Those who receive the mantle of a rich and noble heritage are expected to perpetuate it. For those who wear such a mantle and give it no sustenance it becomes but an empty echo out of the past. - WLS
GUEST EDITORIAL

The usual commencement address is directed primarily toward the individual member of the graduating class. The speaker's remarks at the 1953 ceremony, outstandingly appropriate as they are, represent a departure from that custom and warrant the thoughtful study of all Georgians concerned with education and medical care. It is peculiarly fitting that their author is Dr. Alfred Blalock, Professor of Surgery at the Johns Hopkins University School of Medicine, Surgeon-in-Chief to the Johns Hopkins Hospital, and a native of Georgia. He is obviously a proper man to discuss the shape of things to come, medically speaking, in Augusta, and to offer wise counsel at a time of extraordinary opportunity. This is true by virtue of his academic and professional standing in a great university and hospital, his universally acknowledged eminence as a teacher, and the demonstration by his own contributions as surgeon and investigator of the fundamental soundness of the system of medical education which he advocates.

Familiar to all are Dr. Blalock's spectacular achievements in the field of cardiovascular surgery. Less well known to all, perhaps, are the many years of devotion to a discipline and a way of life on hospital wards and in laboratories of a kind which form the logical basis for those achievements. Also less generally appreciated, perhaps, are the incalculable effects of those achievements as they provoke ever-widening and ever-mounting advances in his own and many another school and laboratory. He would, no doubt, point modestly to this last as the important measure of achievement.

In his exposition of the essential relationships which must exist between hospital and university and medical school, and between hospital and medical faculty if a teaching hospital is to fulfill its functions and a true medical center is to flower, Dr. Blalock derives a lesson from the establishment of the fruitful relationship between the Johns Hopkins Hospital and School of Medicine, followed in a similar way by other medical schools and teaching hospitals, and applies it to the problems facing the State Board of Health and the Board of Regents of the University System of Georgia at the present time. He reviews the reasons why teaching hospitals provide better medical care to their patients. He paints an inspiring picture of the opportunity presented by the building of the Eugene Talmadge Memorial Hospital for development of a "really great medical center" and gives Dr. Kelly credit for his foresight and wisdom in long insistence on the necessity
for such a hospital. It is his hope that the State of Georgia will be
generous in supporting this medical center to be and that its students
will not be limited to residents of the state.

It is with appreciation and respect that the text of this significant
address is printed in the PROCEEDINGS.

Robert C. Major
Professor of Thoracic Surgery

THOUGHTS OF THE FUTURE OF THE GEORGIA
MEDICAL CENTER

By
Alfred Balfour, M. D.

Mr. President, members of the graduating class, faculty, parents
and friends: I count it a special privilege to participate in these grad-
uation exercises for reasons which are in part entirely personal. It
should not be difficult for you to appreciate that a person born in
Culloden (Monroe County), transplanted to Jonesboro (Clayton
County), graduating from Georgia Military College (Milledgeville),
and from the University of Georgia, would feel great pride in taking
part in this ceremony. Your president's letter in which he said that
the graduating class had chosen me for this honor could not be re-
sisted, for I derive a great pleasure from my association with students
and house officers.

Following the acceptance of your invitation, I began to deliberate
on a choice of subject. After some thought it appeared obvious to me
that I should not talk on honesty and integrity or industry or friend-
liness. Others have done this superbly. Furthermore, I did not wish
to speak of some of the evils in medicine and surgery such as fee
splitting and unnecessary surgery. That such practices exist is not to
be denied. I hope they are less prevalent than they are thought to be.
More importantly, I hope that you with your standard of morals and
the support of the American Medical Association, the American College
of Surgeons and other organizations will have the strength and fort-
itude to resist the temptations which are placed before you.

In searching for a subject which would be of mutual interest to
myself and to you, I thought I might deal tonight with the Medical
College of Georgia and express a few thoughts on its future. Having
maintained more than a casual interest in this the Medical College
of my home state over the years, I have followed its progress as well as its problems. In the latter regard, none of us here need be reminded that the school has been in dire straits on several occasions. As early as 1910 Mr. Abraham Flexner recommended that the Medical College of Georgia be closed because of poor equipment and low scholastic standards. Despite the venerable efforts of many including Dr. W. H. Doughty and Dr. V. P. Sydenstricker, the difficulties continued. In a recent tribute to Dr. John Sherman, my brilliant classmate at the University of Georgia, Dr. Irving Phinizy, stated, "It was in the early summer of 1935. The Medical College of Georgia was struggling for its very life. The previous year it had been removed from the list of accredited medical schools." It was at this time that Dr. Lombard Kelly, a local professor, turned administrator, was named by the Board of Regents as the new dean. This was a fortunate step in preserving the heritage of eminent men in your school such as Anthony, Dugas, Campbell, J. A. and Paul F. Eve, Ford, Gavin, Means and many others. I feel almost as though I knew Dr. Paul Eve for he moved to Nashville subsequently and I derived a great deal of pleasure and profit while at Vanderbilt from knowing his son, Dr. Duncan Eve, an eminent surgeon in his own right.

Under Dr. Kelly, due to effort of his own and that of others, the School has progressed greatly since the dreary days of 1935, referred to by Dr. Irvine Phinizy. It is obvious, however, that these efforts, constantly directed toward improving the faculty, promoting basic research, and establishing a modern plant, now being culminated in the building of the 800-bed Eugene Talmadge Hospital here, must need be only a good beginning in the establishment of a really great medical center. The building of the new hospital presents a unique opportunity in that regard. Whereas privately endowed institutions have had the advantage in the past, the shrinkage in endowment income and inflation have altered the situation in favor of the state schools with their greater ability to attract state and federal support. This adds to the opportunity with which you are now blessed and is only the more reason that Georgia (and other state schools) should recognize the opportunity and obligation and assume the leadership. It is in this regard that I wish to speak to you.

You will permit me, I am sure, to refer to the school with which I am now connected, a school which exerted a very important influence years ago in improving medical schools and medical practice. About 100 years ago one of the most prosperous and rapidly developing cities
in our country was a trade center located on the Chesapeake Bay. A merchant and banker in this community, a gentleman by the name of Mr. Johns Hopkins, who had accumulated what was then considered a vast fortune, came in time to consider how he might best arrange for the future affairs of his estate. After careful deliberation he decided that the greatest benefit to his fellow man could be provided by establishing a hospital and a medical school wherein the sick and suffering of that and succeeding generations could be cared for, and through the training of young doctors, and through advancements coincident with the intensive study of disability and disease, a perpetual service to humanity could be established. The wisdom of this benefactor was also demonstrated in his selection of men to administer and develop the ideals which he had initiated. To these men, the trustees, fell the responsibility of planning and developing with the monies at their disposal an institution that would fulfill the desires of the benefactor and perform a lasting service to humanity.

In a remarkable letter of instruction to the twelve trustees of the hospital dated March 10, 1873, Johns Hopkins urged them to obtain the best possible advice and assistance in America and abroad in planning and organizing the proposed hospital, "to secure for the service of the hospital surgeons and physicians of the highest character and of the greatest skill", and to bear constantly in mind that the hospital should ultimately form a part of the medical school of the university. It is to the latter part of Hopkins' directive that I wish to call attention for it constituted the charter of the School of Medicine. Not only did it ensure that there would be a medical school but it also ensured that the school would have access to the facilities of the hospital without which it could not have functioned.

According to Flexner these injunctions by Johns Hopkins may be regarded as opening a new era in the selection of a professional staff for a medical school and in formulating the proper relationship between medical school, hospital and university. The example set in Baltimore was accepted later by Harvard and the Peter Bent Brigham Hospital, by Columbia and the Presbyterian Hospital, by Yale and the New Haven Hospital, and by many others. The agreement between Columbia and the Presbyterian Hospital is as follows: "The parties to this agreement are united in the belief that a permanent alliance between the hospital and the university will render the hospital more useful, will enable it to serve the needs of both patients and the community more efficiently, will secure the best professional service for the
hospital and will make the hospital the center of larger ideals by promoting education, by advancing knowledge and by exemplifying the best in practice. And also that such an alliance will benefit the university by enabling it to give the best clinical instruction to its students, and afford improved opportunities for advanced study."

