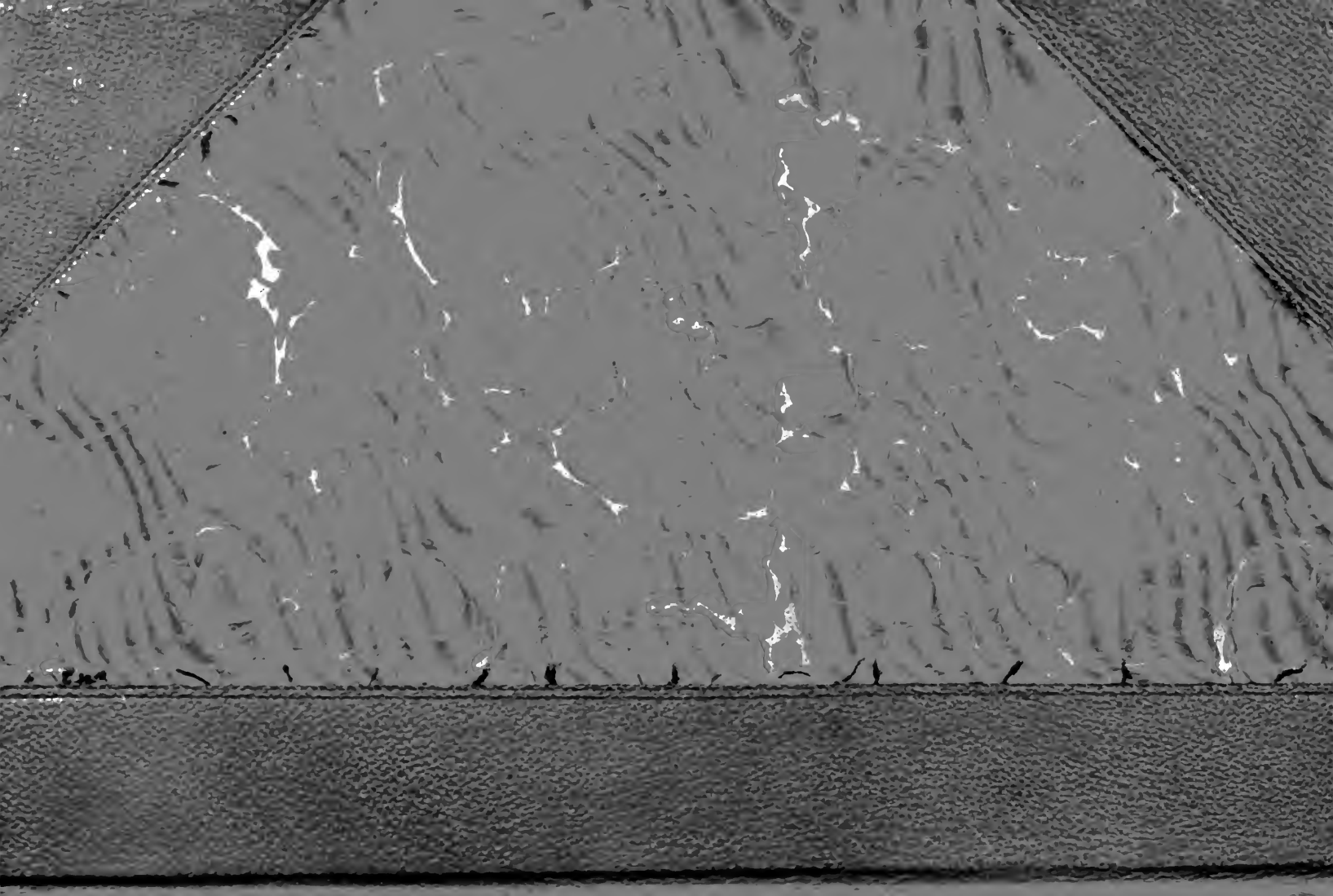

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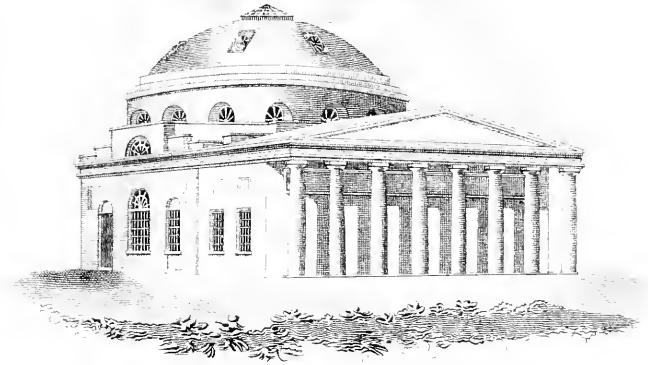

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Vol. XVI JULY, 1931 No. 1

A REPORT OF AN ANOMALOUS CONDITION OF THE PARIETAL PERITONEUM*

By T. B. Aycock, M.D.

Baltimore, Md.

Volumes have been written about appendicitis and hardly less has been said about the various methods of approach that have been devised in order to remove the offending factor during the course of the disease. It is not the purpose of this paper to advocate any particular method of approach. On the contrary, it is the writer's purpose to call to the attention of the surgeon a rare condition that possibly he has encountered already or may encounter at some subsequent time.

For years the McBurney incision, sometimes known as the Gridiron, has been used and many surgeons still consider it the most desirable method of approach. In our own clinic it is, by far, the procedure most commonly used.

Diverging from the original procedure first described by McBurney, however, many modifications have developed. In fact, the method about to be described, incidentally the one most used by the writer, falls in the divergent class.

For some distance lateral to McBurney's point and about one inch medial to the right anterior superior iliac spine an incision is made

* From the Departments of Surgery and Anatomy, University of Maryland.

about four inches long. The center of the incision is about the same level as the anterior superior iliac spine. It is made parallel with the course of the inguinal ligament through skin, Camper's fascia, Scarpa's fascia, backwards to the fibers of the external oblique muscle which are found at the upper end of the incision and forward to the

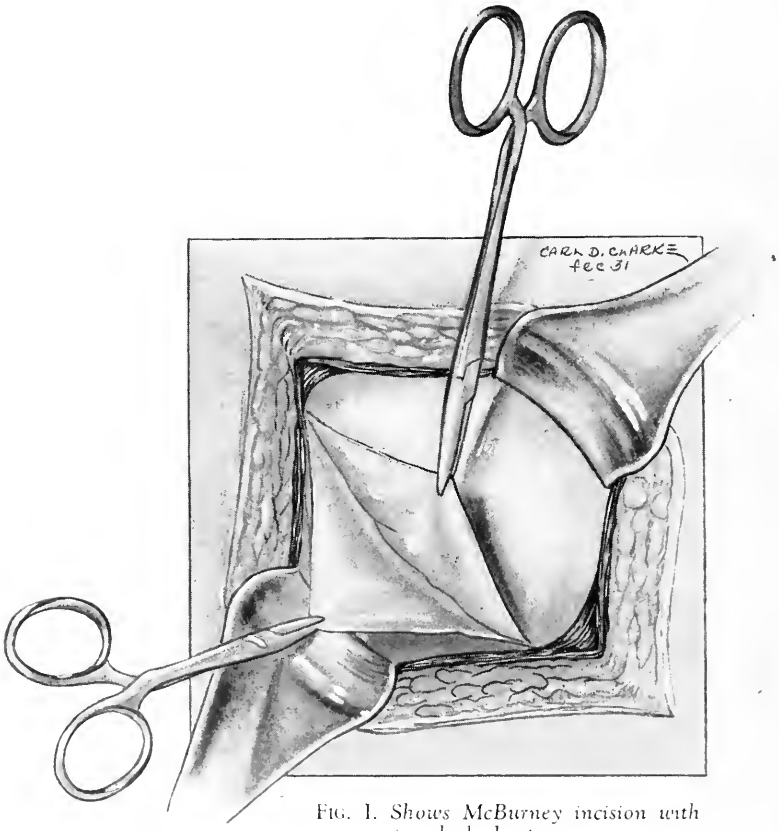

FIG. 1. *Shows McBurney incision with pouch laid open.*

aponeurosis of this muscle found at its lower end. The fibers and aponeurosis of the muscle are separated along its course which at this point is downwards, inwards, and forwards. These divided fibers are retracted both medially and laterally exposing medially the ventral sheath of the right rectus muscle. The sheath of this rectus muscle is incised transversely to the longitudinal axis of the muscle and subsequent to this the fibers of the internal oblique muscle are separated

along its course upwards, inwards and forwards. The fibers of the transversalis are likewise separated at the same time. This allows a retraction of the right rectus further toward the midline while an

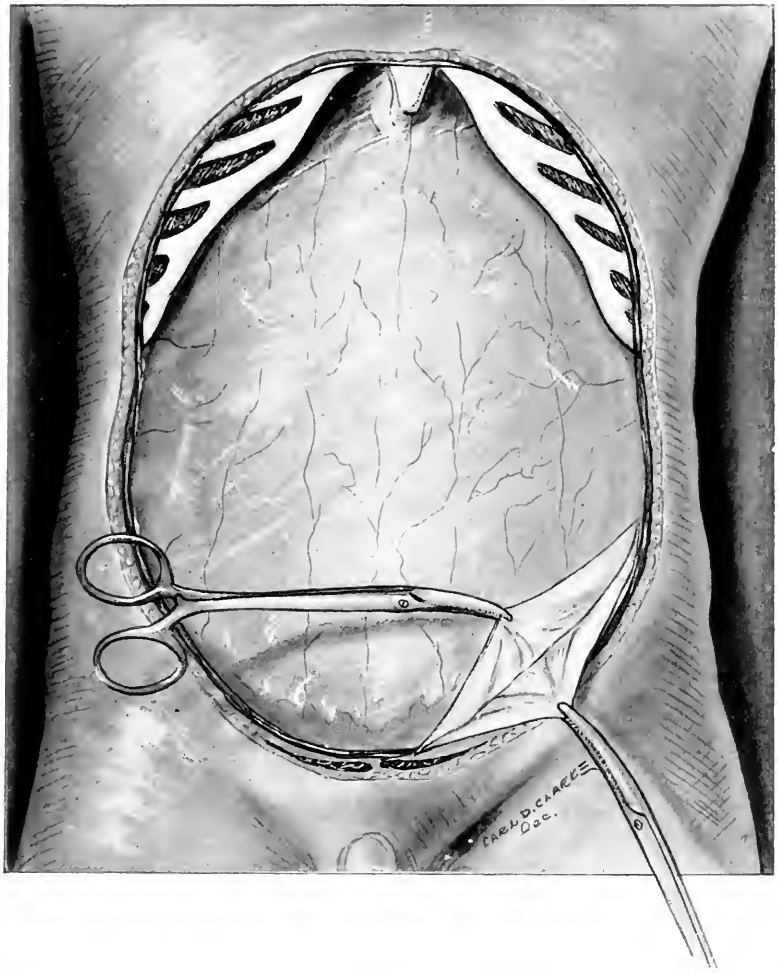

FIG. II. *Cadaver with anterior abdominal wall removed, but anterior parietal peritoneum intact with pouch laid open.*

opposing retractor is inserted between the separated fibers of the internal oblique and the transversalis muscle, so that the assistant may

retract laterally. Ordinarily the peritoneum is then picked up by two forceps, one held by the operator and the other by the assistant, and following this a small incision is made with a scalpel through a single layer of parietal peritoneum which gains entrance to the greater peritoneal cavity. Opening of the peritoneal cavity with such ease is by far the most common occurrence, but the report of the following case represents an uncommon condition that I wish to bring to the reader's attention.

On September 10, 1930, a male patient, age 22 years, was admitted to the University of Maryland Hospital, Baltimore, complaining of acute abdominal pain. There was little question as to the diagnosis of acute appendicitis. Consequently the patient was prepared for operation. The incision was similar to the one described above. Upon reaching the parietal peritoneum a small nick was made through a single layer of parietal peritoneum. The attempt to pick up the caecum in the usual manner, behind this layer of peritoneum failed because there was a second layer of peritoneal covering lying ventral to the abdominal viscera. Investigation showed what appeared to be a small pocket of peritoneum that did not communicate with the larger peritoneal cavity. The lining of this smaller pocket was smooth and glistening and gave all the gross appearances of a mesothelial surface. This pocket extended from a distance of two and one-half inches above the level of anterior superior iliac spine down to the region of the abdominal inguinal ring. A second incision was made through the peritoneum lining the medial wall of this pouch. Following this we encountered no difficulty in entering the larger peritoneal cavity. In approximating the peritoneum particular care was taken to close and obliterate the peritoneal pouch.

In the Department of Gross Anatomy, University of Maryland, 66 bodies were dissected during the past scholastic year. A first year student in dissecting one of the bodies (a male subject) found a condition similar to that described above, existing on the left side of the abdominal cavity. It lay along the ventro-lateral surface of the descending colon extending from a point about two inches above the level of the left anterior superior iliac spine down to the region of the left abdominal inguinal ring. The lining surface of this small pouch was also smooth and glistening and did not appear unlike the one found at the operation.

In all probability these apparent peritoneal pouches represented in Fig. 1 and Fig 2, have some relation to the descent of the testicle. It is not my purpose to discuss this phase of the question. I only hope that knowledge of the existence of such an anomaly will be of benefit to anyone who meets the condition during an operation in which a similar method of approach is used.

MALPIGHI, 1628-1694

THE ROLE OF CHEMISTRY IN MEDICINE*

By John C. Krantz, Jr., Ph.D.

Baltimore, Md.

In the summer of 1526 the city of Basel was stirred to enthusiasm by a report that the great miracle-worker and physician was coming to town. It was Paracelsus—the great doctor. Paracelsus[1] was not a creative genius, nor a patient investigator but a timely iconoclast—he annihilated the superstitious writings of his predecessors and exalted nature and experimentation to lofty heights. He was convinced that the alchemy of his day, which had for its purpose the transmutation of the baser metals into gold and the search for the philosopher's stone, was futile. In his cocked-sure, bombastic style he thundered—the purpose of chemistry is not to make gold, but to prepare medicines. This immortal rebel sounded the death-knell of the charlatanism and quackery of alchemy and enlisted for the ranks of medicine the dynamic science of chemistry.

Two hundred and fifty years later, our scene has changed to another portion of Europe—Paris, 1772, in the laboratory of Antoine Laurent Lavoisier—the father of modern chemistry—another rebel. Prior to the epoch of Lavoisier the view held by the scientific world regarding combustion was superficial and unsound. It was the phlogiston theory.

Lavoisier resolved that if this mysterious phlogiston existed he would get it out of the air and weigh it. He was a man with a sense of quantitative exactitude. Lavoisier was the very embodiment of the words of Lord Kelvin, "When you can measure what you are speaking about and express it in numbers you know something about it, when you cannot express it in numbers, your knowledge is of a meagre and unsatisfactory kind." By placing the proper emphasis upon careful weighing and precision in experimentation, he showed that sulphur and phosphorus when burned in air increase in weight. The phlogiston theory was doomed. These substances had combined with

* An address delivered at the 13th Annual Conference of Health Officers and Boards of Health of Maryland, May 8, 1931.

the oxygen of the air. But what about breathing. Here Lavoisier made his profound contribution to medical science. He showed that breathing was a form of combustion and that oxygen was that constituent of the air which was responsible for this vital process. This chemist explained how the purple venous blood became oxygenated by its passage through the lungs. He had explained the physiology, or in our more modern parlance, the physiological chemistry of the pulmonary circulation so effectively described by Servetus.

Lavoisier was an "architect of progress"[2]—he was one of those rare individuals who has been described as having "the simplicity to wonder, the ability to question, the capacity to generalize and the power to apply."[3] However, he was living in a time when France was torn asunder by the terror of the revolution. Lavoisier was an aristocrat. On May 2, 1794, he was brought to trial before the Revolutionary Tribunal. The frenzied maniacs shouted "Guilty! the Republic hath no need of savants." Lavoisier was guillotined fourth in a long line of twenty-eight—the horrors of which are so vividly described in "Dicken's Tale of Two Cities." "It took but a moment," wrote the philosopher Lagrange, "to cut off this head, but another like it cannot be produced in a hundred years."

