey.

◆ 1942

Robert G. Tinkham has completed a fellowship in physical medicine at the Mayo Foundation, and has been appointed to the staff of the Mayo Clinic. He was in private practice in Minnesota from 1946 to 1961, when he began his residency training.



ROBERT G. TINKHAM

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◆ 1946

William H. A. Watson, St. Paul, Minn., is new president of the Minnesota Academy of General Practice, succeeding Dr. James Cosgriff, Jr., (a Medical School classmate) of Olivia, Minn.

◆ 1950

Jack W. Strand is now practicing in Jasper, Minn., after ten years of practice in St. Paul.

◆ 1952

Francis E. DeMarais is now associated in practice with the Henry Clinic, Milaca, Minn., having resigned his medical staff position in the department of internal medicine, Miners Memorial Hospital, Williamson, West Va.

◆ 1953

William R. Watson has begun a residency in psychiatry at the Veterans Administration Hospital, Downey, Ill. He has been a staff physician at the Willmar, Minn. State Hospital since 1958.

◆ 1956

John L. Sander recently completed a surgery residency at Miller Hospital, St. Paul, and has joined the medical staff of the Cambridge Clinic, Cambridge, Minn. Since medical school, he also served two years in the Air Force.

◆ 1958

Lowell Brown is now associated with the Tyler Clinic, Tyler, Minn., after completing a residency at Wayne County General Hospital, Detroit, Mich.

◆ 1960

Gary H. Baab is now associated in general practice with the Itasca Clinic, Park Rapids, Minn.

C. Carlyle Clawson is now practicing in association with the Montevideo Clinic, Montevideo, Minn., after completing a residency in pediatrics at University Hospitals.

Dale Eichelberger is now in general practice on the staff of the Fergus Falls, Minn. State Hospital. He recently completed a tour of duty with the U.S. Navy.

John Wempner has joined the medical staff of the Lakeview Clinic, Waconia, Minn. He recently completed a tour of duty at the U.S. Public Service Indian Hospital, Gallup, New Mex.

◆ 1961

Henry G. Moeller, Jr., a resident at the Mayo Foundation, was married October 5, 1963 to the former Joelyn Woehler of Minneapolis.

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◆ 1961

Carsten H. Seecamp and **Mrs. Seecamp** announce the birth of their second child, a daughter, **Suzette Marie**, born December 30, 1963. Their other child is **Cindy**, 3. Carsten is practicing in Cambridge, Minn.

◆ 1962

Lt. Eugene F. Binet is with the U.S. Marines at Camp Lejeune, N.C. A classmate, **Charles Drage**, is also stationed there. Gene is married to the former **Audrey Grier**. They are parents of a five months old son, and hope to return to Minneapolis after Gene's military service to take a residency in radiology.

LeRoy Mueller is now in practice at Hendricks, Minn.

MEDICAL ALUMNI

Send your personal news to the MEDICAL BULLETIN on the form below. Your contribution to "Alumni Notes" will be welcome.

Name _____

Address _____

Class of _____

Detach and mail to: The Editor
University of Minnesota MEDICAL BULLETIN
1342 Mayo Memorial
University of Minnesota
Minneapolis, Minnesota 55414

Alumni Deaths

◆ 1905

Dr. Ambrose L. Hammerel, Billings, Mont. Died August 16, 1963, age 81.

◆ 1915

Dr. Everett E. Greene, Westhope, N.D. Died November 10, 1963 at the age of 73. Dr. Greene had been in general practice in Westhope since 1916.

◆ 1916

Dr. Percy A. Ward, Minneapolis, Minn. Died January 8, 1964, of leukemia at the age of 74 years. Dr. Ward had practiced general medicine as a family physician and surgeon in the Twin Cities for the last 48 years. He is survived by his wife, Myra, 1960 Cedar Lake Blvd., Minneapolis. Memorials are preferred to the Dr. Percy A. Ward Memorial Research Fund, c/o the Minnesota Medical Foundation, 1342 Mayo Building, University of Minnesota, Minneapolis, Minn.

◆ 1917

Dr. Cecile R. Moriarty, St. Paul, Minn. Died December 4, 1963. She retired in 1962 after many years of pediatrics practice in St. Paul. She was 71 years old.

◆ 1923

Dr. Rachel Carleton Sparks-Keeton, Seaside, Ore. Died August 24, 1963 of myocardial infarction. She was 64 years old.

◆ 1924

Dr. Hoff D. Good, Columbia Heights, Minn. Died January 17, 1964 at the age of 70 years. He had been in general practice in the Minneapolis suburb since 1927, and was on the staff at Fairview Hospital. Dr. Good also was active in the manufacture of mobile homes and the development of mobile home parks in the area. Survivors include his son, Dr. Gary Good (Med. '57), with whom he was associated in practice.

◆ 1927

Dr. Newell R. Ziegler, Minneapolis, Minn. Died January 21, 1964 at the age of 64 years. He was director of the special immunology laboratory at the University of Minnesota, an associate professor in Laboratory Medicine, and former head of the University Hospitals Blood Bank. Dr. Ziegler was credited with the solution of several problems in blood storage and transfusion, especially concerning its use in open heart surgery. He was a native of Indiana. His wife, Leah, resides at 63 Arthur Ave. S.E., Minneapolis, Minn. 55414.

◆ 1928

Dr. Leonard G. Flanagan, Austin, Minn. Died July 5, 1963 after a short illness. He was 59 years old and practiced otorhinolaryngology and ophthalmology.

◆ 1928

Dr. George L. Wilkinson, Welcome, Minn. Died August 4, 1963, age 58, of cerebral hemorrhage.

◆ 1930

Dr. David M. Daley, LaCrosse, Wis. Died August 30, 1963 of lung cancer at the age of 60.

◆ 1936

Dr. Walter A. Carley, St. Paul, Minn. Died December 26, 1963 at the age of 52. Dr. Carley was a diplomate of the American Board of Psychiatry, and had been consulting psychiatrist at Stillwater State Prison for the last 14 years.

◆ 1941

Dr. William E. Harris, Missoula, Mont. Died August 9, 1963, age 49, of a brain tumor. He was in general practice in that city.

◆ 1941

Dr. Golden Selin, New Castle, Pa. Died in October in New York City. He was a pathologist at New Castle Hospital.

Memorial Gifts

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

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1964

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- March 17 - 20 Internal Medicine
- April 23 - 25 Gynecology
- May 4 - 6 Ophthalmology
- May 14 - 16 Surgery
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- June 3 - 5 Anesthesiology

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

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

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