Thus as was suggested years ago by these men and as has been proved by time the proper integration of hospital and medical school is an absolute essential for advanced medical education.

Now what, if any, are the advantages to the hospital of such an association? It is important to emphasize the difference in the organization of the university hospital as contrasted to the general hospital unassociated with a medical school. The latter is chiefly concerned with providing a place wherein the sick may reside and furnishing the equipment and personnel to serve such individuals during the incapacity of their illness. I do not wish in any sense to detract from the importance of such hospitals and their functions, for their services are essential and the high standards maintained in hundreds of such hospitals throughout this country are an outstanding achievement.

It is generally agreed that the three principal functions of the ideal university hospital are (1) the care of the sick, (2) the adequate training of the medical men of the future, and (3) the advancement of medical knowledge. Fortunately, there is no conflict in these functions; they aid and reinforce one another. The combination leads to a better senior staff, better house officers, better students, better care of the sick and to advances in medicine. Dr. William H. Welch stated: "The care of the sick and injured is the primary and essential purpose of a hospital. The welfare of the patient should always receive the first consideration. The plea for scientific and educational uses of a hospital could not be justified if it could be shown that such uses interfered with the patients' welfare. As a matter of fact, however, one of the strongest supports for this plea is the demonstration, based on experience and sound argument, that the interests of patients are best served in hospitals which likewise recognize fully the needs of medical education and of scientific research. The best and most famous hospitals are of this character, and such hospitals serve the community more broadly and effectively than institutions which limit their activities merely to the care of patients."

That such ideas expressed by Dr. Welch some 35 years ago have stood the test of time has been emphasized in recent years by the
decision of the United States Veterans Medical Service, when seeking to establish a program that would provide the best medical care that could be obtained in this country for the veterans. They have sought whenever possible to locate veterans hospitals near medical educational centers and have sought the advice and supervision of doctors serving in such centers for the veterans hospitals.

The enduring values of a medical center develop in three ways. First, they attract superior medical students from all parts of the country, instill in them the highest medical principles and the most proficient methods of the medical arts and sciences and then send them forth to practice these doctrines in a manner that will direct credit to their mother institution. Second, by critical analysis, intensive training, and mutual stimulation, knowledge and skills are perfected and improved within the center. This not only provides for better patient care but also brings forth widespread recognition and admiration from a profession that has always been highly appreciative of superior work. Third, they develop by forging ahead with the new advances in all phases of medicine, by constant investigative work, by struggling to unravel the cause and cure of the innumerable human ills about which we know so little. This function is the keystone of the truly great medical center. This stimulating work of probing into the unknown and beyond the borders of present knowledge, if properly emphasized, provokes the interest and the enthusiasm of the keenest minds and attracts to the center those men whose achievements are most likely to be of lasting value.

In a brochure published several years ago entitled "A Step Forward in Medical Education and Medical Care for the State of Georgia", President Kelly advocated, "Erection of a state-owned general hospital on the campus of the School of Medicine at Augusta, the hospital to be administered from the business standpoint, by the constitutional hospital board, with the medical care program under the supervision of the University of Georgia School of Medicine." This request is similar to the directive of Mr. Johns Hopkins to his board of trustees. Future generations in this and other communities throughout the world may discuss your achievements as I have recounted the activities of the group in Baltimore. No one could deny that the unique opportunity is here for you to play a part in the creation of a tremendous and lasting endeavor.

Although the opportunity here is crying for acceptance, it should
not be assumed that the task is an easy one. I am sure you do not expect the architects and the contractors to build you a medical center of renown by merely erecting a number of buildings. Adequate buildings are, of course, essential but this is only the first step. Upon completion of essential buildings the entire future of the endeavor depends upon the men who occupy them and the facilities which are placed at their disposal. Size and quantity have always been quick to impress us in this country but it has been adequately demonstrated that such qualities alone are not sufficient to create a medical center worthy of the name.

As you well know, you have a number of very eminent men in your school. Since you are enlarging greatly your medical center and since you may add to your student body, you will undoubtedly wish to make additions to your faculty. I hope that the length and breadth of the land will be searched carefully for these men. I hope that the heads of the principal departments will be on a full-time basis with adequate salary. When one considers that the head of a clinical department is responsible for the teaching, for doing and stimulating investigation, and for the study and care of the patients, it is obvious that whoever assumes such a position should devote his entire time to it. The Professor of Medicine in the medical school should be the Physician-in-Chief of the Eugene Talmadge Memorial Hospital. The Professor of Surgery in the medical school should be the Surgeon-in-Chief in this hospital, and the same arrangement should apply in the other departments.

I hope that the authorities of the medical school and hospital will give these men adequate laboratory facilities, adequate hospital facilities for clinical investigation, for teaching medical students and for training their residents. By saying hospital facilities, I do not mean mere association or proximity to a hospital where medical students may be permitted to drop in and observe the course of patients, but instead a hospital operated and maintained primarily for the teaching of medical sciences and the investigation of medical problems, and supervised and directed by appropriate members of the medical school faculty just as absolutely as other faculty members are in complete charge of their anatomical dissecting rooms or chemical laboratories.

Give them a fair degree of financial security, for although the type of men you add to your staff will have long since dropped from their philosophy of life the monetary scale of success, they will expect
to maintain a scale of living for themselves and their families in keeping with the dignity of their position; and lastly, give them adequate authority to carry out their plans and ideals for the development of their various parts of the enterprise. You may question my saying that such things should be "given" and you may insist that such carefully selected men should be able to make their own way and that it is up to them to get the facilities which they need. My only answer is that there are now many institutions in this country where such facilities are available and their staffs are busily engaged in teaching and scientific work. If the medical staff here is to be left to work out these preliminary problems of organization by a slow process of evolution, this center cannot hope to rank with the best for many years to come, if ever.

In a recent conversation with Mr. Abraham Flexner, I told him about your plans for your Medical Center. He expressed great delight and the hope that the State will finance the Center adequately. He told me of the time in the early 1920s when the General Education Board and the Rockefeller Foundation appropriated $2,500,000 to rebuild the Medical School at the State University of Iowa. The State raised an equal sum by mill tax. Since that time the over-all appropriations by the State of Iowa to the Medical Center have amounted to seventy million dollars. I hope the State of Georgia will be equally generous in supporting this medical center.

Thus it can be seen that adequate financial support from the state not only for buildings but for salaries, research equipment and the like is absolutely essential. It is the responsibility of all gathered here tonight to insure that the strides which have thus far been made will not be allowed to lag. I refer to you, the parents and friends through your influence as individual voting citizens; and you, the members of the graduating class through the influential position which you will find yourselves coming to assume as physicians in this state, and through your continued active interest in your medical college.

In this dissertation I have purposely avoided reference to the achievements of the Medical College of Georgia and the University Hospital, which have been many. Thomas Huxley stated, "The rung of the ladder was never meant to rest upon but only to hold a man’s foot long enough to enable him to put the other somewhat higher." With the erection of the Eugene Talmadge Memorial Hospital you
have a beautiful opportunity for rapid ascent provided the Georgia State Board of Health and the faculty are insistent upon having the hospital intimately connected with the medical school, and in spending a great deal of time and thought in selecting additions to your staff, and in obtaining adequate funds with which to support the various individuals. I would like to see a medical center here which excites the envy of all other centers throughout the country. The opportunity is ripe and I am sure you will not fail to grasp it. Fortunately the time has passed when the better men in the south need to go elsewhere for their medical school and hospital training. Your new medical center should attract leading students from various parts of the country and I hope that admission will not be limited to residents of this state.

In concluding, I would like to express two wishes for you, the graduating class. The first of these is that since your patients will place upon you the greatest responsibility possible, namely that of life and death, I am hopeful you will discharge this responsibility to your patients and to your school to the best of your ability. The second wish is that all or most of you will have the satisfaction of contributing at least one advance to medical knowledge, however small it may be, for in such contributions lie the greatest hope for the salvation of man.

And now, I thank you, congratulate you and wish you well.

REMINISCENCE OF YEARS GONE BY

As told by
Dr. John T. Arnold of Parrott, Georgia

The remarkable phenomenon about the human brain is its ability to "fold back" onto itself and bring to light the many happenings of the far distant past. On such a phenomenon or capability has depended all the histories of the past and has done much to enrich the lives of the present.