Across the Franco-Prussian border a decade later we visit the apothecary shop of Cramer, the Royal Pharmacist at Paderborn—his apprentice is the immortal Frederich Wilhelm Adam Serturner. The boy is twenty years of age. He is experimenting with the dried juice of the "Papaver Somniferum"—opium. By experimentation on dogs, Serturner produced evidence which was unequivocal, that the gums and resins in opium would not produce narcosis. They were practically inert. He further isolated from opium the crystalline alkaloid morphine and showed that the medicinal virtue of the drug was dependent upon this crystalline principle, the first alkaloid ever isolated from a drug, "morphine." In recognition of the distinguished service of this humble apothecary, it is fitting to note, that in 1821 the two-mark German emergency bank notes bore the picture of Serturner and his birthplace. It would be presumptuous to elaborate upon the inestimable value of morphine in the practice of medicine to this audience. One hundred and twenty-five years later the medical practitioner would be seriously handicapped without this dependable therapeutic agent, morphine, in his armamentarium.

However, there is another contribution which Serturner made to the practice of medicine. Each person who has followed the trend of medical literature during the past decade will observe that the discovery of insulin lent a tremendous impetus and revival of interest to the chemistry of the hormones. A similar condition obtained following the discovery of Serturner. He had laid the foundation of alkaloidal chemistry. He was an inspiration to the pharmacists Caventou, Pelletier and Magendie who shortly after the work of Serturner isolated emetine, strychnine, quinine and caffeine. Within a span of 103 years fifteen potent alkaloidal therapeutic agents were isolated from various drugs, all of which today occupy a prominent place in the national pharmacopoeias of the world.

Let us enter now another vista of chemical endeavor. The setting is Liebig's laboratory[5] in Giessen. The year is 1832. Liebig had been an apprentice to an apothecary in Heppenheim. One evening the entire shop was rocked by a violent explosion resulting from one of the experiments of this tireless searcher for truth. He had graduated from the University of Bonn and at the youthful age of twenty-one he was appointed a professor at Giessen. Here medicine and humanity alike were to have sown the seed of one of their greatest benefits. It was here in Giessen that Liebig prepared chloral hydrate the first synthetic hypnotic drug. Thirty-seven years later Liebreich discovered these properties of Liebig's new compound. Since the production of this first hypnotic drug, the workers with drugs have realized that there are more humane and safer methods of producing sleep than arresting the brain cells by a blow with a mallet, and consequently the number of hypnotic drugs has rapidly increased.

So successful have been the efforts of chemistry in this field that today the medical practitioner has at his disposal a formidable list of dependable hypnotic agents. The mercaptan derivatives sulphonal and trional introduced into medicine by Baumann and Kast in 1888 and the malonyl urea derivatives such as barbital, studied by Mering and Fischer in 1902 and the newer derivatives of this series such as phenobarbital, allonal and amytal. It is of special interest to note that the injection of the latter series of drugs in the form of their sodium salts produces general anesthesia. The medical practitioner may feel assured that as research continues in this field, in the near future chemistry will produce the ideal non-toxic, non-habit-forming

and dream-proof hypnotic to quiet the wholesale insomnia of this highly competitive age.

In the middle of the seventeenth century Anthony Leeuwenhoek[6] used a simple microscope and with it examined a drop of water taken from the canal at Delft. For the first time in the history of the world had men eavesdropped upon these strange objects of life — micro-organisms. Friends and enemies of man. Two hundred years later in the General Hospital in Vienna[7] the first effective effort was made to halt these microbes in their ravages of disease. In a certain obstetrical ward in the hospital puerperal fever took a high toll among the mothers. Expectant mothers begged in tears not to be taken to this death chamber. Usually in critical situations, brilliant minds appear on the scene to meet the emergency. This principle was exemplified in this instance, in the person of Ignaz Semmelweiss, a keen observing young physician. He showed that clean hands could carry germs. He demonstrated that the physicians carried infection from the department of pathology to the obstetrical ward. This pioneer required each physician before delivering a mother to wash his hands in chlorine water. In one year, the number of deaths in this ward dropped from 459 to 45.

This brilliant investigator had opened the field for Koch and Lister. But until the turn of the last century the only germicidal agents in general use were mercuric chloride, phenol and iodine discovered by the French apothecary Courtois in 1811. In the last three decades the rise of synthetic chemistry has given medicine dependable therapeutic agents for use in combating disease.

In 1910 came the announcement of Paul Ehrlich's arsphenamine and later neoarsphenamine: a triumph in modern chemical synthesis. These powerful treponemicides have made it possible for the medical profession to effectively combat syphilis and have been of inestimable benefit to humanity.

In 1858 David Livingstone,[8] that great explorer and missionary, suggested the use of arsenic in the treatment of African sleeping sickness or trypanosomiasis. Since this time many different types of dyestuffs and arsenicals have been employed in the treatment of this disease. Breinl[9] in 1908 used tartar emetic and the same investigator with Nierenstein[10] about a year later employed p-amino-phenyl-stibinic acid. Chemistry scored another triumph of transcending im-

portance when Abel and Rowntree[11] prepared antimony thioglycollamide and antimony sodium thioglycollate. These drugs in a period of two decades have shown their efficacy in the treatment of this serious malady.

Inspired by the success of Ehrlich—the idea of combining germicidal metals with dyes became quite prevalent. It was considered by J. Geraghty of this city in 1912 and studied experimentally by H. A. B. Dunning over a period of some years. In 1917, E. C. White[12] of the Brady Institute of the Johns Hopkins Hospital under the direction of H. H. Young began the series of experiments on the introduction of mercury into dye molecules which resulted in the announcement of dibromoxymercurifluorescein or mercurochrone in 1920. Later followed the announcement of hexylresorcinol[13] in 1925 and this has been followed by other useful and potent antiseptics such as metaphen and merthiolate. Yet with all of these newer antiseptics—the field is far from exhausted and the work cannot be discontinued until the "Therapia Sterilisans Magna" of Ehrlich has been synthesized for the treatment of blood-stream infections.

There has been no more important or fruitful field of investigation opened in recent years than that of the chemistry of the products of the glands of internal secretion. As early as 1891 Brown-Sequard[14] wrote, "The internal secretions, whether by direct favorable influence, or through the obstacles they oppose to deleterious processes, seem to be of great utility in maintaining the organism in its normal state." More recently, Lewellys Barker[15] remarked, "We are the victims and beneficiaries of our endocrine systems."

In 1895 Oliver and Schaefer[16] observed the presser action of extracts of the suprarenal glands. However, it was the classic researches of Abel[17],[18] in chemistry which led to the isolation of the active principle of the glands by Takamine[19] in 1901. But chemistry can create as well as extract and in 1904 Stolz[20] achieved the independence of man and succeeded in synthesizing this gland principle.

The next great stride in endocrine therapy was achieved again by the science of chemistry. It was the isolation of thyroxin by Kendall[21] in 1916 and this in turn was synthesized by Harrington[22] of England in 1926.

The isolation of insulin by Banting and Best[23] in 1922 was accomplished by the application of chemical methods to medicine. The

active pancreatic extract prepared from a degenerated enzyme-free pancreas pointed the way. By the inactivation of the pancreatic enzymes by means of aciduated alcohol the hormone insulin was extracted in its active form. By the application of chemistry to medicine these investigators avoided the pitfalls of the workers of a third of a century and gave the physician a drug which in its dependability of therapeutic activity is second to none in our modern materia medica.

No account of the hormone insulin is complete without mention of the isolation of the crystalline hormone by Abel[24] in 1926. Abel[25] and his associates have assigned the empirical formula $C_{45}H_{69}O_{14}N_{11}S.3H_2O$ to this molecule.

Furthermore in 1931 Swingle and Pfiffner[26] succeeded in isolating the adrenal cortex hormone and laid the way for the control of Addison's disease.

The chemical studies of Abel and Rouiller[27] in 1922 led to the separation of the principle of the posterior pituitary body in a comparatively pure form. In 1927 Kamm[28] and his associates after an exhaustive study of the principle of the posterior lobe showed by definite chemical methods that this principle consisted of one principle which acted as a pressor "Vasopressin" and another which acted upon the uterine muscle "Oxytocin." This work pointed out the secretion of two hormones from one lobe of a gland of internal secretion.

In 1776 Theophile de Bordeau published his observations on the Medical Analyses of the blood. He believed that secretions absorbed by the blood determined the sex life of the individual. Without the methods of precision of chemistry his work remained speculative. It was, however, an early precursor of the work of Allen and Doisy[29] in 1924 and Zondek and Civeyk[30] in 1930 who by the application of chemistry to medicine succeeded in isolating the female sex hormone in a crystalline form from the urine of pregnant women. Incidentally these workers have developed through this discovery the first dependable diagnostic test for pregnancy.

Time will not permit me to speak of the fundamental researches of the Curies, the phthalein diagnostic dyes used by Rowntree, Geraghty and others, the brilliant researches of Donald Van Slyke, Folin and Levene in the application of physical chemistry to medicine. Enough has been said to show that the fundamental researches of

chemistry have contributed much to bringing about a medical metamorphosis. It is a change from estimation to measurement, from empiricism to exactitude, and from supposition to basic fact.

Huxley in his Romanes Lecture on Evolution and Ethics stated, "The ethical progress of society depends, not on imitating the cosmic process, still less on running away from it, but on combatting it." The spirit of Huxley's remark is the spirit of modern chemistry.

Bayliss, the great British physiologist, said, "As physiologists our task is to refer as far as we can all phenomena of life to the laws of chemistry and physics." The future of medicine lies in the hands of the science which treats of the structure of matter and the changes it undergoes.

The spirit of Paracelsus goes marching on.

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CHRONIC ENDOCERVICITIS

By William S. Gardner, M.D.

Baltimore, Md.

The problem of Chronic Endocervicitis is an old one, and too frequently its importance is minimized. The patient generally complains only of an annoying vaginal discharge. As a rule very little pain is caused by the condition. A few will have slight irregular bleeding due either to an erosion of the cervix or to mucous polypi, both of which are direct consequences of the endocervicitis. The most frequently occurring removable cause of sterility is the plugging of the cervical canal by the thick muco-purulent discharge from the infected glands. Cancer of the cervix perhaps always is preceded by an endocervicitis. It is very probable that the occurrence of cancer at this point has a very definite relation to drainage; because it has been noted that cancer is extremely rare in cases where the cervix is prolapsed beyond the vaginal orifice, but develops in a cervix which for a long time has been macerated in its own secretions and in that of the vagina.

It is perfectly possible that infections in the cervix may give rise to disturbances in other parts of the body, such as result from infected tonsils and infections around the roots of teeth; but in my experience such disturbing focal infections are rarely found in the cervix. The explanation is that while an infection is present and very persistent, there is always a possibility of drainage from the infected point through the cervical canal.

The control of the cervical discharge, the relief of sterility and the clearing up of a possible precancerous lesion are ample reasons for giving serious attention to the treatment of this apparently minor condition of chronic infection of the cervical canal. The treatment is made difficult because the infection extends into the branched glands which penetrate deeply into the muscularis of the cervix.

In most cases the external os is patulous; but in some it may be contracted to such an extent that drainage is obstructed. In such

cases the external os can be dilated easily by Hegar's dilators, the drainage improved and the infected canal made more accessible.

Before attempting any treatment the thick, tenaceous discharge which blocks up the cervical canal must be removed. It can not be wiped out and few solvents have any effect on it. The easiest way to remove it is to insert a small amount of powdered caroid on a cotton covered applicator. Allow this to remain a few minutes when the discharge liquifies and is readily removed.

Glycerine tampons promote drainage, but have little direct influence upon the infection.

Local applications to the erosion about the external os and up into the cervical canal are necessarily superficial and do not penetrate into the infected glands. In some of the milder cases applications of Churchill's Tincture of Iodine or pure Carbolic acid are efficient, but in a majority of the cases the results are very unsatisfactory.

For long standing, severe infections we have no treatment that compares with the properly used cautery. The cautery is a very powerful therapeutic agent and is capable of doing both good and harm. If too large a cautery is used, or too much heat applied the contractions of the resulting cicatrix produces a cervical stenosis which presents a formidable obstruction in labor. But if a proper cautery is used carefully the infected glands can be penetrated, sterilized and drained without material damage to the cervix. After cauterization there is very little need for further local treatment, but several weeks will elapse before the cervix returns to a normal appearance.

Among seventeen hundred cervices cauterized by Graves and his associates not a single one has developed a cancer.

ELISHA KENT KANE—THE ARCTIC EXPLORER

By Randolph Winslow, M.D.

Baltimore, Md.

In looking over the minutes of the Medical and Chirurgical Faculty of Maryland of June 4th, 1857, my attention was arrested by the following item, to wit: "Dr. Crane moved the following:

"Resolved, That the Faculty have heard with regret, since its last meeting, of the death of Dr. E. Kent Kane.

"Resolved, That in the death of Dr. Kane the profession has lost one of its most distinguished members and science a brilliant ornament.

"Resolved, That the Faculty tender its sympathies to the family and friends of Dr. Kane and that the Secretary be instructed to forward to the same a copy of these resolutions.—Adopted."

My interest in Dr. Kane was aroused, not only by this unexpected testimonial to a distinguished member of our profession, but from the fact that he was a near relative of my wife, and was the groomsman of her father on March 24, 1852. On that occasion he ordered a coach and four to take the bride and groom from the Schuylkill Arsenal, in Philadelphia, to their home at Lapidea, in Delaware County, Pa., to the great disgust of the groom, but with the corresponding elation of the bride. Dr. Elisha Kent Kane was born on February 3rd, 1820, in Philadelphia, of distinguished lineage. His father was John K. Kane, a lawyer and subsequently Judge of the U. S. District Court for the Eastern District of Pennsylvania. His mother was Jane Duval Leiper, daughter of Thomas Leiper, of Philadelphia, who raised the first City Troop of Cavalry for Continental service during the Revolutionary War, which is said to have served without pay, or at least to have donated their compensation to founding a lying-in department at the Pennsylvania Hospital. Elisha was a high strung boy, who rebelled at authority and who was more apt with his fists than he was with his books. He was considered a rather "unpromising school-boy," but he early developed an interest in minerals and chemistry and other scientific studies and thus laid

E. K. Kane

ELISHA KENT KANE AT THE AGE OF 36.

the foundation for his subsequent distinguished career. He determined to become a civil engineer and entered the University of Virginia with the intention of preparing himself for that profession. He remained at this institution a year and a half when in his 18th year he was seized by an attack of acute rheumatism with endo-

FROM PHOTOGRAPH OF PORTRAIT BY THOMAS SULLY.

THE HON. JOHN K. KANE, FATHER OF DR. KANE.

FROM PHOTOGRAPH OF PORTRAIT BY THOMAS SULLY.