It was a most enjoyable and interesting interim at the meeting of the Medical Association of Georgia, to have listened to the reminiscings of the oldest attending alumnus, Dr. J. T. Arnold, as he recalled his days of studying medicine as a medical student at the Medical College of Georgia. The past fifty-three years have brought many changes from those days; changes which few of us realize until his recounting brings to mind the vast evolution of curriculum and techniques. To see Dr. Arnold's eyes light-up when he recalls the
part that fate played in his selection of a profession, his good fortune in securing assistance and the happiness that his years of practice have afforded, is a sight not soon forgotten.

A son of a devout Baptist deacon, he was born and reared on a farm in the rural areas of Georgia with only the prospect of continuing in his father's footsteps as a country farmer. However, as he toiled in the fields, he would frequently see a carriage pass by, driven by a gentleman from the North. This gentleman was a doctor who came South every year with his family and in this way spent his vacation. As Dr. Arnold expressed it, he was quite a picturesque sight, riding over the country side in his surrey with a stationary umbrella attached to shield him from the sun. It was while this doctor was on his vacation that young Arnold would see and talk to him and from him derived the inspiration to pursue the medical profession. When he broached this subject to his father, it was a stern reply that he couldn't see where the financial arrangements could be made because there were six other children who still had to be fed and clothed, and a professional education would take too much from the meager earnings of a farm. But, with the pioneer spirit, and a firm determination, John Arnold would not take 'No' for an answer and definitely would not let the question of money stand in his way. Of course, on the other hand, there were other obstacles in the fact that he had had no formal training for a profession, having only attended school for three months every year—and those at a teacher's school. However, he would even attempt to surmount this bulwark.

Having heard that there was a Congressional Scholarship offered to the Medical School in Atlanta, John Arnold applied for and won this Scholarship. The first year passed uneventfully, but as the year's end approached, he began to worry about how he would finance the next two years, since the congressional scholarship was only awarded for one year. Publication had been made that the governor also had a complete scholarship to the Medical College at Augusta, so that was the next decision—to try for this assistance. So, to the governor's office, he went and there sat for two hours, talking to and being quizzed by W. Y. Atkinson, the Governor of Georgia at that time. At the end of this interview, John Arnold was informed that twenty-nine other applications preceded his, so down-hearted, but still full of hope, he returned home. Finally toward the middle of the summer, while out plowing the fields, the mail carrier came by and called to young Arnold that he had important mail for him—it carried the
return address of the Office of the Governor. In the short span of a few minutes, both the mail carrier's curiosity and Arnold's anxiety were satisfied. John Arnold had again won a victory with Fate. He would now matriculate at Augusta for the next two years with a determination to receive his M. D. degree.

He talks about his years at Augusta as some of the most pleasant of his life. The medical school was still housed in the old building on Telfair Street and he roomed in a private home near-by. Most of his classes were held in the amphitheatre at that time, and different from today, the students were not given quizzes during the courses. It wasn't until one had completed the entire course that he was quizzed as to what he had learned and retained from that course. Naturally, at that time anxiety ran high. The day was assigned when the students would be told whether they had successfully completed the year; cards were handed out for the 'lucky ones' to assemble in the amphitheatre, this method being employed to avoid those unfortunate ones from feeling too badly about their failure. They just wouldn't attend.

In speaking about the day of announcing the passings, Dr. Arnold had to recall that with a gleam in his eye. He proceeded by telling that recently when he was traveling through Augusta, he stopped by the old building to renew old memories and he stood so long looking at the little building to the side that Mrs. Arnold asked what held his attention so strongly about the structure. ‘Well,’ he said, ‘when I was a student here, Augusta had no modern sewerage system and that little building housed the “ground privy”. How well, I remember the day that we were told whether or not we had passed, because during the two hours of that morning, I must have visited this little “lean-to” a dozen times’. It only goes to prove that even though the times have changed since his medical school days, the anxiety and the nervous system are still the same.

The September following graduation, John Arnold was married, and having assumed the responsibilities of married life, he went back to Parrott, Georgia and started practice. He did not have the opportunity to specialize, but the happiness and satisfaction that have been his as a country doctor have far surpassed any joy that a specialty could have given. To meet this couple, one would be convinced that they had spent fifty-three happy years together, and medically speaking they have attended together nearly every annual
meeting of the Medical Association of Georgia. When asked to what does he attribute his youthfulness, Dr. Arnold is wont to say: "No tobacco, no alcohol and no cursing".

The graduation class of 1900 numbered in the sixties, so the Medical College even at that time, had an enrollment comparable to that of today.

The following paper, "The Impact of Vitamin Research on the Practice of Medicine", was prepared by Dr. V. P. Sydenstricker for presentation at the celebration of the Bicentenary of the publication of Lind's "Treatise of the Scurvy", in Edinburgh, Scotland, May 22-23, 1953. To quote from the program of this bicentenary, "In 1753, James Lind, an Edinburgh man, graduate in Medicine in the University of Edinburgh, Fellow of the Royal Society of Edinburgh, published his TREATISE OF THE SCURVY containing an account of his famous clinical trial which established lemon juice as an agent capable both of preventing and curing scurvy. The development and application of this demonstration eventually abolished a disease which previously had cost thousands of lives every year.

To celebrate the occasion the Nutrition Society is organising in Edinburgh a two-day Conference devoted to scurvy and vitamin C. The University and the Royal College of Physicians of Edinburgh are associated with the celebrations. The Conference will open with a University Ceremony at which Surgeon Vice-Admiral Sir Sheldon Dudley, K. C. B., F. R. S., M. D., etc., late Medical Director General of the Royal Navy, will give an address in honour of Lind, and the Royal College of Physicians is sponsoring an address by Professor V. P. Sydenstricker of the University of Georgia". Other notable speakers at the various symposia included Sir Edward Mellanby, Dame Harriette Chich, Dr. C. G. King, Dr. M. van Eekelen, Surgeon Vice-Admiral, Sir Alexander Ingleby-MacKenzie, Professor H. A. Krebs, Professor S. B. Wolbach, Dr. W. A. Alexander, Professor R. C. Garry, Dr. J. H. Crandon, Dr. R. M. Kark, Professor E. J. Bigwood, Dr. J. P. Dustin, Dr. C. P. Stewart, Dr. L. J. Harris, Mr. A. J. Lorenz, Dr. H. Gounelle, Dr. H. Teulon, Dr. W. J. Darby, Dr. L. W. Mapson and Dr. F. A. Isherwood."

At the close of the meetings of the Bicentenary, a dinner was held at the Royal British Hotel, Edinburgh. At this dinner a toast to the
visitors was proposed by Dr. A. P. Meiklejohn and replied to by Drs. V. P. Sydenstricker and E. J. Bigwood.

Prior to Dr. Sydenstricker's departure for Europe, he was kind enough to present this same paper at the Medical College as the Alpha Omega Alpha address for 1953.

THE IMPACT OF VITAMINS UPON MEDICAL RESEARCH

By

V. P. Sydenstricker, M. D.

Vitamins usually are functional components of enzyme systems common to all forms of life from bacteria, possibly even viruses, to human beings. All life depends upon some type of respiration and upon the utilization of some sort of foodstuff to replace metabolic waste, maintain anabolic activity and insure reproduction. These basic functions depend upon the activities of enzyme systems. My knowledge of biochemistry and physiology is much too meager to warrant even an amateur attempt to put the whole picture before you. It seems very likely however that all vitamins are constituents of and probably the active fractions of coenzymes necessary to all vital processes. There are wide species differences in requirements, many animals can synthesize some of the vitamins they require and harbor in their intestines bacteria that can synthesize more, this applies even to man. Largely however, man and the higher animals are dependent upon vitamins or provitamins manufactured by plants. As a physician trained for internal medicine but dabbling occasionally in biochemistry and nutrition, I shall try to summarize in a short time some of the more important things which increasing knowledge about vitamins has brought to clinical people during the past forty years. Much of what I say will be historical and that I hope is proper.