JEAN DUVAL LEIPER KANE, MOTHER OF DR. KANE.

carditis, which compelled him to terminate his collegiate studies. After a long illness he recovered but his heart had become affected and he was obliged to give up the idea of being a civil engineer and, instead, turned his attention to the study of medicine in order that he might manage his own case. Accordingly he entered the Medical School of the University of Pennsylvania, where he pursued his studies with great zeal and enthusiasm. While still an undergraduate he was installed one of the Senior Resident Physicians at Blockley and while

here made original investigations that gained him great reputation in this country and abroad. He received the degree of Doctor of Medicine at the Commencement in 1842 and soon thereafter was accepted as an Assistant Surgeon in the U. S. Navy by the Board of Medical Examiners. In May, 1843, he sailed with the mission to China as the physician to the embassy. Their first stop was at Madeira; thence they sailed to Rio de Janeiro, where they arrived just in time for the coronation of Don Pedro as Emperor of Brazil, at which they were guests. While in port he made a trip to the Eastern Andes, where he made interesting observations of the geological formations of that area. Leaving Rio they sailed around the Cape of Good Hope and proceeded to Bombay. Mr. Cushing, the Commissioner, was detained by the burning of the steamship on which he had sailed and did not reach Bombay for some months. While awaiting the arrival of the Commissioner, Dr. Kane made extensive tours in India and visited many places of interest. He is said to have traveled by palanquin, which was a kind of litter or couch borne on the shoulders of men, by means of long poles. Having still time at his disposal, he next visited Ceylon and was given the opportunity of going into the interior and of indulging in an elephant hunt and of enjoying other jungle sports. Leaving Ceylon, the legation continued its voyage to Macao, where the negotiations were held and where they were concluded in July, 1844. However, he did not remain idle during the six or seven months of the negotiations but obtaining the consent of Mr. Cushing, the Commissioner, he crossed the China Sea to Luzon, where he made extensive observations of the country. At this time Manila had a population of 140,000 and while the western part of the island was under the government of Spain, the eastern section was in possession of independent savages. Dr. Kane crossed the island to the Pacific Coast, explored its fastnesses, bathed in the sacred waters of its asphaltic lake and at great peril to his life descended into the crater of the Volcano Taal, by means of a bamboo rope, 200 feet in length, and obtained specimens from the smoking lake. But the return was more difficult than the descent, as he was almost overcome by the sulphurous fumes and his shoes were almost burnt off his feet by the hot ashes. However, he succeeded in tying the bamboo rope around his body and was hauled to the top in an almost unconscious condition. He was taken to a neighboring hermitage, where he recovered from the effects of his

adventure. On continuing their journey, they were attacked by a mob of pygmies and were rescued with difficulty by some of the padres. He returned to Macao but when the embassy left, in August, 1844, he remained behind and going to Whampoa he engaged in practice until he was stricken with a fever, after recovering from which he resolved to return home. He sailed in January, 1845, and in February was in Singapore and while here he, doubtless, made excursions into Borneo and Sumatra, as he mentions having visited these islands in his history of the First Grinnell Expedition. Continuing his journey we find him in India, where some months were expended in an exploration of the interior, including an ascent of the Himalaya Mountains. While in India he became acquainted with a wealthy noble, who was about to go to England to visit the Court of Queen Victoria. He attached himself to the suite of this Prince and they traveled through Persia and Syria and reached the shore of the Mediterranean in April, 1845. Arriving in Egypt, the Pasha Mehemet Ali gave him a special firman for his protection and he embarked on a boat for a trip up the Nile. He visited Thebes and Karnak and viewed with wonder the great temples and other ruins of antiquity to be found in those regions. He here met with a great loss. Intending to make an excursion on the morrow he had his boat drawn up to shore and his baggage placed on a platform of boards, one end of which rested on the shore and the other on the boat. He slept on the shore and when he awoke the boat was not to be seen. It was found two miles down stream but his trunks had entirely disappeared. Whether this was due to the rise of the stream or to theft by some of the boatmen is not known. He subsequently discovered his watch chain around the neck of his interpreter and after a struggle recovered his watch. He was, however, devoid of jackets, boots and pantaloons. He had been wounded in the leg in a fracas with a party of Bedouins, who also attempted to rob him and he returned to Alexandria and put himself under surgical treatment. Here he was attacked with the plague, which nearly cost him his life. Recovering from this disease, we find him in Athens on June 10th, 1845. He made the tour of Greece on foot and visited most of its classic scenes, thence he went by steamer to Triest and traveling through Switzerland and Germany he reached Paris on July 13th. During the winter of 1845-6 we find him at home in Philadelphia and attempting to establish himself as a physician, but not for long,

as the War with Mexico was now impending and he offered his services to the Navy Department. He was, therefore, assigned to the frigate United States which was ordered to the coast of Africa. This was not to his liking but he accepted the service and in due time reached the Coast. He here obtained permission to go with a caravan to visit the King of Dahomey, who was ruling in barbaric splendor in the interior. In less than three months he was prostrated with "Coast fever," which was exceedingly severe and he was sent home an invalid. After a prolonged illness and before he had fully recovered he applied for service in Mexico and he was sent on a special mission, bearing dispatches to the Commander-in-Chief. On November 23rd, 1847, he sailed from New Orleans for Vera Cruz and encountered very severe weather on the Gulf, but almost by a miracle they reached their destination. Remaining only one night at Vera Cruz and accompanied by a party of officers, who were hurrying to overtake their regiments, they pushed on into the interior. The City of Mexico had been captured by the Americans but bands of Mexicans had seized the mountain passes and had rendered communication with the Coast difficult. Dr. Kane decided to accompany a company of Mexican Guerillas, who were serving under the American flag. On the 6th of January, 1848, they encountered a body of loyal Mexican troops, who were escorting a number of officers to Orizaba. A short but severe fight occurred and the Mexicans were put to flight and two generals, a colonel and two captains, with 28 soldiers were made prisoners. Dr. Kane was seriously wounded in this fight but he attended to the wounded foemen. The renegade Mexican allies determined to kill the officers who had been taken prisoners but Dr. Kane intervened and at the risk of his own life saved the captives. He was taken to Puebla where General Gaono, one of the prisoners, lived, and he was nursed back to partial health by the ladies of the household, at his princely residence. On February 18th, he set out for the City of Mexico, which he reached in due time but when there he was declared to be unfit for duty and was ordered home. He was an invalid in Philadelphia for the rest of the year but in January, 1849, he was attached to the store-ship Supply and soon sailed for Lisbon, the Mediterranean and Rio de Janeiro. During this voyage he had an attack of tetanus for which he was bled to the amount of 40 ounces and took 22 grains of opium and he recovered. In October, 1849, he was again at home, recuperating. In 1850 he joined the

SIR JOHN FRANKLIN, R.N.

coast survey and in May of that year we find him located on Mobile Bay and enjoying the mild temperature and fragrant breezes of that region; but on the 12th of that month he received a telegram detaching him from the Coast Survey and ordering him to proceed to New York for duty upon the Arctic Expedition, which was being fitted out to search for Sir John Franklin of whom nothing had been heard for nearly five years. This expedition was fitted out by Mr. Henry Grinnell, of New York, who offered two small hermaphrodite brigs to the Government, the Advance of 144 tons and the Rescue of only 91 tons. The officers and crew were detailed from the Navy for this service and were under the command of Lieutenant Edwin J. De Haven, U. S. N. Dr. Kane was assigned to the Advance as Senior Medical Officer. De Haven, when he saw Dr. Kane, was adversely impressed with his physical qualifications but he had no time to secure another surgeon; however, it was not long before he had occasion to change his mind in regard to the Doctor's abilities, both mental and physical. The vessels sailed from New York on May 22nd, 1850, and on July 8th were at Upernavik, Greenland, and soon thereafter were locked in the ice in Baffin's Bay. After 21 days imprisonment they succeeded in passing the ice barrier and in getting into open water and thence sailed into Lancaster Sound, where they found several English expeditions that were also seeking to find Sir John Franklin, or at least to ascertain his fate. The combined efforts of the several ships did discover traces of the lost explorers, such as three graves with marked head stones, remains of camping places and various cast off objects but did not obtain definite information as to their fate. On September 10th, the six British ships and the two Americans were all assembled at Griffith's Island, the way to the west completely shut out. Winter was now approaching and Captain De Haven determined to try to return home but in a few days the ships were imbedded in the ice and were forced completely out of the water and drifted with the wind and currents for the next nine months. Dr. Kane kept a detailed account of this expedition and was its historian as well as surgeon and scientific observer. On June 8th, 1851, the ice broke and the ship was floating free in water once more; the other vessel, the Rescue, had become free the day before. In nine days they reached Godhaven, Greenland, where they recuperated for five days and then attempted to return to the north to continue the search for the Franklin adven-

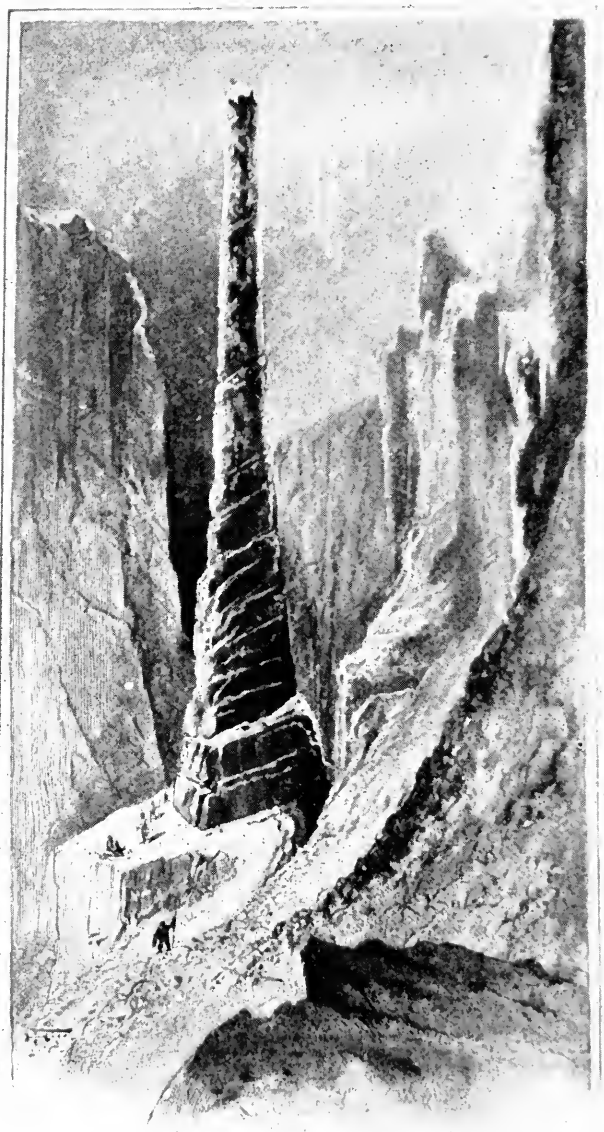
turers. The ice barrier proved to be impassable and they returned to the little settlement of Proeven, where they spent the 4th of July. They made additional efforts to return to Lancaster Sound in July and August but, finding this impossible to accomplish, on August 21st the expedition headed homewards and reached New York on September 30th, 1851. Dr. Kane made many and interesting observations in the course of this voyage but the main object of the expedition was not attained; that was, the learning of the fate of Sir John Franklin and his companions. The most remarkable event of the Grinnell expedition was that the brigs became embedded in the ice in Wellington Channel and floated with the ice many hundred miles for a period of nine months and were finally released and reached home, without the loss of a single person. The remainder of the year and through 1852 he remained at home, writing his account of the United States Grinnell Expedition, lecturing and making preparation for his second Arctic voyage. Mr. Grinnell again loaned the brig Advance for the expedition and Mr. George Peabody contributed liberally towards fitting out the ship; the Smithsonian Institute, the Geographical Society of N. Y., the American Philosophical Society and many other scientific associations and friends helped in various ways. The Navy Department furnished ten men for the service and Dr. Kane himself was detached on special duty. The personnel of the ship's company consisted of 18 men, of which about seven were civilian volunteers. This second Grinnell expedition sailed from New York on May 30th, 1853, and on July 1st reached the settlement of Fiskernaes, Greenland, where needed supplies were obtained. Here also was secured a young Esquimaux hunter, named Hans Christian, and an interpreter named Petersen, whose services were of inestimable advantage to the expedition. Sailing from here the ship was fairly entered into the ice pack of Melville Bay by August 1st, where fogs and icebergs added greatly to the danger of navigation. For the next month storm and ice threatened them with destruction, but they pushed on towards the north until early in September they reached an indentation on the coast where they placed the ship and where it was eventually abandoned. They named this bight Rensselaer Harbor and from this location, about 78° 43′ north latitude, explorations were made in various directions. Of course, they found no indications of Sir John Franklin's party but they added greatly to the knowledge of the geographical and physical charac-

teristics of this part of the world. At this time they had a sufficient number of Esquimaux and New Foundland dogs to pull their sledges but most of these died in the course of the winter. Efforts were made to secure fresh meat by hunting and trapping but the approaching darkness rendered this a difficult procedure and the members of the expedition suffered much from scurvy. The cold was intense and the thermometers indicated a temperature from 60° to 75° below zero, outside the ship. Complete darkness enveloped them for several months, which was a period of inaction, and despondency, but with the reappearance of light, preparations were made for further explorations. On March 19th, 1854, the first party of explorers set off, dragging a heavily loaded sledge; 12 days later three of this group stumbled into the ship and said the remaining members were disabled at a distance and unless relieved promptly would soon perish. Dr. Kane immediately rigged out a sledge and placed Ohlsen, the least exhausted of those who had returned, in a fur bag and strapped him on the sledge. The rescue party consisted of ten men and after a gruelling march of 21 hours, in a temperature 49° below zero, reached the tent in which the four men were found with their limbs frozen. These men were carefully wrapped up in furs and were laid on the sledge and were in this manner brought back to the Brig, where two of them underwent amputation of parts of the feet and two others died in spite of all efforts to save them. One of these is said to have died of tetanus and the other of erysipelas. It is certainly remarkable that tetanus could have occurred amid the rigors of the Arctic zone and it causes one to question the accuracy of the diagnosis. On April 8th, they were surprised by a visit from some Esquimaux, who proved themselves to be adept thieves but who were soon converted into firm friends and were subsequently of the greatest service to the expedition. From these Esquimaux they were able to replenish their supply of dogs, which had been almost entirely exhausted by the death of most of the pack. Various expeditions were sent out and the coasts of Greenland were explored, as high as 81° north latitude, where they came to open water and supposed they had reached an open polar sea. Animal life was abundant and the sick were built up by the fresh food that was obtained, but the ship was still imprisoned in the ice and the prospects of its release were very slight. Dr. Kane, therefore, resolved to try to find English ships to the south, and with

much labor they dragged a boat many miles to open water, where they set sails and embarked. After a tempestuous voyage they accomplished nothing and were fortunate to return in safety to the brig. It was soon evident that the ship could not be released from the ice and Dr. Kane gave permission to those of his companions, who wished to do so, to leave the ship and attempt to escape to the south. Only eight of the party resolved to remain with the ship, while the remaining nine determined to try to escape. They set out on August 28 in high spirits, but were rescued by the Esquimaux and returned to the ship on December 12, broken down in health and dejected in mind. In the meanwhile the brig had been made habitable for the second winter's sojourn and friendly intercourse had been developed with the Exquimaux. The igloos or huts of the natives were small, low structures, entered through long tunnels, and heated by lamps. In one such habitation it is stated that while the outside temperature was 30° below zero, within it was 90° above. The natives of both sexes disrobed completely when enjoying the "Otium cum dignitate" of their own domiciles, but it is not stated whether their white visitors followed their example in this respect or not. During the dark and dreary winter season fresh meat was difficult or impossible to procure and scurvy afflicted most of the voyagers; Dr. Kane, however, found a considerable supply of which he availed himself, though his companions would not partake of this delicacy. The brig was overrun with rats, which when caught and cooked graced the Doctor's table and were eaten with relish by him. During the daylight an abundance of animal life was found and walrus and seals, reindeers and rabbits, bears and foxes and eider down ducks and other birds and eggs formed a large part of their food supply, but owing to other duties sufficient provision was not made for the winter season and they had to rely on salt pork, with its serious results. The second winter was a slough of despond for them, many of the men were disabled from frost bite and practically all of them were suffering from scurvy and for a long time Dr. Kane was, with the assistance of two or three others, the doctor, nurse, cook and scullion of the party. So well were these duties performed that no deaths occurred and with the return of the sun and the prolonged daylight, all of the sick gradually recovered. Seeing that nothing more could be accomplished in the search for Sir John Franklin and that they could not survive another winter marooned in the ice, Dr. Kane resolved to abandon the ship.

and to attempt to reach the settlements in Southern Greenland. Having made such provision as was possible, by renovating their fur clothing and packing food and other necessary supplies in the two whale boats, each 26 feet in length, which were placed on sledges, the party left the ship on May 20th, 1855, and after almost incredible effort reached open water on June 17th. They had been greatly assisted in their retreat by the Esquimaux, who supplied them with food to a large extent and who saw them depart with sorrow. On the way while crossing a "tide hole" one of the runners of a sledge broke through and it would have been lost but for the efforts of Christian Ohlsen, who passed a bar under the sledge and held it up until it could be pulled up on the ice. In some manner Ohlsen received an injury from which he died in three days. He was a strong man and a willing worker and his death was a great misfortune. Another untoward circumstance was the defection of Hans Christian, the young Esquimaux hunter, who became infatuated with a Hyperborean maiden and deserted his companions. The company, now reduced to 16 members, launched their boats on open water on July 19th, 1855, and after undergoing many vicissitudes and escaping from great perils reached Upernavik on August 6th, 83 days after leaving the ship. Here they were enthusiastically received and hospitably entertained and from here they sailed on a Danish brig, expecting to be landed at the Shetland Islands, but when they reached Godhaven they were met by the relief vessels under the command of Captain Hartstene, U. S. N., and with Dr. John K. Kane, a brother of Elisha's, on board, they transferred to the American ships and so reached New York on the 11th of October, 1855, after 30 months absence. An account of this relief expedition was published by Dr. John K. Kane in Putnam's Magazine in May, 1856. Two vessels, a steamer and a bark, after much difficulty, reached Etah, where they came in contact with the Esquimaux, who were the friends of his brother. They addressed the visitors as "Docto Kayen" and it was evident that they used this term as the generic name of the white men. One of the women apologized for her lack of attention and opened her clothes to show the Doctor that she was about to give birth to a child, which event took place almost immediately and an hour later she was up and attending to her duties as if nothing had occurred. I had the opportunity of meeting Dr. John K. Kane at the home of Mr. John H. Thomas, a distinguished lawyer of this city

who had married Miss Mary T. Leiper, an aunt of my wife, in honor of whom Dr. Elisha K. Kane had named a river in the Arctic regions. Dr. John Kane was particularly impressed with the uncleanliness of the natives both in their persons and in their habitations, which is not to be wondered at as they are never bathed from the time of their birth to their death. He said their villages reeked with foul odors, which could be detected at a long distance. From these people information was obtained that the members of the Grinnell expedition had started for the south. The object of the second Grinnell Expedition was the search for Sir John Franklin and in this respect it was a signal failure, as we now know that he was never near the regions in which Dr. Kane was ice-bound; but, Kane was an explorer and a scientific investigator and he added much to our knowledge of the geography and natural history of these inhospitable areas of the globe. He was the commander of the expedition and not its surgeon but owing to the disability of the official surgeon, Dr. I. I. Hayes, he also was compelled to render medical services to his sick and frost-bitten followers. That he, with a diseased heart, survived the rigors of two expeditions to the Arctic regions is remarkable. As he was entering Sandy Hook, he wrote the Hon. John P. Kennady, Secretary of the Navy, "We are back again safe and sound, after an open air travel by boats and sledges of 13 hundred miles," and upon another occasion he said, "My health is almost absurd; I have grown like a walrus." But Alas! this was not to continue. Almost immediately he began the compilation of his records into a two volume book, in which in almost faultless language he describes the trials, toils, dangers and discoveries and the scenic and scientific observations made by himself and his companions. This publication is profusely illustrated by drawings made by himself on the spot. One of these drawings is that of an obelisk 480 feet in height standing on a pedestal 280 feet high to which he gave the name of Tennyson's Monument. The poet was much pleased with this compliment and invited the author to visit him at his home in England, which invitation, however, the Doctor was unable to accept. After almost incessant work the book was finished in 1856 and the explorer-author in broken health sought recovery from disease in a trip to England. He sailed on October 10, 1856, just one year after his return from the Arctic seas. It is doubtful if he ever knew of the enormous popularity of his book, "Arctic Explorations: The Second Grinnell



DRAWN BY HARRY FENN, AFTER A SKETCH BY DR. KANE.

THE TENNYSON MONUMENT.

Expedition, in Search of Sir John Franklin, 1853, '54 & '55," the sales of which reached 65,000 copies in the first year and yielded the author $65,000 copyright compensation. Congress was tardy in recognizing his services but ordered a gold medal to be awarded, after his death, and then let the matter drop. The medal was never received by his family. The Legislatures of Pennsylvania, New Jersey and Maryland passed laudatory resolutions; the Legislature of New York voted him a gold medal and the Geographical Society of London did the same and conferred an honorary membership on him. The Queen's medal for Arctic explorers was also presented to him and a handsome testimonial was given to him by the British residents of New York City. He reached Liverpool on October 24 and thence went to London, but the fogs of this city so depressed him that he accepted the invitation of a Mr. Cross to become a guest at his house in the country, where he remained from the 2nd to the 17th of November. During his stay in England he was compelled to decline the attentions of his friends and admirers, but called once or twice on Lady Franklin and Mrs. Sabine and upon invitation visited the office of Admiralty. Acting on professional advice, he determined to seek a warmer climate and took passage for the West Indies on November 17, 1856. He reached St. Thomas on December 2nd and waited for a passage to Cuba until December 20th. While on the voyage to Cuba he was stricken with hemiplegia but did not lose consciousness and after landing he was considerably improved, but his arm remained paralyzed and his speech was imperfect. His mother and his two brothers, Thomas and John, joined him in Havana and remained with him to the end. He died on February 16, 1857, aged 37 years. His death was attributed to apoplexy, but I imagine it was due to embolism or thrombosis of cerebral vessels. His brother Thomas at that time bore the title of colonel and was subsequently a general in the Union army and his name is engraved on the Pennsylvania Monument at Gettysburg; the other brother, John, was Dr. John K. Kane, who had gone in search of Elisha to the Arctic seas only a year and a half previously and who became a prominent physician in Wilmington, Delaware. The Captain-General of Cuba, the Governor of Havana and many other official and private individuals rendered homage to the deceased, and upwards of 800 persons accompanied the body to the place of embarkation, whence it was conveyed to the ship Catawba, which sailed for New Orleans, where

it arrived on February 22nd, and where the remains were received with the highest honors and manifestations of respect. The funeral cortege now proceeded up the Mississippi River and the Ohio to Louisville, where ceremonies of a similar character were enacted; thence to Cincinnati where the remains were transferred to a train and conveyed to Columbus, where they remained over night. At every place at which the train stopped vast concourses of people were assembled and elaborate ceremonials were carried out and so, after three weeks of travel, Baltimore was reached on March 10th where great preparations had been made for the reception of the honored remains. The coffin was placed on a gun carriage drawn by four horses and proceeded from the Baltimore and Ohio Depot to the Maryland Institute on Baltimore Street. It was accompanied by local military companies and by a battery of U. S. artillery from Fort McHenry and by officers of the Army, Navy and Marine Corps, by the Mayor and City Council, by the clergy, by the medical profession, by the judges, officers of the courts and members of the Bar, by the officers and members of the Maryland Institute, by the Commissioners of the Public Schools, and by the Marine Band from Washington with 35 performers and by Lindhart's Band. The Masonic Fraternity also turned out in great numbers, as well as many other civic organizations. The pallbearers were twelve in number and consisted of two officers of the Navy and two of the Army and the Hon. John P. Kennady, former Secretary of the Navy; Hon. Thomas Swann, Mayor of Baltimore; Dr. J. R. W. Dunbar, Mr. Chauncy Brooks and other distinguished gentlemen also served in this capacity. Dr. Kane was an honorary member of the Maryland Institute and it was appropriate that his mortal remains should be received with great honor by this institution; here they were placed on a catafalque, where they remained over night and were visited by an immense number of people, and it is recorded that "Baltimore paid a just tribute to the memory of one who was worthy of her regard." The next morning the remains were removed to the P. W. & B. railroad depot whence a delegation accompanied them to Philadelphia. Here elaborate ceremonies were held and the body, accompanied by the surviving members of the second Arctic expedition and by military details, was placed in Independence Hall, where it remained until the next day; when, with most impressive ceremonies, it was conveyed to the church at which the funeral obsequies were held and thence to

Laurel Hill Cemetery where it was interred. Dr. Kane was a small man and is said never to have weighed more than 135 pounds. He was stricken with rheumatic fever when 17 years of age and his heart became permanently crippled, yet he accomplished Herculean tasks and though he succumbed at an early age he made an indelible impress upon his day and generation and one that will be remembered in days yet to come.

RANDOLPH WINSLOW
Prof. Surgery, 1902-1920

BULLETIN

OF THE

SCHOOL OF MEDICINE UNIVERSITY OF MARYLAND

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DOCTOR SAMUEL T. EARLE*

At our last annual meeting, the names of those members who had died during the preceding twelve months were read from this platform by Doctor Earle. At this year's meeting we must add his name to the list of those whose labors have ended. There have been few among us who have labored longer, whose services to our Faculty have been as loyal and devoted, few to whom we were as deeply attached, few whom we respected and loved as we did Samuel T. Earle. As physician, as operator, as teacher, as author, as consultant, we saw in him an able and an earnest man, a man who felt keenly the responsibility of his calling. Throughout an uncommonly long medical career of sixty years (he took his degree as doctor of medicine in 1870), he never swerved from the highest ideals of medical practice. With clear mind and sound judgment, with the knowledge gathered by unceasing study, with heart full of human sympathy and loving kindness, he enjoyed the highest respect and honor on the part of the community and of his professional colleagues. He belonged to that noble band who through the centuries have held high the standard of medical practice and to whom we owe it that in the words of the Son of Sirach:

> "The skill of the physician shall lift up his head
> And in the sight of great men he shall be admired."

* Remarks made in presenting his portrait to the Medical and Chirurgical Faculty of Maryland—April 29, 1931.

DR. SAMUEL T. EARLE

When we think of Samuel T. Earle, it is not only of his successful professional work, it is not only of the respect and the honor in which he was held, it is not only of his services to this Faculty and to the profession at large,—it is above all of his loyalty of friendship, of his buoyancy and vigor of body and of spirit, of his sweetness of manner and of speech, of his purity of character; it was these qualities that endeared him to us.

Our Faculty is an institution which is made up not only of all who are now its members, but also of all who since the founding of the Faculty have been its members. We have witness of this permanent membership in the portraits that adorn our walls. It is most fitting that the genial countenance of Doctor Earle should join that honored group. I deem it a great privilege to present his portrait as a gift of the family of our friend, to the Medical and Chirurgical Faculty, the portrait of one beloved by all who knew him.

HARRY FRIEDENWALD, M.D.

THE GRADUATION EXERCISES
1931

The graduation exercises for the Class of 1931 were held at the Lyric Theatre Saturday afternoon, June 6. Ninety-one graduates of the School of Medicine were addressed by the Hon. Charles A. Boston, President, American Bar Association.

The names of the graduates and the recipients of honors for the year follows:

Philip Adalman.....Md.
Howard Stanley Allen.....Pa.
David Holmes Andrew.....Md.
Thomas Morrison Arnett...W. Va.
Beatrice Bamberger.....Md.
Paul Canfield Barton.....Ohio
Eugene Irving Baumgartner...Md.
Henry Irving Berman.....Md.
William Carroll Boggs.....W. Va.
Arthur Talbott Brice.....Md.
Bernard Brill.....N. Y.
John L. Brill.....Pa.
Roy Lee Cashwell.....N. C.
Kenneth Lee Cloninger.....N. C.
Eli Contract.....Md.
Melvin Booth Davis.....Md.
William Maddren Dawson...N. Y.
Bernard W. Donohue.....Md.
Joseph Francis Drenga.....Md.
Harry Eckstein.....N. Y.
John Wesley Edel, Jr.....Md.
David Eisenberg.....N. Y.
R. Cooper Ernest.....Ohio
Samuel Feldman.....Md.
Arthur S. Feuer.....N. Y.
Ruth Foster.....Md.
Joseph Friedman.....N. Y.
Isadore Karl Grossman.....Md.
Donald Birtner Grove.....Md.
Rachel Krebs Gundry.....Md.
Marvin Ray Hannum.....W. Va.
Joseph William Harris.....Utah
Raymond F. Helfrich.....Md.
Reuben Hoffman.....Md.
Mark Buckner Hollander.....Md.
Kent Maidlow Hornbrook..W. Va.
Samuel Maurice Jacobson.....Md.
Frank H. Jaklitsch.....N. Y.
Carl Dana Fausbol Jensen..Seattle
Page Covington Jett.....Md.
Arthur Ford Jones.....Md.
Abraham Karger.....N. Y.
Max Kaufman.....N. Y.
Walter Joseph Keefe.....Conn.
Albert Kermisch.....Md.
John Frank Kilgus, Jr.....Pa.
Walter Kohn.....Md.
Jerome Leon Krieger.....Md.
Michael Krosnoff.....Pa.
Harry Lachman.....Md.
Harry Vernon Langeluttig....Md.
Alston Gordon Lanham....W. Va.
Philip F. Lerner.....Md.
Sidney Starr Leshine.....Conn.
David Robert Levine.....N. Y.
Paul Lubin.....Md.
Edgar Wade Mahan.....Pa.
Desiderius George Mankovich..Pa.
Thomas Adrian Martin.....Md.
John Henry Francis Masterson.N. J.
Leo Martin Meyer.....N. Y.
Clarence Fisher Morrison..W. Va.
Waldo B. Moyers.....W. Va.
Richard Lawrence Murphy..N. H.
Francisco P. Nocera, Jr.....P. R.
Leo Soloman Palitz.....N. Y.
Walter Owen Rehmeyer.....Pa.
John Peter Rhoads.....Pa.
Manuel R. Rodriguez y Ema..P. R.
Robert Franklin Rohm.....Pa.
Benjamin B. Rosenberg.....N. Y.
John Karol Rozum.....N. Y.
William Merven Seabold.....Md.
Emmanuel Aloysius Schimunek.Md.
Herman H. Seidman.....N. Y.
Christopher Campbell Shaw...Md.
Harry Sandberg Shelley.....Md.
Albert Joshua Shochat.....N. Y.
Arthur George Joseph Siwinski.Md.
Michael Skovron, Jr.....Pa.
Marvin Longworth Slate.....N. C.
Alexander Slavcoff.....Pa.
Solomon Smith.....Md.
Milford Harsh Sprecher.....Md.
Susanne Sterling.....Md.
Russell Alvin Stevens.....Pa.
Robert Bruce Taylor.....Pa.
William Alfred Van Ormer....Pa.
Edward William Warren....N. Y.
Harold Carter Whims.....N. C.
Henry Wigderson.....N. Y.

HONORS

University Prize Gold Medal.....Samuel Feldman

CERTIFICATES OF HONOR

David Robert Levine — Rachel Krebs Gundry
Leo Martin Meyer — Walter Kohn
Richard Lawrence Murphy

PRIZES

The Dr. Jose L. Hirsch memorial prize of $50.00 for the best work in pathology during the second and third years.....Samuel Feldman

The Dr. Leo Karlinsky memorial scholarship for the highest standing in the Freshman Class.....Max Needleman

The Dr. A. Bradley Gaither memorial prize of $25.00 for the best work in Genito-Urinary Surgery during the senior year, Christopher Campbell Shaw

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ANNOUNCEMENT FROM THE DEPARTMENT OF SURGERY

The University of Maryland announces the organization of a new division in the Department of General Surgery, that of Neuro-Surgery. Dr. Charles Bagley, Jr., will be Head of this Department with the title of Professor of Neuro-Surgery. Dr. Richard G. Coblentz will be associated with him with the title of Associate in Neuro-Surgery.

Dr. Robert W. Johnson, Jr., has resigned as Professor of Orthopedic Surgery. His resignation is a great loss to the University. He has been Head of the Orthopedic Department for two years, during which time he has reorganized the Department, built up a large dispensary, devoted a great deal of time to teaching and has endeared himself to all of his associates because of his kindliness and cooperation.

His position as Head of the Department will be filled by Dr. Allen Fiske Voshell, Associate Professor of Orthopedic Surgery at the University of Virginia and visiting Orthopedic Surgeon to the University of Virginia Hospital and Out-Patient Department.

Dr. Voshell received his Bachelor's degree from the Johns Hopkins University in 1915 and graduated in Medicine from the same School in 1919. He was House Officer and Assistant Resident Surgeon in Orthopedics at the Johns Hopkins Hospital from 1919 to 1921. He went to the University of Virginia as Instructor in Orthopedic Surgery in 1921, where he has been in charge of Orthopedic Surgery until the present time.