Some sort of knowledge of the specific curative effects of liver and fresh milk and muscle meat and some fruits and vegetables for certain disorders has been prevalent since early times. There were perhaps more than whisperings of wisdom among the Egyptians who knew that fish livers were good for nightblindness. More than 3,000 years ago the Chinese knew that the liver of almost any creature helped some forms of anemia. American Indians four centuries ago, and no one knows how much longer, knew that infusion of spruce and pine needles cured the scurvy. Presently we are celebrating the first documented medical observation of the prevention and cure
of a deficiency disease with a specific substance, now known to contain a vitamin, and this only two hundred years ago. At about the same time it seems to have been well known among the Scandinavians, the British and the people of Labrador that cod liver oil or just cod livers prevented and cured nightblindness and rickets. Somewhat earlier, in 1735, Casal in Spain had recognized pellagra as a new disease and probably correctly attributed it to the introduction of maize from America.

After Lind and Casal there was a long hiatus in the story of the vitamins. Magendie in 1816 fed animals "purified diets" and observed that they did not grow well and developed dryness and opacity of the cornea which we now call xerophthalmia. His experiments attracted considerable attention but not much long-term interest. However, in 1857 Livingston in Africa observed changes in the eyes of ill-fed natives which he described as being similar to those described by Magendie, and Lobo, and later Bitot, in South America found similar ocular lesions in slaves on the sugar plantations which they thought might be due to the monotonous diet those people used. The time then was about 1885 and though xerophthalmia, Bitot's spots and night-blindness were well known in various parts of the world. They generally were attributed to what the diet contained rather than to what it lacked. Nineteenth century investigators were busy with the basic aspects of nutrition and, while they learned much regarding caloric requirements and the utilization of protein, fat and carbohydrate, they remained mystified by the fact that calorically adequate "purified diets" failed to sustain life.

Actually the concept of deficiency disease seems to have been suggested by William Prout in 1834. Pereira some years later restated Prout's thesis that life could not be sustained upon a diet of purified protein, fat and carbohydrate and added the observation that "natural foods" are necessary for life. He also noted that lemon juice, so curative for scurvy, did not owe its influence to the water, albumin, sugar or essential oil that it contained. Lunin, in 1881, almost discovered the nutritive value of milk and von Bung, discussing Lunin's investigations, suggested that milk might contain unknown substances necessary for health.

Takaki, in 1887, in a remarkable demonstration showed that beriberi could be prevented by the addition of meat, vegetables and condensed milk to the customary rice and fish diet of the rations of the Japanese navy. He did not grasp the significance of this at the
time but attributed the improvement just to a higher caloric intake of varied foods comparable to the rations of the British and German navies. Eijkman, the Dutch physiologist, working in Batavia ten years later produced beriberi, or rather peripheral neuritis, in fowls by feeding them polished rice and cured them by giving watery or alcoholic extracts of rice bran. This did not suggest to him a deficiency disease; he thought that the rice contained toxins and that the polishings contained a pharmacological antidote to them. Grijns, four years later, correctly interpreted Eijkman’s experiments suggesting that beriberi in birds and men was due to the lack of an essential substance not present in polished rice but abundant in the polishings. Pekelhering, in Holland, and Hopkins, at Cambridge, almost simultaneously observed that mice fed “purified diets” failed to grow or live long. However, they observed that the addition of minute amounts of milk, not exceeding 4 per cent of the diet, permitted growth and survival. Both suspected that some substance or substances present in infinitesimal amounts in milk and perhaps in other natural foods might be of paramount importance in nutrition. It was Hopkins who introduced the phrase “accessory factors of the diet” in 1906 and by so doing stimulated a tremendous amount of thinking and investigation along the line of this new concept.

In 1907, Holst and Frolich, attempting to produce beriberi in guinea pigs with a diet of oats and bran, made the conies sick and almost immediately recognized that the sickness was scurvy and not beriberi. They suspected that the lack of a dietary factor might be at fault. They and others confirmed this suspicion but found that the factor was different from that lacking in beriberi. It was found in different types of food and was much more perishable. Shortly afterward, Stepp, working in Germany, made a significant contribution by showing that fats were necessary for life. He even suspected that it was not so much the lipids themselves but unknown substances dissolved in them that were essential for the survival of his animals. At the same time Funk was working at the Lister Institute following up the investigations of Eijkman, Grijns and some of the early British workers on the nature of the antiberiberi substance in rice polishings. He did not isolate the pure substance but did prepare a highly effective concentrate and suggested that the pure substance might be a pyridine compound. Much more important than his potent rice polish extract was the report on his work published in 1912 and 1913, in which he used the term “vitamine” to designate the elusive anti-beriberi factor. He put
forth the radical hypothesis that beriberi, scurvy and pellagra were all deficiency diseases and that rickets and sprue possibly were in the same category.

During the same few years that Stepp and Funk were pursuing their research, Americans, stimulated by the ideas of Hopkins, were studying the effects of deficiencies of "accessory factors of the diet". Both McCollum and Mendel demonstrated that diets containing butterfat, egg yolk or cod liver oil supported normal growth in rats while those containing lard, olive oil or almond oil failed to do so. McCollum and Davis discovered that an ether extract of the active natural fats contained the growth factor, and in 1913 McCollum proposed the term "fat soluble A" for the essential nutrient shortly to be called "vitamin A".

Although the nature of the "accessory factors of the diet" was to remain obscure for a number of years, Hopkins had produced a fundamental idea, Funk a startling application of the idea to human disease as well as an intriguing name for the accessory factors. A lead was made toward the chemical composition of some of them and an alphabetical designation was initiated by McCollum. In the year 1913, the era of vitamin research was born. Not excepting the discovery of the bacteria and the whole pageant of infectious disease, perhaps no medical discovery has bred so much eagerness and enthusiasm for research. Here was an open field for the biochemist, the physiologist, the pharmacologist and the clinician. A little later the pathologist, the bacteriologist and the veterinarian were to join. In fact, every branch of science which has to do with that extraordinary melange of effort which we call Medicine was to become involved. Naturally there was much scepticism and many eminent, elderly, medical men went to their graves during the next two decades exploring the vagaries of "mad scientists".

From then on knowledge came rather rapidly, though its progress was hampered by imperfect understanding of deficiency diseases, crude techniques for research, and often by unfortunate choice of experimental animals. In 1915 McCollum and Davis, investigating the nutritive value of individual foods, found that oats and rice, supplemented by all then known growth factors, were inadequate to support normal growth in rats. They postulated a "water soluble B" vitamin which they thought might be identical with the anti-beriberi factor of Funk. During these few years much research had gone on re-
garding scurvy, Drummond had postulated the existence of an antiscorbutic "vitamin C". He, with many others, doubted Funk's hypothesis of the "amine" nature of many of the essential nutrients and coined the word "vitamin", suggesting that it might be used for all known and to be discovered essential nutrients without regard to their chemical structure. This was a time of great effort and much perplexity, with high authority clinging to ideas of an infectious or toxic etiology for scurvy and pellagra. The matter of rickets was much complicated by the common knowledge that it could be cured by either cod liver oil or sunlight. Actually much density was exhibited by some outstanding clinicians who attributed all the virtues of cod liver oil to its high caloric value. During this same short period Goldberger, in America, performed the Rankin Farm experiment which initiated solution of the problem of pellagra, and Mellanby, in England, began his epochal experiments upon the production of rickets in animals. Almost the whole medical world was astir with a new and fruitful idea.

Up to now I have tried to give a brief summary of the early years of vitamin research. From now on it may be less confusing to follow the development of work upon individual vitamins. Many important phases of investigation and the names of a great many important investigators must be omitted because time permits mention of only the most outstanding.

The story of vitamin A is very complicated. Early experimentors were concerned only with growth and development of experimental animals, usually rats. In 1915 Goldschmidt, in Hopkins' laboratory, observed keratomalacia in the rats eating Hopkins' purified diets. Two years later McCollum and Simmonds described the same condition in rats on a more specifically "A deficient diet", calling it xerophthalmia. Rather rapid recognition of more and more effects of A deficiency in animals and man developed. The situation at this time was clouded by the fact that cod liver oil was usually used as the source of vitamin A in experimental work. The existence in the oil of vitamin D was unknown at this time. Some clarification came in 1919 when Steenbock found that yellow vegetables were a good source of vitamin A. He extracted carotene from carrots and showed that it afforded excellent protection against vitamin A deficiency. Much argument, and even polemics, developed over the fact that carotene is deep yellow while cod liver oil is almost colorless. Although von Euler and others confirmed Steenbock's observation, it was not until 1929 that the
paradox was solved. Moore, at Cambridge, then showed that carotene is provitamin A and is split into the vitamin in the body, probably in the liver.