CHANGES IN THE TEACHING STAFF

Dean J. M. H. Rowland has announced the following changes in the teaching staff of the University of Maryland School of Medicine, for the year 1931-1932:

PROMOTIONS

W. H. Toulson.....From Clinical Professor of Genito-Urinary Diseases to Professor of Genito-Urinary Diseases

Nathan Winslow.....From Clinical Professor of Surgery to Professor of Clinical Surgery

Page Edmunds.....From Clinical Professor of Industrial Surgery to Professor of Clinical and Industrial Surgery

Walter D. Wise.....From Clinical Professor of Surgery to Professor of Clinical Surgery

Frank S. Lynn.....From Clinical Professor of Surgery to Professor of Clinical Surgery

Elliott H. Hutchins.....From Clinical Professor of Surgery to Professor of Clinical Surgery

Charles Reid Edwards....From Clinical Professor of Surgery to Professor of Clinical Surgery

Harry M. Robinson.....From Clinical Professor of Dermatology to Professor of Clinical Dermatology

J. Dawson Reeder.....From Associate Professor of Diseases of the Colon and Rectum to Clinical Professor of Diseases of the Colon and Rectum

Charles C. Habliston.....From Assistant Professor of Medicine to Associate Professor of Medicine

Ralph P. Truitt.....From Assistant Professor of Psychiatry to Associate Professor of Psychiatry

H. M. Foster.....From Associate in Surgery to Associate Professor of Surgery

Thomas B. Aycock.....From Instructor in Anatomy and Surgery to Assistant Professor of Anatomy and Associate in Surgery

O. G. Harne.....From Associate in Physiology to Assistant Professor of Physiology

A. H. Finkelstein.....From Instructor in Pediatrics to Associate in Pediatrics

Frederick B. Dart.....From Instructor in Pediatrics to Associate in Pediatrics

Eugene L. Flippin.....From Instructor in Roentgenology to Associate in Roentgenology

William Ellsworth Evans..From Assistant in Pharmacology to Instructor in Pharmacology

Frank J. Geraghty.....From Assistant in Pathology to Instructor in Pathology

NEW APPOINTMENTS

Charles Bagley, Jr.	Professor of Neuro-Surgery
Allen F. Voshell	Professor of Orthopaedic Surgery
Monte Edwards	Associate in Surgery
Richard G. Coblentz	Associate in Neuro-Surgery
E. S. Faison	Instructor in Pathology
Frank A. Pacienza	Instructor in Refraction
Hyman S. Rubenstein	Assistant in Medicine
Meyer Miller	Assistant in Gastro-Enterology
Samuel Morrison	Assistant in Gastro-Enterology
J. J. Leyko	Assistant in Surgery
Ernest S. Edlavitch	Assistant in Obstetrics
Harry A. Rutledge	Assistant in Pediatrics
Wallace Kendig	Assistant in Pediatrics
Elizabeth Sherman	Assistant in Pediatrics
Morris Fine	Assistant in Pediatrics
William G. Queen	Assistant in Pediatrics

VESALIUS

PROCEEDINGS

OF THE

University of Maryland Biological Society

Officers of the Society

Harvey Beck, M. D., *President* John C. Krantz, Jr., Ph.D., *Secretary*
O. G. Harne, A.B., *Treasurer*

The twenty-eighth Program Meeting of the University of Maryland Biological Society was held in the Assembly Hall of the Chemical Building, at College Park, Md., April 27, 1931.

The first address was by Luther A. Black, Ph. D., of the Department of Bacteriology of the University of Maryland. This paper consisted of a study of some of the factors affecting the growth of lactobacillus acidophilus. Dr. Black reported on an extensive investigation in which he had studied the various physical and chemical environmental conditions which influence favorably and unfavorably the growth of this micro-organism. One of the interesting features of Dr. Black's paper was the influence of the incubation of the organism in carbon dioxide atmosphere, and another concerned the influence of hydrogen-ion concentration upon the growth of the organism in agar. Although the data presented by Dr. Black, in many instances, were not conclusive, the paper showed that a great deal of interesting information had been gathered regarding the environmental conditions favorable for the growth of this organism.

The second paper presented was by Emil Schmidt, Ph. D., and T. Nelson Carey, M. D., of the Medical School of the University of Maryland. These investigators have been studying terminal hypoglycemia. They reported on a number of cases in which they had succeeded in determining the blood sugar prior to death and immediately after death, and possibly an hour or so after death. In a large number of cases reported of normal patients endocrinologically, these investigators found that shortly after death the blood sugar reached a very low level, possibly 40 to 60 milligrams per 100 cc. The investigators did not propose any theory to account for this unusual pre-

nomenon of terminal hypoglycemia. They, however, are continuing their investigation and hope to throw some light upon this intriguing metabolic phenomenon at death.

JOHN C. KRANTZ, JR.
Secretary.

The twenty-ninth Program Meeting of the University of Maryland Biological Society was held in the Lecture Hall, Department of Pathology, Baltimore, Md., May 12, 1931. Dr. F. A. Ries, of the Department of Physiology, University of Maryland, presented the results of an investigation carried on in conjunction with E. U. Still, Ph.D., and J. B. McBean, M.D., of the Department of Physiology, University of Chicago, entitled "Studies on Secretion of Bile," the gist of which was as follows:

Purified secretin solutions injected intravenously or the application of dilute hydrochloric acid solutions to the duodenal mucosa have a cholagogue action by virtue of stimulation of the hepatic cells. Purified secretin solutions increase the secretory pressure of the liver. These preparations of secretin* have a decided cholagogue action in animals which have been partially or completely eviscerated. There is no change in the vasomotor state of the liver. If the secretin preparations are treated with reagents which modify the pancreatic response the liver response is similarly affected.

JOHN C. KRANTZ, JR.
Secretary.

The thirtieth Program Meeting of the University of Maryland Biological Society was held in the Lecture Hall, Department of Pathology, Baltimore, Md., May 26, 1931.

The first paper, entitled "The Ganglion Mediastinale and Its Relation to the Innervation of the Thoracic Viscera," was presented by H. A. Teitelbaum, of the Department of Gross Anatomy, University of Maryland. In this paper Teitelbaum described a ganglion, not hitherto reported, which he had found while dissecting the thoracic viscera of three cadavers from the dorsal aspect. This ganglion is located in the mediastinum, to the left side, between the pericardium

* Still, E. U., American Journal of Physiology, Vol. 91, No. 2, January, 1930.

and the ventral wall of the oesophagus, just caudate to the left bronchus. It sends branches to the oesophagus, trachea, bronchi and both vagus nerves. Histological examination of one case revealed the presence of nerve cells. Although direct connections of this mediastinal ganglion with the sympathetic trunk have not been found as yet, its central location and the fact that a larger group of organs is innervated through its intermediation, would indicate that the mediastinal ganglion is a sympathetic ganglion similar to the coeliac ganglion in the abdomen.

The second address was delivered by John C. Krantz, Jr., Ph.D., of the Bureau of Chemistry, State of Maryland Department of Health. In this paper, entitled "The Influence of the Ingestion of Sodium Malate as a Dietary Substitute for Sodium Chloride," the speaker discussed various substitutes for table salt in diets of salt-restriction. After an elaborate investigation, including the study of about fifty-seven compounds, the speaker pointed out the possibility of the use of sodium malate as a dietary substitute for sodium chloride. Its saltiness was discussed, organoleptic tests were carried out to show its salty nature. The metabolism of the compound was studied in detail. Its toxicity was shown to be practically negligible.

Further, the action of sodium malate on the acid base equilibrium of the urine was studied. The influence of sodium malate upon gastric acidity was studied. It was shown that the ingestion of sodium malate causes a shift of the acid base equilibrium of the urine in the direction of the alkaline side. Furthermore, the ingestion of the substance causes a decrease in the hydrogen-ion concentration of the stomach.

John C. Krantz, Jr.,
Secretary.

ALUMNI ASSOCIATION SECTION

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The names listed above are our officers for the term beginning July 1, 1931, and ending June 30, 1932.

ANNUAL REPORT OF THE SECRETARY

The retiring Board of Directors was elected to office on June 5th, 1930, upon the recommendation of the Advisory Committee. Every one realized a tremendous task awaited him. You will recall that there was a report given at the last annual meeting of a rather large indebtedness. The majority of the retiring Board were newly elected members and had not personally served on this Board, so their first task was to become oriented. The first Board meeting was held at the Alumni House, 519 West Lombard Street, on June 13th, 1930. At this meeting the overhead expense of the corporation was considered and it was unanimously agreed by all present that the cost of operation of the cafeteria unit was above its income during the summer when there were no students in the school. The Executive Secretary, Mr. Harry E. Foulkrod, was therefore instructed to close it the following day. The advisability of keeping an executive secretary was also considered. Final action on this matter was deferred. The finan-

cial report was in such a muddle that further investigation was thought necessary. Another meeting was held on June 20th. At this meeting the committees met at the Rennert Hotel, had dinner, at the expense of the individual board members as they have at each succeeding meeting with one exception, at which time the members were entertained at College Inn, Westminster, Maryland, by Dr. Charles R. Foutz. Most of these meetings have lasted until midnight or later. At the meeting on June 20th different members were appointed on different committees; for example, Finance Committee, Budget Committee, Legal Committee, Purchasing Committee, etc. By this time we had learned that the corporation was insolvent and that we were owing a great deal of money, but we did not know just how much. Another meeting was held on June 30th and similar progress was made. On July 7th, a meeting was held and the advisability of continuing on with the corporation was considered since by this time we realized that the corporation was hopelessly insolvent. We had learned of at least $17,000.00 indebtedness over and above our assets. A meeting of the faculty was called at the Rennert Hotel and the situation put before them. The budget was submitted and it was felt by those present that we should continue on with the organization, provided the cost of operation did not exceed our income, since we had purchased the house and because of the depression the sale of it would not any where near pay off our indebtedness. Pledges were given and confidence in the Board was manifested. The Board met regularly once a week until the end of the year. The executive Secretary was dispensed with and we have maintained only one bookkeeper in the office since September 20th. By September we realized that our liabilities over and above our assets amounted to over $22,000.00. This amount had been incurred previous to the election of the retiring board. From time to time pledges were solicited from members who responded to the amount of $15,555.00, and of this amount, $13,661.00 has been paid. The activities of the association were put on concession during the year except for the students' rooms, which have been taken care of by the Alumni office. The net profit on these activities amounts of $2,027.67 out of a gross income of $9,340.64. From June 5th until September 30th, 1930, 18 meetings were held; since then the Board has met once each month. Before the close of last year, there was unusual enthusiasm manifested among the Board members to make an effort to clear up this indebtedness, but since

then, naturally, they have become somewhat tired of carrying the burden and have not shown all of the old time enthusiasm. Nevertheless, considerable progress has been made. Our records now show that our liabilities over and above our assets amount to $4,500.00. Approximately $1,850.00 is still owing on pledges. The office daily receives letters and telephone calls from creditors about old bills. There have been some who have threatened to put us in the hands of receivers. To offset this, on May 28th, the Board of Directors agreed to endorse a note personally to borrow $2,000.00 and satisfy some of these creditors. The entire year has been a question of finance and little has been done towards securing new members or helping individual students and student activities. It is hoped by the Secretary, that when the present financial condition of the Association is overcome, the newly elected board will be able to carry on activities towards promoting the interest and welfare of the school. As to the Spring Activities now in progress, there were approximately 3000 letters sent out, enclosing postal cards stamped for reply, and only 400 of this 3000 took the trouble to send back the stamped postal.

There are now in our files 1385 active members; 937 of these paid their dues in 1929-30 and 836 in 1930-31.

As Secretary of this Association, I wish to express my appreciation for the help rendered by the various members of the Alumni Association and the support given by the Board of Directors. In addition, I wish to express my appreciation to Miss Elizabeth Bond for the splendid aid which she has given in our office.

T. B. AYCOCK.
Secretary.

SPRING ACTIVITIES

The Spring activities commenced on the morning of June 4th, 1931, with registration at the Alumni House. The following, both from in and out of the city, registered:

Drs. Harvey A. Kelly, Winthrop, Mass.; A. B. Lyon, Ulster, Pa.; T. W. Seay, E. Spencer, N. C.; A. C. Palmateer, New York City; A. M. Burfoot, Fentress, Va.; Stuart M. Mann, Moyock, N. C.; Manuel Katzoff, Norfolk, Va.; Allen Graham, Cleveland, O.; Albert S. Harden, Newark, N. J.; Thomas M. Pascall, Newark, N. J.; Nicholas J. McCaul, Brooklyn, N. Y.; Timothy F. Cotter, Haverhill, Mass.; S. B. Sprague, Jersey City, N. J.; Michael J. Coffey, Newark, N. J.; Alfred Stahl, Newark, N. J.; John Shea, Bridgeport, Conn.; John V. O'Connor, Woonsocket, R. I.; C. F. Smith, Uniontown, Pa.; W. R.

Johnson, Baltimore, Md.; T. B. Aycock, Baltimore, Md.; I. M. Zimmerman, Williamsport, Md.; J. Roemer, Paterson, N. J.; W. H. Marsh, Solomons, Md.; Walter A. Shaw, Springfield, Mass.; N. T. Kirk, Washington, D. C.; W. B. Borden, Baltimore, Md.; Monte Edwards, Baltimore, Md.; Dayton C. Wiggin, Newark, N. J.; Geo. L. Broadup, Washington, D. C.; Geo. H. Stewart, Ottoman, Va.; S. A. Stevens, Monkton, Md.; H. E. Gillett, Ramsey, N. J.; W. P. Dailey, Steelton, Pa.; H. C. Hetrick, Lewisberry, Pa.; J. P. Miller, Grand Forks, N. Dak.; William J. Todd, Baltimore, Md.; Charles F. Russell, Herndon, Va.; G. R. Lee Cole, Washington, D. C.; A. W. Valentine, Washington, D. C.; Harry J. Bennett, Ebensburg, Pa.; Frank S. Lynn, Baltimore, Md.; Nathan Winslow, Baltimore, Md.; Arthur B. Glascock, Baltimore, Md.; A. H. Finklestein, Towson, Md.; Howard M. Bubert, Baltimore, Md.; William J. B. Orr, Washington, D. C.; Herbert A. Codington, Wilmington, N. C.; P. J. McLaughlin, Nashua, N. H.; E. M. Dailey, Dushore, Pa.; M. Paul Byerly, Baltimore, Md.; J. E. Poulton, Baltimore, Md.; Andrew J. McGraw, Taunton, Mass.; John F. Hogan, Baltimore, Md.; Leon P. Jankiewicz, Utica, N. Y.; Frederic V. Beitler, Baltimore, Md.; L. A. Crowell, Lincolnton, N. C.; Louis B. Henkel, Annapolis, Md.; Frederick S. Wolf, Baltimore, Md.; Boylston D. Smith, Omar, W. Va.; W. H. Triplett, Baltimore, Md.; Paul Eanet, Washington, D. C.; E. A. Cafritz, Washington, D. C.; J. M. Hoag, Baltimore, Md.; Randolph Winslow, Baltimore, Md.; C. Loring Joslin, Baltimore, Md.; John Evans, Baltimore, Md.; F. B. Anderson, Baltimore, Md.; F. J. Kirby, Baltimore, Md.; Geo. R. Patrick, Bessemer City, N. C.; J. L. Sowers, Lexington, N. C.; B. P. Herzog, Baltimore, Md.; Henry J. Walton, Baltimore, Md.; Jas. Herbert Wilkerson, Baltimore, Md.; Russell E. Blaisdell, Orangebury, N. J.; William W. Chase, Washington, D. C.; H. Alvan Jones, Baltimore, Md.; Cyrus F. Horine, Baltimore, Md.; Arthur F. Jones, Cumberland, Md.; James P. Wolfe, Montclair, N. J.; A. E. Goldstein, Baltimore, Md.; John F. Quinn, Bridgeport, Conn.; Christopher C. Shaw, Baltimore, Md.; Melvin B. Davis, Baltimore, Md.; Donald B. Grove, Cumberland, Md.; Eli Contract, Baltimore, Md.; S. Schwartzback, Washington, D. C.; George M. Settle, Baltimore, Md.; G. Milton Linthicum, Baltimore, Md.; Chas. R. Foutz, Westminster, Md.; Leo T. Brown, Washington, D. C.; Ernest Spencer, Jr., Baltimore, Md.; Geo. R. Curry, Reading, Pa.; Roy F. Helfrich, Baltimore, Md.; W. Merven Seabold, Baltimore, Md.; Harry Eckstein, Brooklyn, N. Y.; David S. Eisenberg, New York City; Emmanuel A. Schimunek, Baltimore, Md.; Albert J. Bossyns, Baltimore, Md., and Walter Stevenson, Quincy, Ill.

Following registration, a complimentary luncheon was given at the University Hospital; about 125 attended this luncheon. At 2 P. M. the annual meeting was held. A report from the President, the Chairman, the Treasurer, and the Secretary was made, subsequent to this the Chairman of the Advisory Committee made the following nominations for the coming year:

Dr. Albert E. Goldstein, President; Dr. Alfred T. Gundry, Dr. Allen Graham, and Dr. A. W. Valentine, Vice-Presidents; Dr. W. Houston Toulson, Treasurer; Dr. T. B. Aycock, Secretary; Dr. Kenneth Boyd, Assistant Secretary; Board of Directors, Dr. John Evans, Chairman; Dr. T. B. Aycock, Dr. Kenneth Boyd, Dr. W. H. Toulson, Dr. Harry M. Stein, Dr. F. B. Anderson, Dr. C. R. Foutz, Dr. Charles R. Edwards, and Dr. A. E. Goldstein, members; Advisory Committee, Dr. Wm. H. Triplett, Chairman; Dr. Edgar Friedenwald, Dr. A. Ferd. Ries, Dr. Charles A. Waters, and Dr. Salvatore Demarco; Library Committee, Dr. Nathan Winslow; Editors, Dr. Emil Novak and Dr. E. S. Johnson; Alumni Council, Dr. M. LeRoy Lumpkin; Hospital Council, Dr. C.

C. Habliston and Dr. Charles Bagley; Trustees Students' Rotating Fund, Dr. William S. Love, Chairman; Dr. Charles E. Brack, Dr. Frank J. Kirby, Dr. Robert L. Mitchell, and Dr. G. Milton Linthicum.

It was moved by Dr. Nathan Winslow that Section 1, Article VII, of the Constitution be amended so as to read, that the annual term of the officers of the Association shall be from July 1st of one year to June 30th, inclusive, of the succeeding year. This was seconded by Dr. Harry Friedenwald, and unanimously carried by those present. The reason for this amendment was because each year certain contracts are made during the Spring Activities, incurring expenses that are necessarily not known of by the incoming officers and for reason of this it was felt that all such affairs should be straightened out before the newly elected members take office.

Dr. A. W. Valentine introduced Dr. Charles F. Russell of Herndon, Virginia, who is a graduate of the University of Maryland, 1867. Dr. Russell is now 92 years of age. He was called on to speak and he delighted all of us by his story of some of his experiences that he had while a student. There being no further business before the house, the meeting adjourned.

At 3 P. M. Dr. Allen Graham of the Cleveland Clinic, Cleveland, Ohio, gave a very interesting clinic on goitre. Those who were present, I am sure, received some valuable information on the subject. Those who were not present were certainly the losers.

At 7 P. M. the annual banquet was held at the Lord Baltimore Hotel. There were 200 old members present and 81 from the graduating class. The speakers of the evening were: Dr. R. A. Pearson, President of the University of Maryland; Dr. A. J. Lomas, Superintendent of the University Hospital; Honorable Howard W. Jackson, Mayor of Baltimore City; Dr. L. A. Crowell, Lincolnton, N. C., and Dr. J. M. H. Rowland, Dean of the Medical School. Dr. John Evans, the retiring President, presided.

On June 5th, various clinics were held in the Hospitals throughout the city for the benefit of the visiting alumni and on June 6th at 4 P. M. the annual commencement was held, where diplomas were given to the graduates of the classes of the Medical School, Dental School, Pharmacy School, Law School and the Nurses Training School.

PROGRAM OF 1867

The following copy of the original program of the graduating exercises of the University of Maryland Medical School is inserted in the Bulletin through the courtesy of Dr. Charles F. Russell, class of 1867. It is thought, on account of its rarity, it would be interesting to our readers:

ANNUAL
COMMENCEMENT
OF THE
59TH SESSION
OF THE
MEDICAL DEPARTMENT
OF THE
UNIVERSITY OF MARYLAND
HELD AT HOLLIDAY STREET THEATRE,
BALTIMORE,
MARCH 9TH, 1867, AT 11 A. M.

ORDER OF EXERCISES.

MUSIC
PRAYER
MUSIC
READING OF THE MANDAMUS.
MUSIC
CONFERRING DEGREES
MUSIC
VALEDICTORY
BY PROFESSOR F. DONALDSON.
MUSIC
PRAYER
MUSIC
EXERCISES COMMENCE AT 11 O'CLOCK, A. M.

GRADUATES

Bagby, John.....Virginia
Baldwin, Silas.....Maryland
Bateman, J. M. H.....Maryland
Bell, Daniel F.....Virginia
Berne, John.....Alabama
Bond, Y. H.....Maryland
Brodie, Walter.....N. Carolina
Bromwell, J. E.....Maryland
Browne, B. Bernard.....Maryland
Campbell, L. F.....Virginia
Caulk, William.....Maryland
Cockey, Charles H.....Maryland
Cotten, J.....N. Carolina
Crawford, George B.....Maryland
Darling, Henry.....Maryland
Davidson, B. R.....Maryland
Dudley, S. C.....Maryland
Ennett, W. T.....N. Carolina
Finley, F. C.....Maryland
Forman, Wm. B.....Florida
Fowler, Allen.....W. Virginia
Gardner, F. B.....Maryland
Garry, E. H.....Pennsylvania
Gore, James.....Maryland
Green, Hugh R.....Virginia
Green, Thomas H.....Maryland
Haefner, G. A.....Maryland
Harman, John D.....Maryland
Hoffmeier, Frank C.....Maryland
Howard, H. S.....Alabama
Hunter, T. C.....Virginia
James, Wm. T.....Virginia
Jones, H. W.....Maryland
Jones, H. H.....Virginia
Kendal, Wm. T.....Mississippi
Lawson, Lemuel, F.....Maryland
Lefevre, H. W.....Pennsylvania
Lewis, Warren, Jr.....Virginia
Magruder, Thomas L. C..Maryland
Marbury, Wm. A.....Maryland
McGill, Wardlaw.....Maryland
McSherry, Wm. S.....Maryland
Moore, James M.....Maryland
Myers, H. K.....Pennsylvania
Parvis, J. H.....Delaware
Pettus, W. G.....Texas
Pinckard, F. A.....Virginia
Piper, W. J.....Maryland
Powell, Junius L.....Virginia
Price, A. B.....Maryland
Quail, Charles E.....Maryland
Raborg, J. S.....Maryland
Reynolds, Henry T.....Maryland
Rusk, G. G.....Maryland
Russell, C. F.....Virginia
Slaughter, John P.....Virginia
Spalding, John T.....Maryland
Strahan, Theodore.....Maryland
Strother, Edwin F.....S. Carolina
Symington, John.....Maryland
Theobald, Samuel.....Maryland
Thomas, S. F.....Maryland
Thomson, Charles.....Maryland
Tutwiler, H. A.....Alabama
Van Lear, A. G. L.....Virginia
Walker, M. M.....Virginia
Ward, H. Clay.....Maryland
Warfield, C.....Maryland
Wells, Edward D.....Maryland
Wells, R. C.....Maryland
Winter, John J.....Virginia
White, Alward.....Maryland
White, N. Smith.....Maryland
Wilson, J. B. B.....Maryland
Wood, R. V.....Maryland

The Honorary Degree Doctor in Medicine is conferred upon Howard D. O'Neil of Illinois; John D. M. Carr of Ohio.

ITEMS

Dr. John Mason Hundley, Jr.; associate in gynecology, writes from Kiel, Germany, under date of May 16, 1931, where he is doing post-graduate work in gynecology: I am very much pleased with everything here and have learned much of interest. The operative work is splendid. I have seen several operations for carcinoma of the cervix, some by the Wertheim and others by the Schauta method. Next week I am going to Frankfurt to the Gynecological and Obstetrical Con-

gress, which I expect to enjoy a great deal for the program is fine. While there I will visit Heidelberg and Wiesbaden, which are close by. The University of Kiel is at present in high favor with American gynecologists and obstetricians as a post-graduate center. This is due to the fact that Professor Robert Schroeder, who is widely known in America, has produced work of great scientific value. The University of Kiel was founded by the Prussian State in 1663. It is situated in North Germany at the east end of the famous Kiel canal. The medical school has numbered among its teachers many famous investigators; especially has the chair of obstetrics and gynecology been occupied by many illustrious men. The present incumbent, Professor Robert Schroeder, stands in the front rank of those associated with the clarification of gynecology and obstetrical problems. His enviable reputation, as a practical clinician and brilliant scientist, has served to attract students to the Kiel Frauenklinik from all lands.

Dr. Milton J. Goldstein, class of 1927, of Scranton, Pa., writes us under date of April 13, 1931: I have recently returned from a year's study in Vienna and Paris, where I did post-graduate work in pathology and cardiology. Incidentally, it may be of interest to you that I served as secretary of the American Medical Association of Vienna and that during this time two of its presidents, Drs. William Ebert, of Baltimore, and Van Pool of Honolulu, were Maryland men. I was very proud, of course, of my alma mater being so well represented.

Dr. R. S. Griffith, P. & S., class of 1886, has been engaged in the practice of his profession for more than 40 years at Waynesboro, Va. He was born near Annapolis, Md. After graduating he practised in Maryland for a short time, then in West Virginia and permanently located at Waynesboro, in 1891.

Dr. Charles H. Halliday, epidemiologist for the State Department of Health, was graduated from the College of Physicians and Surgeons in 1904. A year later he entered the United States Coast and Geodetic Survey as a medical officer. This service took him first to Alaska and then to the Philippine Islands, where, in 1907, he was commissioned a lieutenant in the Medical Corps of the United States Army. Seven years later he resigned his commission to accept the superintendency of the Zamboanga Hospital. In 1916, he joined the British Army and served in France with the Royal Army Medical Corps. The following year he re-entered the Medical Corps of the

United States Army and was demobilized in 1919 with the rank of major. He was next an epidemiologist with the Ministry of Health in Poland. He held this position for six months, resigning to become a medical inspector for the American Red Cross. From Poland he came back to the United States to accept a position with the Minnesota State Board of Health. The year 1922 found him in Washington with the United States Public Health service, for which he organized a section of hygiene and preventive medicine for the employes of the Veterans' Bureau. After completing this work, he joined the California State Department of Health. He came to Maryland two years ago.

Dr. David Sashin, class of 1926, after spending a number of years interning, 14 months in Europe, and a year as an Orthopedic Research Fellow at the Hospital for Joint Diseases in New York, announces the opening of his office at 51 West 86th Street, New York City, for the practice of orthopedic surgery.

DEATHS

Dr. Henry Byrne Maxwell, Whiteville, N. C.; class of 1902; served during the World War; aged 58; died, March 27, 1931, of cardiac disease.

Dr. Joseph Washington Ring, Elkin, N. C., P. & S., class of 1880; formerly mayor; aged 81; died, April 14, 1931, of angina pectoris.

Dr. Alexander Erving Winlack, Shinglehouse, Pa.; P. & S., class of 1907; aged 46; died, April 2, 1931, of pulmonary edema.

Dr. Albert Lee Barrow, Abingdon, Va.; class of 1903; aged 52; died, March 19, 1931.

Dr. Charles Morris Weeks, Northport, Nova Scotia, Canada; P. & S., class of 1891; aged 65; died, January 8, 1931.

Dr. Robert James Redden, Sulligent, Ala.; Washington University School of Medicine, class of 1872; aged 82; died, March 13, 1931, of cerebral hemorrhage.

Dr. George McClellan Burroughs, Danielson, Conn.; B. M. C., class of 1900; member of the American Academy of Ophthalmology and Otolaryngology and of the American College of Surgeons; aged 68; died, March 1, 1931.

Dr. Francis Eugene Jameson, Hughesville, Md.; class of 1907; served during the World War; aged 49; died, March 5, 1931, of cholocystitis, myocarditis, nephritis and cirrhosis of the liver.

Dr. William Henry Minchener, Troy, Ala.; B. M. C., class of 1905; aged 50; died, March 27, 1931, of lobar pneumonia.

Dr. Albert L. Kee, Cambridge, Neb.; P. & S., class of 1901; aged 54; died, March 28, 1931, of chronic myocarditis and nephritis.

Dr. Walter T. Madden, Trenton, N. J.; P. & S., class of 1897; formerly mayor of Trenton; aged 57; died, April 13, 1931, of cerebral hemorrhage and acute nephritis.

Dr. E. R. Osler, Galestown, Md.; P. & S., class of 1897; aged 74; died, December 16, 1930, of pneumonia.

Dr. Herman G. Heilig, Asheville, N. C.; class of 1899; aged 53; died, April 26, 1931, of a self-inflicted bullet-wound.

Dr. Ralph Sidney Baynes, Hurdle Mills, N. C.; P. & S., class of 1881; aged 76; died, April 9, 1931, of pneumonia.

Dr. Henry C. Connaway, Hebron, Md.; B. M. C., class of 1902; aged 51; died, in March, 1931.

Dr. Harvey L. Van Natta, Sycamore, Ohio; P. & S., class of 1882; aged 73; died, April 20, 1931, of cardiac disease.

Dr. Frederick Louis Detrick, Ruxton, Md.; class of 1913; served in France during the World War; aged 42; died, June 3, 1931, of cardiac disease.

Dr. William Patrick Clancy, Warren, Pa.; B. M. C., class of 1910, aged —; died, May 10, 1931.

Dr. William S. Archer, Bel Air, Md., class of 1880; aged 75; died, April 2, 1931, of hepatic carcinoma.

Dr. Edward A. Mansuy, Bradford, Pa.; P. & S., class of 1906; aged 58; died, March 4, 1931, of chronic myocarditis and shock from an automobile accident.

Dr. JOHN PATRICK JACKSON, Fall River, Mass.; P. & S., class of 1903; aged 51; died, February 20, 1931, of cardiac disease aboard the S. S. Statendam, while en route from Cuba to New York.

Dr. WILLIAM HAMILTON DULANY, Lynchburg, Va.; class of 1859; Civil War veteran; formerly member of the city council; aged 94; died, March 9, 1931, of cerebral hemorrhage.

Dr. EVERETT R. TAYLOR, Morgantown, W. Va.; P. & S., class of 1907; aged 47; died, March 11, 1931, of ceronary occlusion.

Dr. ROY CLIFFORD POTTER, Chillicothe, Ohio; class of 1908; aged 49; died, February 11, 1931, of cerebral hemorrhage.

Dr. PETER B. ELLIOTT, Blacksburg, Va.; P. & S., class of 1895; aged 62; died, February 15, 1931, of chronic myocarditis and nephritis.

Dr. ANDREW FULLEN HERNE, Glade Spring, Va.; P. & S., class of 1884; aged 74; died, March 3, 1931, of cerebral hemorrhage.

Dr. JOSHUA EDWARD BENSON, Baltimore, Md.; class of 1884; aged 70; died, May 18, 1931, of cardiac disease. He was the father of Dr. Edward Hayes Benson, class of 1916, of Overlea, Md., and a brother of Dr. Benjamin Robert Benson, Sr., class of 1873, of Cockeysville, Md.

Dr. DANIEL COGDELL HUTTON, Major, M. C., U. S. Army, Phoenix, Ariz.; class of 1916; served during the World War; entered the regular army as a captain in 1920; and was promoted to a majority in 1929; aged 37; died, March 23, 1931, of angina pectoris, arterio-sclerosis and coronary occlusion.

Dr. HARRY P. CAMPBELL, Wheeling, W. Va.; B. M. C., class of 1902; aged 52; died, March 21, 1931, of cerebral hemorrhage.

Dr. WILLIAM JAMES MOORE, Ashboro, N. C.; P. & S., class of 1893; aged 65; died, April 3, 1931.

Dr. LOU MURRAY MITCHELL, Pittsburgh, Pa.; class of 1906; aged 48; died, March 27, 1931, as a result of an automobile accident.

Dr. EDWARD A. HOFFMAN, Rochester, N. Y.; P. & S., class of 1896; aged 64; died, in March, 1931, of cardiac disease.

Dr. RODNEY A. TOMS, Calera, Okla.; B. M. C., class of 1890; aged 65; died, January 14, 1931, of cerebral hemorrhage.

SAMUEL WHITEFORD MOORE, D. D. S., University of Maryland, class of 1904; anesthetist to the University Hospital; aged 55; died, May 4, 1931, of cardiac disease. He was the husband of Margaret Lawrence, University of Maryland Training School for Nurses, class of 1906.