While chemists strove to isolate and synthesize vitamin A, biochemists, physiologists and physicians were busy learning more about its relation to disease in animals and human beings. The task was greatly simplified by McCollum's discovery of vitamin D in 1932. In 1925 Fridericia and Holm found that the amount of visual purple in the retina is diminished in avitaminosis A and that night-blindness is an early symptom of deficiency in rats. This led to use of the adaptometer for detection of early deficiency in human beings, a method which did not prove fruitful. Also in 1925, Wolbach and his group published the first of their observations upon lesions of the skin, the respiratory epithelium and other tissues resulting from deficiency of vitamin A. Almost simultaneously Mellanby and others described changes in the central nervous system of deficient dogs. Clinical observations from all over the world multiplied in the journals, and by 1935 a syndrome of dark dysadaptation, xerophthalmia, follicular hyperkeratosis of the skin and undue susceptibility to respiratory infections was widely accepted as "avitaminosis A". In the enthusiasm of clinical research many unrelated ailments often were included. During the fifteen years ending in 1935 an extraordinary amount of work had been done on the carotene and vitamin A content of foods and the "life cycle" of the vitamin was worked out. Chemists had been less fortunate in their efforts to isolate and synthesize the pure substance. Strangely the synthesis came before the isolation. Fuson and Christ accomplished the synthesis in 1936. Holmes and Corbet probably produced the first pure natural vitamin during the following year.

Pursuing the work of Fridericia and Holm, Yudkin and others had reported the presence of vitamin A, or a substance with similar properties, in the retinæ of various species of animals. Wald, in 1935, and Hecht, in 1937, demonstrated that the active visual purple of the retina is a compound of vitamin A and an unidentified protein. Hecht suggested that a portion of the vitamin A fraction might be used up or destroyed in a reaction by which bleached visual purple is regenerated so that continual supplies are necessary. The details of this reaction are still under investigation. The neurological manifestations of A deficiency in animals at first believed by Mellanby, McCollum and others due to specific neurotrophic properties, have
since been shown by Mellanby, Wolbach and their associates to depend upon overgrowth of bones of the skull and spine with resulting pressure upon nerves. Research upon vitamin A continues and we still are ignorant of many of its functions.

The research upon the vitamin B group is an epic in itself. I shall try to abbreviate it as much as is consistent with even spotty continuity. Funk, among many who searched for the elusive "anti-beriberi vitamine", extracted yeast as well as rice polishings and prepared a concentrate highly potent against fowl beriberi. Working further with this, he derived three fractions which he called substances 1, 2 and nicotinic acid. Substance 1 was effective against fowl beriberi in doses of three or four milligrams, but one milligram sufficed if it was supplemented by a few milligrams of nicotinic acid. Substance 2 was inert against beriberi and we may never know what it was. This was in 1916 and it is tragic to remember that Funk had the key to the B group in his hand but failed to turn it. However, at that time the concept of multiple dietary deficiencies had not been developed.

During the following decade rice polishings, yeast and extracts of both came into general use for the prevention and cure of beriberi and an enormous effort went into the attempts to isolate the pure antineuritic substance. It seems likely that Jansen and Donath were the first to succeed though Peters at Oxford, and Windaus in Germany had produced what later proved to be an identical compound. The year was 1926 and though it was another ten years before thiamin, as we have come to call vitamin B1, was synthesized, much was learned regarding its functions and their application to clinical medicine. Notable were Cowgill's formula for thiamin requirements and the observations of Alameer and Wenskebach, Wenskebach and Weiss, and Weiss and Wilkins upon beriberi heart disease. The physiological basis for many, if not all, of the manifestations of thiamin deficiency was produced by Peters and his associates at Oxford who showed that thiamin is essential to carbohydrate metabolism at the lactate-pyruvate level being necessary in the pyruvate-oxidate reaction.

In 1936 vitamin B1 was synthesized by two teams of chemists working quite independently. The procedure of Williams and Cline proved to be more economical and since then thiamin has been almost as abundant and cheap as aspirin. A year later great light came into the thiamin problem when Lohman and Schuster isolated cocarboxylase and proved that it was dithiaminphosphate, a pyrophosphoric ester
of thiamin. Later it was shown that cocarboxylase is the enzyme active in the Peters' reaction. More recently at least three more enzymatic processes concerned with the utilization of carbohydrate have been shown to depend upon the activity of cocarboxylase. Much of the fundamental research upon the thiamin enzyme has come from the British university laboratories, notably those at Oxford and Cambridge. Gradually more and more is being learned regarding the physiological functions of thiamin. During the year past, Siliprandi and Navazio found that insulin is required for the synthesis of cocarboxylase in the body. If it is confirmed that insulin is involved in the phosphorylation of thiamin, some of the many existing problems of diabetes may be nearer solution.

The story of nicotinic acid is essentially that of pellagra. It must be said that a little more armchair research involving thoughtful perusal of Funk's early work might have saved years of effort and a great many lives. In 1912 the Thompson-McFadden Pellagra Commission, after weighing all the available evidence, decided that pellagra must be an infectious disease. No other explanation for the explosive epidemics causing upward of ten thousand fatalities a year could be imagined. Goldberger, of the Public Health Service, was assigned to track down and isolate the infectious agent. He was a faithful public servant and exhausted the possibilities so far as infection might be concerned. His observations meantime convinced him that the disease was in some way related to diet. In 1915 he was permitted to carry out the Rankin Prison Farm experiment, the success of which convinced some, but not too many, of the experts. Further, to demonstrate the non-infectious nature of pellagra, Goldberger and fifteen of his associates inoculated themselves with the blood and swallowed the pharyngeal secretions, urine, feces and desquamated skin of patients far gone with the disease. None of the group showed any ill effects. This was in 1916. During the same year Spencer noted the great similarity between blacktongue in dogs and pellagra in people. Shortly it was well established that blacktongue could be produced with the "pellagra producing diet" and cured with meat, eggs and milk which had been shown to be curative in pellagra. With an experimental animal now available, it seemed that the work should go forward quite rapidly.

At this time Goldberger believed that the deficiency was of protein of good biological value and supported the maize theory of pellagra because zein, the major corn protein, is lacking in tryptophan and
lysine. This idea was shared by British observers working in Egypt and became generally accepted. A great deal of investigation of the pellagra-preventive value of foods and of the curative properties of foods, concentrates and extracts went on during the ensuing ten years, work which was very useful but which threw no light on etiology. In 1920 Voegtlin had tried crude yeast extracts, potent against beriberi, in the treatment of pellagra with excellent results. He refined the extract and greatly increased its potency against beriberi but found the new preparation inert in pellagra and abandoned the experiment. This work evidently was overlooked because it was not until 1925 that Goldberger and Tanner tested yeast on dogs with blacktongue and secured dramatic cures. This observation was immediately applied to the treatment of pellagra with much success.

Goldberger, some years before, had abandoned the deficient protein theory of the theory of the etiology of pellagra in favor of the idea of a pellagra-preventive factor. In 1926 Smith and Handrick found that heating yeast extracts of good "vitamin B" content destroyed their antiberiberi activity but did not affect their curative value in blacktongue. Goldberger quickly repeated these experiments, confirmed the results and went on to show that the heat stable substances in autoclaved yeast and yeast extracts cured pellagra, but definitely was not vitamin 'B'. He called it the P-P factor. Yeast now became the universal cure and preventive: but for the desperately ill pellagrins still coming into our hospitals, it was not good enough. Many could neither swallow nor retain the gram-per-kilo-per day of yeast or the equivalent amounts of yeast extracts necessary for cure. For them something better had to be found.