Dr. JOHN NELSON ROE, Richmond Hill, N. Y.; P. & S., class of 1889; aged 72; died, May 7, 1931, of cerebral hemorrhage and arteriosclerosis.

Dr. FRANK H. BRAYMER, Bradentown, Fla.; class of 1886; aged 69; died, April 9, 1931, of abdominal carcinoma.

Dr. FRANCIS B. ERWIN, Freemansburg, Pa.; P. & S., class of 1888; aged 72; died, March 31, 1931, of cardiorenal disease.

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PROGRESS IN SURGERY OF THE COLON*

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There is small question that the greatest recent advance in surgery of the colon has been at the hands of the roentgenologists. It is true that improvement in technical maneuvers, standardization of preoperative and postoperative care in hospital, and better selection of cases, without contracting the horizon of operability, and with decrease in the operative mortality, have encouraged surgeons in this field, but the increased diagnostic efficiency by roentgenologic methods has been of the highest importance because it has allowed earlier recognition of organic lesions in this portion of the gastro-intestinal tract. Even on cursory review of the work of the section on colonic and rectal surgery at The Mayo Clinic for a year, or even five years, one is astonished at the few organic lesions which make up the bulk of the cases and at the remarkable predominance of malignancy in the sequence. Cases of carcinoma make up about 68 per cent of the total in which operations on the colon are required. Of 542 patients on the colonic service at the clinic in 1930, 369 were admitted for carcinoma. One is confronted, also, with such lesions as hyperplastic tuberculosis, diverticulitis, polyposis, Hirschsprung's disease, and fecal fistula. I do not mention these in order of their importance because diverticulitis is now treated almost as a routine

* Read before the American Proctologic Society, Philadelphia, Pennsylvania, June 7 to 11, 1931.

by medical measures except when complications arise. Hyperplastic tuberculosis is not of frequent occurrence. Hirschsprung's disease is a rarely observed entity, but polyposis and fecal fistula are both often met and always tax one's surgical judgment and technical ingenuity to bring about a successful outcome. As one pursues the diagnosis further, chronic ulcerative colitis, benign lesions, intussusception, and so forth, occur in sporadic instances and usually may be successfully combated. Table 1 shows the distribution of lesions in this branch of our service during 1930.

Roentgenologic examination in most organic diseases which affect the colon discloses a change in the contour of the lumen. The accurate interpretation of these changes is dependent mainly on two factors: (1) satisfactory and adequate preparation of the colon, and (2) the ability of the patient to retain the barium clysma. There is one point which is of enormous clinical significance which I should like to emphasize in the employment of roentgen diagnosis of organic lesions of the large bowel, and that is the fact that the opaque mediums should be used only for the diagnosis of lesions distal to the juncture of the middle and lower thirds of the sigmoid and that it should always be introduced by rectum rather than by mouth. I cannot be too emphatic in deprecating the introduction of a thickish, heavy medium into the gastro-intestinal tract above an obstructing colonic lesion. Not only is interpretation facilitated and better localization of the organic lesion made possible by rectal administration of this material, but the question of superimposing an acute obstruction on a chronic one by oral administration is of the utmost gravity. Too often one sees an acute obstruction produced by overenthusiastic efforts of clinicians and roentgenologists to localize a lesion in the bowel by administering opaque mediums by mouth. This unfortunate occurrence not only is preventable in all cases by avoiding such use of the barium, but the filling of the colon and the diagnostic efficiency is enormously enhanced by the use of the other method. Given a properly prepared colon, the ideal method of examination is by fluoroscopy, in which palpatory manipulation assists in localizing the growth to a given segment. Any deformity in the contour of the colonic wall is organic; that is, the result of involvement of the intestinal wall by morbid processes.

Carcinoma, diverticulitis, and the chronic ulcerative nonmalignant diseases, such as chronic ulcerative colitis and tuberculosis, all are

manifested roentgenologically by luminal deformity, and it is possible to distinguish these diseases from one another by the character of the change in contour which the particular pathologic process has produced. It has been found that the opaque enema, studied roentgenoscopically and roentgenographically, is the most reliable method of demonstrating the lumen of the colon.

The filling defect produced by carcinoma is annular, polypoid, or obstructing. Some colonic spasm usually attends a given lesion, but in general the carcinomatous filling defect is characterized by the jagged irregularity of the canal through the malignant tissue, by its constancy of situation, and by the association of a palpable indurated mass at the site of the defect.

The filling defect produced by diverticulitis simulates that of carcinoma more closely than that of any other disease. It is spindle-shaped, its contours tend to be serrated in a regular fashion rather than roughly jagged, and many or few of the extraluminal shadows of diverticula are seen in other parts of the colon.

Chronic ulcerative colitis, when it involves only a short segment of the colon, may simulate carcinoma in its roentgenologic aspects. Even so, the filling defect produced by this type of lesion is usually comparatively long in extent, the margins of the canal tend to be smooth rather than irregular, and the wall of the involved segment, although obviously thickened, remains relatively pliable. Hyperirritability is usually a prominent factor.

The hyperplastic type of tuberculous colitis usually affects the proximal segments of the colon, and this disease too, in its roentgenologic aspects, may resemble carcinoma closely. The filling defect is irregular in outline, has a corrugated appearance, and is associated with a palpable mass of a peculiar, boggy consistence. Usually part of the terminal portion of the ileum can be shown to be involved in the process. It is, however, only when an unusually short segment of the right half of the colon is involved with a hyperplastic tuberculoma that the roentgenologic differential diagnosis from carcinoma becomes difficult. Tuberculous enterocolitis is commonly secondary to chronic pulmonary tuberculosis, and this association may be of value in making the differential diagnosis.

Polypoid lesions of the colon, when they are large, produce a central defect in the colon which is characterized by its smoothness

and by absence of mural infiltration. Smaller polypi may escape roentgenologic detection entirely unless the roentgenologist will resort to special technical methods. It has been found, at The Mayo Clinic, that a modification of A. W. Fischer's combined method is of special value in demonstration of such lesions. Very small polyps can be brought to light with this technic, and it has become difficult to realize how any lesion which has attained sufficient size to be recognized by gross pathologic investigation should escape roentgenologic detection.

CHRONIC ULCERATIVE COLITIS

Chronic ulcerative colitis always has been recognized as a desperate condition when it necessitates surgical intervention. Until recently, perhaps it has been attacked by more different types of therapeutic agents than one can readily describe. It is a severely debilitating, infectious disease of insidious onset, the course of which is characterized by passage of blood, mucus and pus in the stool or on the stool. Abdominal cramps and tenesmus mark the passage of these stools, which may or may not be increased in number at all times throughout the course of the disease. It is not unusual to find chronic ulcerative colitis beginning as a severe, fulminating illness, with many bloody rectal passages accompanied by gruelling cramps, fever and prostration. The failure to recognize the fact that between these two extremes are all gradations of seriousness in symptoms, depending, in large measure, on the extent of intestinal involvement, has complicated and clouded the clinical picture, as well as the diagnosis.

It is an established fact, recognized by all I think, that the disease affects various portions or all portions of the large bowel, usually by a diffuse type of lesion but occasionally by one that is localized in some one segment. Rarely is the terminal portion of the ileum attacked, although it is occasionally. There is strong reason to believe, supported by clinical, proctologic and roentgenologic signs and symptoms, that chronic ulcerative colitis almost invariably begins in the rectum. When a large portion of the colon is invaded, liquid, mushy stools, mixed with pus and blood, are noted. Distress from gas, griping, and various sensations along the course of the colon are often noticed. It is almost always observed that the patient has a peculiar, grayish pallor, and anemia in consonance with this picture is the rule. In the more severe cases a morbid body odor prevails;

an anxious, rather characteristic, sometimes described as hopeless, facial expression is not uncommon, and much loss of weight is customary. Lack of intestinal control usually causes the patient to feel that he must remain near a toilet room. Septic fever may occur in the complicated, severe, or fulminating cases, due to absorption from the colon, or from formation of abscesses and other complications,

FIG. 1. *Diffuse narrowing and shortening of the colon distal to the hepatic flexure. Chronic ulcerative colitis. There are deep, penetrating ulcers in the descending colon and the transverse colon adjacent to the splenic flexure.*

but in the chronic, usual case, a slight elevation of temperature also is noted. Mild leukocytosis may be present, and chronic invalidism occurs early in the disease.

Proctoscopic examination gives the most important data for diagnosis. The picture of the mucosa of the rectum and lower part of

FIG. 2. *Diffuse narrowing of the entire colon. Chronic ulcerative colitis.*

the sigmoid is described as having four phases in the active period of the disease; namely, hyperemia, edema, miliary abscesses, and miliary ulcers. The condition is not easily confused by an experi-

enced proctologist with that of any other known lesion in this situation. When the disease enters the state of remission, and healing begins, the glazed, contracted scars and pitted mucosa are rarely

FIG. 3. *Diffuse narrowing of a rather long segment of the sigmoid. Localized ulcerative colitis without rectal involvement. There is an inflammatory stricture in the transverse colon adjacent to the hepatic flexure.*

difficult to distinguish from other lesions. Granular ulceration, punched-out scars, and contraction of the lumen of the bowel are pathognomonic proctoscopic signs. Myriads of miliary abscesses and ulcers pepper the highly inflamed walls of the bowel: intense spasm,

and later scarring contractions, produce the characteristic deformity, shown in the roentgenograms, of a narrowed, shortened, and non-haustrated colon (Figs. 1, 2 and 3).

The etiology of this disease, although still somewhat controversial, is ascribed by Bargen to an organism of the diplostreptococcus variety found in the ulcers in the rectum of patients with the disease, in the wall of the diseased colon after death, in distant foci of infection, or in the blood stream of some of the animals with the more severe type of the disease. Bargen has been able to reproduce similar characteristic lesions in rabbits and dogs by injection of this organism. Finally, the clinical evidence of improvement of patients after administration of a specific serum and vaccine prepared from these diplostreptococci leaves small doubt in my mind that the organism is certainly a potent factor in the disease, whether or not it is the sole agent.

Formerly such patients were treated at The Mayo Clinic, or elsewhere, by surgical intervention; ileostomy or appendicostomy was done with great hope but small expectancy of a satisfactory outcome in a large majority of cases. It has not been my experience that the appendicostomy advocated by so many surgeons as almost a specific in this type of lesion is of much value, nor would I urge the employment of ileostomy in fulminating cases as a routine, because of the very formidable operative mortality and the poor end-results which accompany surgical intervention. Without hesitation, I would urge that these patients be given medical treatment, whether according to the regimen established by Bargen, or by a satisfactory method used by others, or by a combination of the two, and that patients with the more severe cases, or one should say, the more complicated cases, who have failed to respond to medical treatment, be subjected to operation. During the last year on the colonic service, where 202 new patients with chronic ulcerative colitis were treated, only seven patients were subjected to operation. Of these, two were treated by ileostomy, and the other five were treated by some type of plastic procedure applied to a draining stoma which had been made previously elsewhere by enterostomy.

In that group of cases in which the colon is isolated by ileostomy, one must look forward to resection of the entire colon in certain cases because of the presence of a focus for systemic disease, or the development of multiple polypi which subsequently may become

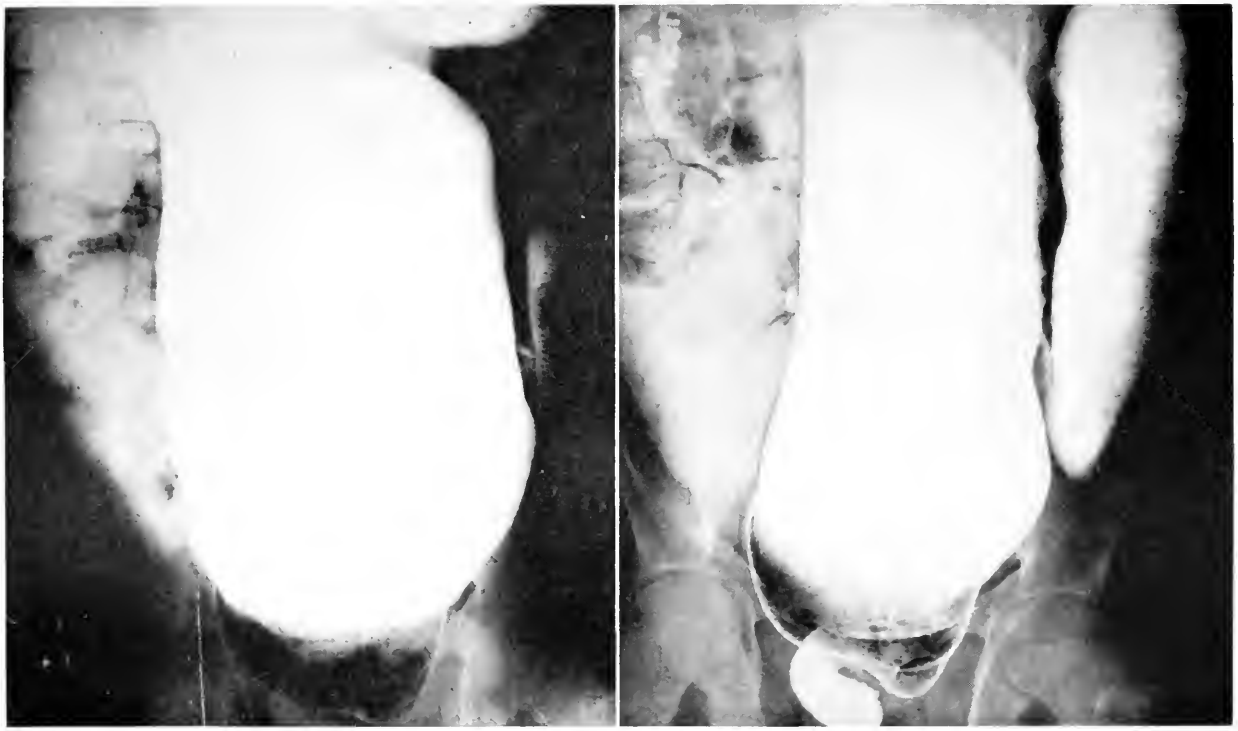

FIG. 4. *(a) Huge dilatation of the entire colon, especially marked in the sigmoid. Hirschsprung's disease. The sigmoid and distal portion of the colon are distended with opaque material. (b) Same as previous illustration after an attempt at evacuation of the opaque enema. The rectum is not involved in the dilatation. The sigmoid is atonic.*

malignant. I have seen this latter picture a sufficient number of times to recognize its urgency. At the clinic, in 10 per cent of the cases of chronic ulcerative colitis polyposis and stricture develop; also, perirectal abscesses or other complications may necessitate major surgical procedures. Our inclination is to keep these patients on a regimen of vaccine and serum, to remove foci of infection and to urge a generous diet, high in calories and low in residue, with such supportive measures as may seem to be required in the individual cases. Earlier diagnosis of this severe infection, earlier and more rigid medical treatment, and, in the occasional case in which complications have developed, surgical intervention, bid fair to influence its future course more satisfactorily.

MEGACOLON

Megacolon, or giant colon, is a condition not met with frequently in any segment of the gastro-intestinal tract, but occasionally it is found in any segment from the esophagus downward. There are two types of megacolon. The first is the acquired type which may be the result of any slowly stenosing process in the lower portion of the bowel, and which, gradually obstructing the lumen, is followed by dilatation and hypertrophy above, affecting first the bowel in immediate juxtaposition to it, and subsequently the entire colon. I have observed three cases of this type secondary to slowly stenosing annular carcinomas of the rectosigmoid, and many other observers have reported similar conditions. The second, and perhaps the more common lesion with which giant colon is associated, is so-called Hirschsprung's disease (Figs. 4*a*, *b*, and 5), or congenital idiopathic megacolon, the classical description of which Hirschsprung gave as follows: "A condition of congenital high-grade dilatation of the colon with thickening of all of its tunics, but particularly, the tunica muscularis, and retention of large quantities of fecal matter." The pathologic picture is a constant one in Hirschsprung's disease, and unquestionably there are gradations of this hypertrophy and dilatation; a bowel may be dilated and slightly thickened, or there may be the huge, distended colon of the pot-bellied, constipated youth, who presents a clinical picture that is unmistakable. The causes of this condition remain obscure, and a search of the literature reveals numerous hypotheses advanced in explanation of it which may be classified under five headings: (1) congenital defect (Hirsch-

sprung's); (2) obstructive processes; (3) anatomic conditions such as malformation, aplasia of the musculature immediately above the rectum, mechanical obstruction, congenital stricture, general systemic

FIG. 5. *Congenital idiopathic dilatation of the colon. Hirschsprung's disease.*

conditions; (4) nervous mechanisms, such as segmental neuromuscular defects; (5) effect of the sympathetic nervous system, and (6) infectious processes.