Voegtlin as early as 1914 had prepared an extract of liver which he found helpful in pellagra, but the method was not practical. In 1930 Goldberger and Sebrell reported the cure of blacktongue with a powdered crude liver extract. Soon it was found that this and commercially available concentrated aqueous liver extracts were highly effective in pellagra, but difficult for the seriously ill to take and retain. When injectable liver extract became available, they were immediately given wide trial. It was found that crude extracts were effective but that the more refined extracts which were most potent in pernicious anemia, were useless in pellagra. A great deal of investigation of liver extracts and various fractions thereof went on during the early 1930's without gain. Then, in 1937, the case of pellagra was broken quite suddenly by Elvehjem who, I suspect, may have read Funk's
reports with more acumen than others. Immediately upon his report of the cure of blacktongue with nicotinic acid, his discovery was applied to pellagra with almost incredible success. The control of pellagra seemed assured.

Before nicotinic acid, or its amide, was found to be an essential nutrient, it was known that coenzymes I and II, otherwise known as diphosphopyridine nucleotide and triphosphopyridine nucleotide, are essential in the intermediate metabolism of carbohydrates. Both coenzymes depend upon their nicotinic acid amide fraction for activity. Actually no less than five reactions in the metabolism of carbohydrate and fat have been shown to involve these compounds. It is supposed that the biochemical lesion in pellagra is due to failure of production of the coenzymes. Why this should produce the anatomical lesions of the disease remains unexplained. Another phase of the nicotinic acid problem is the matter of its synthesis from tryptophan. This has been shown to be possible in various animals and in man. Current research upon this may bring us back to Goldberger's idea of the relation of tryptophan deficiency to pellagra.

In the summer of 1938 a number of pellagrins who apparently had been cured with nicotinic acid were on maintenance dosage seemed to relapse. They developed sore tongues, fissures at the angles of the mouth, cracking and peeling of the lips, conjunctivitis and some scaly, seborrheic dermatitis of the forehead, nasolabial folds and ears. Stannus, Fitzgerald, D. F. Moore and other had described such a syndrome. Goldberger encountered it and called it "pellagra sine pellagra". Sebrell and Butler at the time were conducting an experiment with a riboflavin deficient diet; they were consulted and they identified the syndrome as riboflavin deficiency "uncovered" by treatment with nicotinic acid. Treatment with riboflavin cured the patients. Thus the early hypothesis of Goldberger and Tanner that more than one factor might be lacking in pellagra was confirmed.

Prior to this there had been much confusion with regard to riboflavin. Warburg had isolated the "yellow respiratory ferment" from yeast in 1932. In the following year Kuhn and his associates, attempting to isolate vitamin B2, had produced a substance identical with Warburg's yellow enzyme. Finding that it was essential for the nutrition of rats, they assumed that it was the P-P factor of Goldberger, or vitamin B2 as it was generally called in Europe. This it definitely was not and the name riboflavin was adopted in 1937.
Like thiamin and nicotinic acid, riboflavin is a component of the active group in a number of oxidative enzyme systems, some of which are concerned with carbohydrate metabolism, others with much more subtle vital processes. Considering the great number of potent enzymes in which riboflavin is active, it is surprising that the manifestations of deficiency in the human subject are not more striking.

During the decade 1930-1940 there was intensive research upon many crystalline substances derived from yeast, liver and other sources; some had been known for many years, others just discovered. Many essential nutrients for bacteria and animals were found. Pyridoxin, pantothenic acid and biotin, in particular, proved to be essential to many forms of life and probably also for man although a deficiency state has never been proved for human subjects. It may be that these vitamins are so ubiquitous that no diet capable of sustaining life can be devoid of them. In 1941 Mitchell, Snell and Williams isolated from spinach a substance which they called "folic acid", the chemical structure of which later invited the name "pteroylglutamic acid". Originally thought to be a growth factor for bacteria, it was found to be a potent hemopoietic factor for human beings which restores normal erythropoiesis in pernicious anemia and stimulates the production and maturation of granulocytes in many conditions characterized by leukopenia. In fact, it seems requisite to the normal production of polymorphonuclear leukocytes. At first it was believed to be the extrinsic factor of Castle, but it soon was found that, while megaloblastic erythropoiesis was immediately replaced by normoblastic production of erythrocytes in pernicious anemia under treatment with folic acid, the neurological changes of that disease progressed or even might appear during therapy. However, the whole syndrome of sprue usually is cured by it as are the acrocytic anemias of pregnancy and infancy and 'chronic malnutrition'. Folic acid is a growth, health and hemopoietic factor essential for many forms of life and probably is identical with the "vitamin M" of Darby and Day. In conjugated form, it is known to function in a variety of enzyme systems and is required for the synthesis of nucleic acids.

After folic acid was found not to be the extrinsic factor, more intensive studies of liver extracts were resumed using more refined techniques. Almost simultaneously in 1948 Lester Smith, in England, and Pickes announced the recovery from liver extract of a crystalline cobalt-containing compound which showed extraordinary hemopoietic effects in pernicious anemia. It was called vitamin B12 by the
American workers and later was given the name cyanocobalamine. This substance has a wide occurrence and is particularly abundant in the mother liquor of Streptomyces griseus fermentation. At the present time, B12 seems to fulfil all criteria for acceptance as the extrinsic factor of Castle, but much remains to be learned regarding it and closely related compounds.

A. Szent-Gyorgyi, working at Cambridge in 1927, isolated a substance from adrenal glands, oranges and cabbages which behaved in many ways like a sugar. First he called it "Ignose" because it baffled him; then, from further frustration, "Godnose". Finally having determined its structure, he called it hexuronic acid. Five years later, C. Glenn King isolated pure vitamin C from natural sources and announced that it had all the characteristics of Szent-Gyorgyi’s hexuronic acid. Within weeks, Svirbely and Szent-Gyorgyi reported that hexuronic acid cured scurvy in guinea pigs and shortly confirmed the co-identity of hexuronic acid and vitamin C. Synthesis was accomplished within a year by Reichstein in Switzerland and Haworth and Hirst in England.

The biochemical functions of vitamin C remain obscure. It is a strong reducing agent and almost certainly is important in many hydrogen transfer systems. In addition to its unexplained role in maintaining the integrity of intercellular cement substances, it evidently has important action in hemopoiesis and in the reaction of the body to stress. Perhaps the only complete experiment on the production of scurvy in a human being was that of Grandon, Lund and Dill in 1940 and it left very many problems unsolved.

In 1919 Mellonby produced rickets in puppies with a diet and tested the curative properties of many substances, finding cod liver oil superior to any other. Since the oil was known to contain vitamin A, it was natural for him to suppose that rickets was due to A deficiency. Shortly the situation was further clouded by a series of discoveries. Huldschinsky, in 1919, proved that the age-old belief that sunlight was a cure for rickets was well founded. It already was known that ultraviolet light was effective. In 1921 Sherman and Pappenheim produced rickets with a low-phosphorus, high-calcium diet and the following year, Shipley, Park, McCollum and Simmonds showed that a high-phosphorus, low-calcium diet also was rachitogenic. In the same year, 1922, some clarification of the problem was afforded by the discovery of McCollum and his group that the vitamin A of cod liver oil could be destroyed by oxidation. However, the oil re-
tained its antirachitic properties. McCollum proposed the name vitamin D for the heat and oxygen stable substances.

Slowly and with considerable polemic vitamin D emerged as the antirachitic factor. In 1924, Hess and Steenbock almost simultaneously discovered that ultraviolet irradiation of rachitogenic diets rendered them curative. It was found very shortly that only the lipid constituents of foods were activated by irradiation. After much investigation, it was found that ergosterol and 7-dehydrocholesterol possess the greatest potency after irradiation. We buy irradiated ergosterol in the pharmacists' shops and the sun makes vitamin D from 7-dehydrocholesterol in our skins. Rickets still occurs in Negro babies whose melanophores shield the deeper layers of their skins and in a decreasing number of white infants whose mothers neglect to give them the "drops the doctors ordered". The conquest of rickets seems assured.

Henrick Dam, of Copenhagen, has long been interested in sterol metabolism. In 1929 he described a hemorrhagic disease of chicks maintained upon a special fat-free diet. The disease was characterized by great prolongation of the clotting time, which usually is associated with prothrombin deficiency. Having ruled out other causes for the prolonged clotting time, Dam suggested a "Koagulations vitamin" deficiency which interferes with the synthesis of prothrombin in the liver. Although vitamin K was found to occur in many plants, it became evident that it was a product of metabolism in many species of bacteria and that the most important source is the intestinal flora. The chemical structure was soon determined and it was found that a number of related compounds exhibited vitamin K activity. Absorption of vitamin K from the bowel depends upon the presence of fat and bile, and the synthesis of prothrombin in the presence of K depends upon reasonably normal function of the cells of the liver. These observations threw much light upon the matter of prothrombin deficiency which is well known to occur in obstructive jaundice and in severe hepatocellular disease. Vitamin K and its compounds are the first effective remedy for hemorrhage due to prolonged biliary obstruction. If damage to liver cells, from any cause, is great, the vitamins cannot improve prothrombin levels.

No discussion of vitamins in relation to medical research would be complete without reference to vitamin antagonists. A number of such substances exist which are useful in research upon deficiency diseases, upon cancer, leukemias and lymphomas. Most useful are the
vitamin K antagonists used in treatment of thromboembolic diseases and for the destruction of vermin. The activity of an antivitamin usually depends upon such close structural similarity to the vitamin it "antagonizes" that it is incorporated into the enzyme system in which the vitamin functions, inactivating the compound. As knowledge of these substances increases, they may become as helpful in the control of certain metabolic and malignant diseases as are the vitamins in deficiency diseases.

ALUMNI NEWS

MARRIAGES

On June 20, 1953, in a double ring ceremony at St. John's Methodist Church, Augusta, Miss Caroline C. Davis, daughter of Dr. Abe J. Davis, '29, and Mrs. Davis, became the bride of Dr. James R. Clay, '53, of DeSoto, Georgia. Following the ceremony, a reception was held at the home of the bride's parents, 3039 Pine Needle Rd.

On June 14, 1953, in the Chapel of St. John's Church, Augusta, Miss Gloria Rogers of Augusta and Savannah, became the bride of Dr. T. E. McLemore, Jr., '53, of Augusta and Atlanta. Following their wedding trip to points of interest in North Carolina, Dr. and Mrs. McLemore will reside in Athens, Georgia where he is interning at St. Mary's Hospital.

At the First Baptist Church in Decatur, Georgia, Dr. Martha S. Goddard, '53, was married to Mr. John Prince Lovell, of Pawtucket, R. I., and Boston, on June 20th. Following a wedding trip, touring the continent of Europe, they will 'be at home' in Beverly, Mass., where Dr. Goddard will pursue her internship at the Beverly Hospital.

Miss Sue K. Bailey, Vidette, was married to Dr. Ivan Parker, '53, on June 19, 1953 at the Grace Methodist Church in North Augusta, S. C., at a double ring ceremony in the presence of a few close friends and relatives. On their return from a wedding trip through the mountains of North Carolina, the couple will reside in Columbus, Ohio, where Dr. Parker will intern at the White Cross Hospital.

BIRTHS

Dr. and Mrs. Manley L. Cummins, Jr., '48, announce the birth of a son, Manley L. Cummins, III, May 14, 1953 in Graceville, Fla.
Dr. and Mrs. David Sowell, '52, are the proud parents of a daughter, Julie Louise, born on December 29, 1952 at Macon City Hospital.

The Bob Moye's, '52, and the Roy Rowlands, '52, are also among those with new additions to their families. The Moye's had a boy in February and the Rowlands, a girl in December.

DEATHS

Dr. William J. DuBois, '99, of Kaleva, Michigan, died on May 9, 1953 of a cerebral hemorrhage. For many years, he was surgeon for the Kent County Welfare Board and prior to that time he had practiced in Grand Rapids, Mich., where he was on the staff of the Butterworth Hospital. He was 80 years of age at the time of his death.

Death claimed Dr. Thomas A. Futch, '35, on March 20, 1953. He had served in the Armed Forces during World War II, and was residing in Thomasville at the time of his death. He was 43 years old.

Dr. William J. Huson, '24, of Covington, Georgia, formerly of Augusta, died on June 27, at an Atlanta hospital. He was the owner of the Huson Hospital in Covington. He was fifty-eight years of age.

Dr. J. C. Neville, '00, of Register, Georgia, passed away on June 22, 1953. He had been in an automobile accident on June 11, and his death was the result of this accident. He was 80 years old.

GENERAL NEWS

Dr. Lloyd B. Greene, '17, has been appointed Chief Urologist and Head of the Department of Urology at the Pennsylvania Hospital, Philadelphia, Penna. He has been associated with the Pennsylvania Hospital since his resignation from the Medical Corps of the Navy, and after a year's study in the clinics of the Universities of Paris and Vienna. Dr. Greene is active in the teaching program in the Graduate School of the University of Pennsylvania where he holds an Associate Professorship in the Department of Urology. His office is in the Medical Arts Building, Philadelphia.

Dr. Braswell E. Collins, '34, has announced the removal of his office from Waycross, Georgia to 959 Daisy Park, Macon, Georgia.
He is a Fellow of the American College of Surgeons and also a Fellow
of the American Academy of Ophthalmology and Otolaryngology. In
Macon, he will limit his practice to the Eye, Ear, Nose and Throat.

Dr. John Paul Jones, '41, has moved his office to 883 Pine St.,
Macon, Georgia, where he will practice pediatrics.

The University of Pittsburgh has recently announced the appoint-
ment of Dr. John R. McGibony, '27, to its faculty, effective July 1,
1953. Dr. McGibony will assume the post of Professor of Medical and
Hospital Administration, and Director of the course in Hospital Admin-
istration in the Graduate School of Public Health . . . Dr. McGibony
was previously Medical Director, and Chief of the Division of Medical
and Hospital Resources in the U. S. Public Health Service. In this
capacity he had been responsible for national leadership in research,
study, and improvement of hospital planning, organization, manage-
ment, clinical services and administration in the hospital and related
fields. His contributions have played a major role in planning and
development of the Hill-Burton program. He is author of scores of
articles which have been widely published, and of a recent book,
PRINCIPLES OF HOSPITAL ADMINISTRATION. Dr. McGibony is
a Fellow of the American Medical Association, member of the
American Hospital Association, Fellow of the American Public Health
Association, and Diplomate of the American Board of Preventive
Medicine and Public Health. He is also a member of Alpha Omega
Alpha.

From Athens, Georgia, we have news that Dr. and Mrs. Bothwell
Traylor, '43, enjoyed a delightful trip to Cuba in the early Spring.
One of the highlights of their trip was their meeting the famous
author, Ernest Hemingway, who was staying at the same hotel.

Dr. and Mrs. Harold Mims, '48, of Dallas, Texas, recently visited
his parents in Hephzibah, Georgia.

Dr. and Mrs. Charles Mulherin, '33, and their four children spent
a couple of weeks in June visiting her parents, Mr. & Mrs. William
M. Slay, in Fort Worth, Texas.

Many of the alumni will remember Col. Charles L. Leedman who
was former Chief of Medical Services at Oliver General Hospital
and a Professor of Clinical Medicine here at the Medical College from
1947 to 1950. We have received the news that he has been appointed
Chief of the Education and Training Division, Office of the Army
Surgeon General, Washington, D. C.
Drs. Louis and Carol Pryor Manganiello, '47, attended the meeting of the Harvey Cushman Society at the Hollywood Beach Hotel, Hollywood, Florida.

At Ladies Night dinner of the Augusta Lions Club, April 27, 1953, citations were presented to several Augusta doctors in recognition of the services they had rendered to underprivileged children in sight conservation. Those doctors receiving citations were Drs. Robert E. Leonard, '33, S. J. Lewis, '11, Henry R. Perkins, '29, J. Victor Roule, '26, W. E. Matthews, '30, Charles M. Kilpatrick, '28 and William A. Steed, '41.

In Vol. 152, No. 1., of the J. A. M. A., there appeared an article by Drs. Louis L. Battey, '46, A. Heyman, and J. L. Patterson, Jr. It is an interesting expose of the “Effects of Ethyl Alcohol on Cerebral Blood Flow and Metabolism”. In the same volume, No. 4, was a review of an article by another alumnus, Herbert S. Kupperman, '46 and other authors. This article on the “Remission in Cushing's Syndrome after Bilateral Hemiadrenalectomy” originally appeared in the February issue of the JOURNAL OF CLINICAL ENDOCRINOLOGY AND METABOLISM.

At the meeting of the Federation of American Societies for Experimental Biology at the Conrad Hilton Hotel, Chicago, Ill., April 6, 1953, the Medical College of Georgia was well represented on the panel. Dr. W. Knowlton Hall, presented: “The Metabolism of Threonine Isomers in the Phloridizinized Rat”; Dr. Sam Singal: “The In Vitro Synthesis of Quinolinic Acid in Some Rat Tissues”; Dr. John Remington: “Ventricular Pressure Changes as Indicators of Myocardial Condition”; and Dr. Elma A. Lombard: Electrocardiograms of the Anesthetized Dog”.

Drs. Hoke Wammock, '28, and H. D. Wycoff, of the Department of Oncology, attended the meeting of the Federation of American Societies and Cancer Research. Dr. W. F. Hamilton was also a lecturer and discussant at the Federation of American Societies and American Heart Association. Dr. Philip Dow presented a paper on the “Form of the Dye Curve for Cardiac Output Determination” at the meeting of the American Physiological Society. All these meetings were held in Chicago during April.

When Dr. Perry P. Volpitto, Professor of Anesthesiology attended the meeting of the Southern Society of Anesthesiologists in Atlanta, he discussed “Experiences with Cyclaine as a Regional Anesthetic Agent”.

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Dr. Robert B. Greenblatt, Professor of Endocrinology, was one of the panel speakers at the Postgraduate Extension Course in Medicine given by the University of North Carolina. He presented "Problems of the Libido Encountered in General Practice" and "The Hirsute Female Problems in Diagnosis and Management".

In May 1953, Dr. Edgar R. Pund was the guest speaker at the Alumni Seminar, Medical College of Alabama, in Birmingham. While he was there, he also took advantage of the opportunity to inspect the medical facilities of the college.

Dr. John L. Chandler, Jr., '41, prominent Augusta orthopaedic surgeon and associate professor of orthopaedic surgery at the Medical College, was one of thirty-four specialists from the United States, Canada and Sweden who completed a two week course in cerebral palsy at Cook County Graduate School of Medicine in Chicago in June. Dr. Meyer A. Perlstein, president-elect of the American Academy of Cerebral Palsy, a counselor in cerebral palsy to the National Society for Crippled Children and Adults, and Chief of the Children's Neurology Clinic at Cook County Hospital, directed the course, assisted by other specialists in the field of cerebral palsy.

During the last week in June there was a refresher course at the Medical College of Georgia for negro doctors and dentists. The course for the doctors lasted five days, and for dentists, three days. Dr. Charles W. Hock was director of this post-graduate training course.

It will be of interest to most of you to know that the University Hospital is now having its face lifted. In this program of major improvements, all windows will be re-caulked to prevent further damage; all window frames, trimmings and cornices will be given coats of protective paints to improve the physical condition, as well as new finishing paint to improve the appearance of the buildings. This program includes the five units of the hospital itself and the Doughty Nurses Home.

Two MCG alumni were active in the panel discussions sponsored by the Atlanta Journal in co-operation with the Fulton County Medical Society and presented at the Tower Theatre in Atlanta. Dr. Wm. Harry Hill, '42, and Dr. Joseph D. McElroy, '41 were on the respective programs discussing "The Common Cold" and "Overweight and Underweight".
Dr. Andrew A. Walden, of North Augusta, Professor Emeritus of Clinical Medicine at MCG, was among those who attended the first western hemisphere conference of the World Medical Association in Richmond, Virginia on April 21-25. Dr. Walden is seventy-five years of age and was selected by the governor of South Carolina to be a guest of honor at this conference.

Dr. and Mrs. J. Miller Byne, Jr., '28, of Waynesboro, Ga., sailed on April 15 aboard the Queen Mary for a two month tour of Europe.

The following members were named to the staff of St. Joseph's Hospital in Augusta. Dr. W. W. Battey, '04, President; Dr. Stephen W. Brown, President-elect, and Dr. John B. Bowen, '39, Secretary-Treasurer. The following department heads were also named: Dr. J. Dewey Gray, '20, Medicine; Dr. Thomas W. Goodwin, '30, Surgery; Dr. J. William Thurmond, '26, Obstetrics and Gynecology; Dr. Thomas E. Bailey, '39, Pediatrics; Dr. J. Victor Roule, '26, EENT; Dr. F. X. Mulherin, General Practice; Dr. L. P. Holmes, Radiology; Dr. E. V. Hastings, Pathology, and Dr. Perry P. Volpitto, Anesthesiology.

Dr. John D. Elder, '43, of Athens, Ga., spoke to the Athens Business Girls Club, March 24, on the subject of "Socialized Medicine". At the conclusion of his talk, he also explained the organization of the local medical societies.

Dr. I. S. Giddens, '33, of Lakeland, Fla., recently gave radio addresses on station WGOV on the Racial, Sex and Age Distribution of Tuberculosis.

Dr. J. Willis Hurst, '44, 32-year-old heart specialist at Emory University Hospital, Atlanta, was honored by being listed among the 100 young men selected from a field of over 1,000 for "Leaders of Tomorrow". The selections were sponsored by TIME magazine and the Atlanta Chamber of Commerce.

Dr. Rufus Payne, '33, of Augusta, presented a paper of "Control Study of Isoniazid, a Public Health Service Cooperative Investigation" at the 19th Annual Meeting of the American Association of Chest Physicians in New York, May 31st.

Dr. (Lt. Comdr.) Wilford A. Risteen, of Augusta, who has been on active duty with the U. S. Navy for the past two years, is back in Augusta and has resumed his work as a member of the faculty of MCG. While on duty, Dr. Risteen served on the hospital ship Repose, which was at sea off the shores of Korea.
Dr. William W. Coppedge, ’36, of East Point, Georgia, has been appointed a Fellow in the American Academy of Obstetrics and Gynecology.

Dr. J. A. Johnson, ’14, of Manchester, Georgia was recently honored by the Manchester Jaycees with the presentation of a plaque for his service to the people of the community.

Dr. Lawson C. Johnson, ’50, of Manchester, Georgia, was appointed local surgeon for the Atlantic Coast Line Railroad.

Officers elected at the Georgia Society of Ophthalmology and Otolaryngology’s Annual Convention in Savannah, March 7, were: Dr. Stacy C. Howell, ’22, of Atlanta, President; Dr. W. Eugene Matthews, ’30, of Augusta, Vice-President; and Dr. Alton V. Hallum of Atlanta, Secretary-Treasurer.

Dr. Julian K. Quattlebaum, ’21, of Savannah, was a speaker on the Postgraduate Lecture Series of the Veterans Administration Hospital, Dublin, on March 18. His subject was “Complications Following Gastric Surgery”.

Dr. H. A. Thornton, ’50, formerly of Greensboro, has moved to Decatur, Georgia where he will be associated with Drs. Ed. Cunningham and R. P. Shinall in the practice of medicine.

Dr. V. P. Sydenstricker, Professor of Medicine, was recently honored by an award from the staff of The Cadaver, Medical College of Georgia school newspaper. The citation was for excellence in teaching. An annual award, a silver cup was presented to Dr. Sydenstricker and his name was inscribed on a brass plaque in the Library of the Medical College.

Temporarily on the faculty of the Medical College is Dr. James M. Carlisle, who is serving as Research Associate in Endocrinology for six months. Dr. Carlisle was born in Thomasville, Georgia and was educated at Emory University and the University of Alabama Medical School, where he received his A. B. degree in 1930. His M. D. degree was awarded from Temple Medical School in 1932. He is also the recipient of an honorary LL. D. from the National University of Ireland, Dublin in 1951. For nearly the past twenty years, he was either Plant Physician or Medical Director at Merck & Co., Rahway, N. J. He was also Assistant Professor of Industrial Medicine at Temple University Medical School and Head, Department of Clinical Research of
Rahway (N. J.) Memorial Hospital. He is a Fellow of the American Medical Association, The New York Academy of Medicine, the American Public Health Association, American College of Chest Physicians, American Association for the Advancement of Science, American Geriatrics Society, and the American Academy of General Practice. Dr. Carlisle is the author of many medical papers and scientific exhibits, as well as a contributor to "Principles and Practice of Industrial Medicine", edited by Wampler, and "Internal Medicine" edited by Musser & Wohl, 1951.