The clinical picture of true megacolon which occurs in infancy is so characteristic that there is little difficulty in distinguishing it

from other conditions, particularly when roentgenologic evidence is available in conjunction with a carefully taken clinical history. Usually the onset of symptoms is immediately after birth and difficulty in moving the bowels increases with growth. Distention, which is the result of retention of great quantities of gas and fecal matter, is little influenced by catharsis, and long periods of constipation, despite treatment, are the rule. Sometimes the patients go for weeks, and in some instances for months, without a movement of the bowels. The appearance of the patient is characteristic; the dry skin, the dull facies, the emaciation, are almost invariably present. The sphincter ani is generally normal, but the condition usually begins immediately above it. The characteristic roentgenologic picture of the colon completes the diagnosis.

The surgical treatment of megacolon, although perhaps statistically more satisfactory than the use of medicaments, is far from ideal and such methods of operation as entero-anastomosis, drainage procedures, resection of segments of the bowel, and so forth, although they yield satisfactory results in many instances, have utterly failed to give relief in many other cases. I believe that certain types of segmental megacolon still are satisfactorily treated by resection and anastomosis. However, recent discoveries of the influence of surgical interruption of the nerve supply to the large bowel are convincing that this type of attack in certain cases and in perhaps the majority of instances is more nearly the ideal treatment than any other. Certainly, our experience with operations on the sympathetic nervous system in the last two years, in four cases of megacolon, has convinced us of its efficacy.

The sympathetic nerves to the distal part of the colon and the rectum have their immediate origin in the intermesentric plexuses, descend on the anterolateral aspects of the abdominal aorta, from the level of origin of the superior mesenteric artery downward. On each side there are two or three large trunks, made of nonmyelinated fibers arising from (1) the semilunar ganglia of the celiac plexus; (2) an anastomotic loop which crosses the aorta transversely below the origin of the superior mesenteric artery, and (3) the aorticorenal ganglion, or the renal periarterial plexus. Branches from the first and second lumbar ganglia join the intermesenteric plexus on each side. There is a difference of opinion among anatomists concerning

the extent to which the lumbar fibers mingle with those of the intermesenteric plexus proper. Some hold that the mesially directed lumbar communicating branches constituting the pelvic splanchnic nerves remain distinct in the outer portion of the plexus and ultimately form the lateral roots of the presacral nerve of Latarjet. Hovelacque, on the other hand, holds that the lumbar communicating branches actually contribute to the intermesenteric plexus. The point is one of not a little significance, for if the former view is correct, lumbar ramisectomy and ganglionectomy would affect only that portion of the bowel innervated through the presacral nerve, namely, the lower portion of the rectum and sphincter ani. If the latter view is correct, the operation would affect, but only partly, the descending and sigmoid portions of the colon, as well as the rectum and internal sphincter ani. The beneficial results of lumbar ramisectomy in cases of Hirschsprung's disease strongly favor the view that the branches which join the intermesenteric plexus from the first and second lumbar ganglia do have a share in the innervation of the colon. It is generally accepted that the fibers of the inferior mesenteric plexus, which end in the musculature of the colon and rectum, carry impulses which inhibit its activity. Further, it would appear probable that these nerves keep up a continuous influence on the tonus of the bowel. In the dog, section of the corresponding nerves always leads to immediate increase in intracolonic pressure.

With reference to control of the internal sphincter of the anus, it has been found in experimental animals and in man that the thoracicolumbar outflow provides the motor supply of this muscle. Neuromuscular dysfunction, then, seems a reasonable explanation in a large number of cases of Hirschsprung's disease, and the essential pathologic anatomy of the lesion, which is dilatation with hypertrophy of the muscular coat, makes it impossible for the intestine to transmit its content. Consequently, by interrupting the sympathetic nerve supply, the surgeon may attempt (1) to diminish the dilatation of the colon, (2) to leave its motor nerves under less disputed control, and (3) to relieve any opposition to the expulsion of the content of the bowel by the sphincteric mechanism. If this anatomic and physiologic reasoning is correct, the first and second objects are accomplished by division of the inferior mesenteric nerve, and the third by division of the presacral nerve. Space does not permit description of the operation for division of these nerves, the technic

of which has been described by Learmonth and me, but the operation is neither tedious nor dangerous and may be accomplished readily by one at all familiar with the anatomy of the parts under consideration.

FIG. 6. *Extensive filling defect involving the cecum and proximal portion of the ascending colon, with narrowing of the terminal portion of the ileum. Hyperplastic ileocecal tuberculosis.*

TUBERCULOSIS

Tuberculosis of the colon easily divides itself into two types: first, the diffuse ulcerative type, the lesions of which usually are scattered

throughout the large and the small bowel and which follows advanced pulmonary lesions, and second, the hyperplastic type, the lesion of which almost habitually is localized to the ileocecal coil (Fig. 6), and may be resected satisfactorily with the hope ultimately of an extremely good end-result. The relative infrequency of this latter lesion, however, is emphasized in the records of last year by the fact that only nine cases occurred among the 542 patients with organic colonic lesions. Almost invariably, hyperplastic tuberculosis of the large bowel is secondary to some demonstrable lesion elsewhere in the body, most often in the lungs, and pathologically it is characterized by proliferation of the connective tissue in all of the coats of the bowel, the walls of which become vastly thickened but seldom ulcerated. The symptoms and early signs of hyperplastic tuberculosis of the ileocecal coil are so slight and indefinite that they readily and frequently escape attention. Like other organic lesions in this situation, hyperplastic tuberculosis manifests itself in a dyspeptic syndrome which may be of slight significance and give few localizing signs save an occasional attack of tenderness over McBurney's point, or some irregularity of the bowel, such as may be described in the sequence of events accompanying any organic colonic lesion. Here, as in carcinoma, one is frequently confronted with the wrong diagnosis of chronic appendicitis and it is almost as frequent an occurrence to obtain a history that appendectomy has been performed a few weeks or months previous to recognition of the true condition, as it is to find that a patient with carcinoma of the rectum has been operated on previously for hemorrhoids. In certain cases a tumor is palpable, and the accidental discovery of a mass by the patient himself is the first warning of the trouble. The differential diagnosis rests between carcinoma and a chronically inflamed, retrocecal, thickened appendix which is palpable and which may be not infrequently mistaken for either of the other lesions. The diagnosis is established roentgenologically, and there is small reason for an experienced roentgenologist's failing to establish the differential diagnosis between carcinoma and tuberculosis in this region. There is practically no reason for failure to recognize a lesion by the improved type of technic. Fluoroscopic examination, aided by palpatory manipulation, will elicit characteristic signs and symptoms which confirm the diagnosis. These signs have to do with an irregular filling defect of corrugated appearance, almost always associated with a palpable

mass in the ileocecal coil. Two of the most characteristic roentgenologic phenomena associated with tuberculosis in this region are involvement of the terminal portion of the ileum and irritability around the affected segment of bowel. The difference in the filling defect from that of carcinoma mainly is that it is larger and longer, less irregular, and more often associated with a concomitant, small intestinal lesion.

Satisfactory extirpation of hyperplastic lesions of the ileocecal coil is advisable when the disease is localized to this segment and when the pulmonary involvement and general condition of the patient are compatible with such a procedure. Ordinarily, the prognosis is extremely satisfactory following removal of this type of growth, and although subsequent treatment and observation in a sanitarium are necessary over a long period of time after the operation, there is small question of the desirability of surgical attack.

My own preference is to do this type of resection in one stage, although one must recognize that circumstances not infrequently make it safer to do a graded operation, and here, as in carcinoma, safety should be the foremost consideration which tempers surgical judgment. Whether one desires to do the operation as a single stage or as a graded operation, the exploration is carried out through a right rectus incision, and ileocolostomy between the terminal portion of the ileum and the middle of the transverse colon is accomplished in an aseptic manner over a special clamp. I believe this end-to-side implantation should be carried out as the first step of the maneuver, and that subsequent resection of the bowel at the primary stage or later should be determined by the events as they present themselves at operation. Having implanted the ileum into the transverse colon aseptically, and having left about 30 to 45 cm. of the terminal portion of the ileum to be extirpated with the colon, because of the intimate association of the lymphatic supply and blood supply of the terminal portion of the ileum and the cecum, one may either abandon the operation at this point or proceed to resect the terminal portion of the ileum and the right half of the colon, using the same steps for mobilization and exeresis as in malignancy. If operation in a single stage is decided on, decompression in the proximal portion of the ileum is an advantageous adjunct, I am convinced.

DIVERTICULA

One of the most interesting, but by no means uncommon, lesions of the large bowel is diverticulum, which is noted in approximately 5 per cent of all patients who are sent for roentgenologic examinations of the colon. These diverticula, which occur either singly or in numbers, and perhaps are scattered throughout the colon, but usually are limited to the sigmoid segment, are without significance save when inflammatory changes—diverticulitis—take place. The manner of production of these diverticula is controversial, and many theories, substantiated by experimental evidence, have been advocated by different authors as to the method and factors in their formation. It is not easy to produce them experimentally in dogs, with the conditions under which attempts have to be made to reconstruct normal factors as they are in the viable bowel. Whether intracolonic pressure, the constant association of diverticula with the opening in the mesentery between the blood vessels, the "pull" on the bowel by the mesentery, constipation, or some anatomic type is the vital factor, I do not know. I believe that no one factor produces them constantly, but that the outstanding features of their formation have to do with inherent weakness of the intestinal wall, which, with increased intracolonic pressure and some environmental or constitutional factor, may be responsible for them. My experience parallels that of Beer, in that the supposed weakness in the mesenteric border does not exist, but that there is a change in resistance of the intestinal wall, and that consistent muscular deficiency may assist in the formation of false diverticula, which occur both in the mesenteric and nonmesenteric portions of the bowel. I have observed that they occur most frequently opposite the mesentery and on the lateral walls of the bowel, but they do occur in all portions of it.

The production of diverticulitis is a simple, mechanical process. The sacs, which are in reality hernias through the musculature of the bowel, become filled with dejecta and fail to empty. The neck of the sac is the narrowest portion; it becomes constricted with advancing edema, round-cell infiltration, and hyperemia, and its failure to empty results in the so-called "left-sided appendicitis," which may go on to formation of abscess. In advanced cases the inflammatory change extends to the mesentery, produces marked thickening, and frequently affixes the diverticula to an adjacent viscus or to the lateral parietal peritoneum, at times even resulting in perforation

and formation of abscess or in formation of fistula, such as is sometime seen between the bladder and sigmoid or between the sigmoid and coils of small intestine.

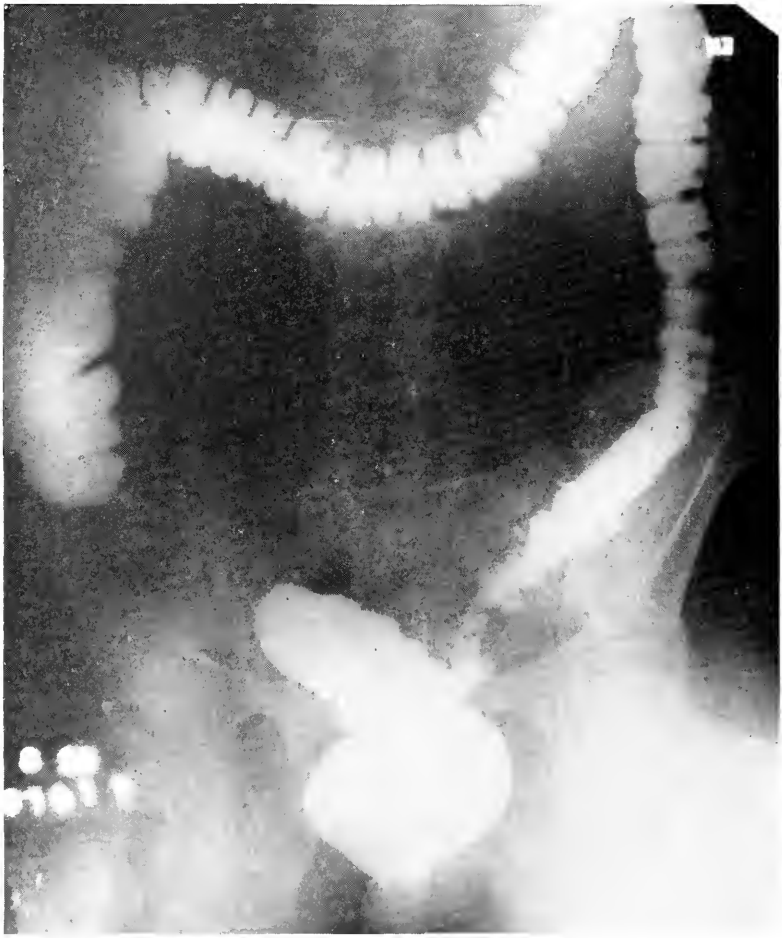

FIG. 7. *Extensive diverticulosis involving the entire left half of the colon.*

A convenient classification of diverticula is as follows:

I. Diverticulosis (Fig. 7), which includes that group of cases in which evidence of diverticula is found on roentgenologic examination, or at necropsy, and in which, from all available data, the diverticula bear no relation to the patient's complaints.

II. Diverticulitis.

1. Acute
2. Chronic
3. Complicated by
   (a) abscess
   (b) fistula
      external
      internal { vesicocolic / enterocolic
      multiple
   (c) malignancy

FIG. 8. *Diverticulosis of the sigmoid and descending colon. Extensive filling defect with serrated margins, characteristic of diverticulitis, in the lower portion of the descending colon and proximal part of the sigmoid.*

In the division of diverticulitis (Fig. 8) are found practically all types and complications of this lesion. The symptoms are not pathognomonic, but pain is the most common symptom of any kind, ranging, as it does, from sharp pain, probably secondary to formation of gas, to a slow, boring type of discomfort. Its usual situation is in the lower left abdominal quadrant, or in the lower left mid-abdominal section, and its reference depends on the accompanying complication, which usually is attachment to or perforation of another viscus. Constipation is a common accompaniment of diverticulitis, particularly when it is advanced to the stage of complication, or when tumefaction or stenosis of the lumen of the bowel is present. In nearly two-thirds of cases at the clinic, constipation only, or constipation alternating with diarrhea, which was atypical, was the most outstanding symptom. Diarrhea only was present in 11 per cent of the cases, although it was not true diarrhea; it was usually more of a rectal tenesmus associated with the passage of a small amount of pus, mucus, or fecal material. In two of the cases passage of unmixed pus by bowel occurred, signifying the presence of an abscess which had ruptured into the lumen of the bowel, a very satisfactory termination of a complicated and difficult situation. Tumefaction occurred in 31 per cent of the cases; in 26 per cent of the cases there were vesical symptoms, signifying attachment of the diverticulum to the bladder, and resulting in inflammatory cystitis. In seven cases of this 26 per cent the attachment to the bladder resulted in formation of fistula between the bladder and the sigmoid, with the resulting passage of gas and feces by urethra, a pathognomonic sign of the development of an ostium between the two viscera. This complication is a serious one when it requires surgical intervention, and special observation should be made of the renal infection in deciding on the type and extent of surgical intervention.

Blood in the stool is of little significance in diverticulitis, from a diagnostic standpoint, and although it is present in a number of cases, usually proctoscopic examination will reveal that the presence of the diverticulitis had little, if anything to do with the presence of the blood. It is important, however, when blood occurs in the presence of diverticulitis, to rule out associated carcinoma. The coexistence of carcinoma and diverticulitis is naturally a possibility and is occasionally observed, but the development of carcinoma at the site of diverticulitis is an exceedingly rare and bizarre condition, the occur-

rence of which has been grossly exaggerated. In a series of 227 cases of diverticulitis studied at The Mayo Clinic by Brown and me, a malignant condition was found accompanying it in only four cases, evidencing, I think, the fact that diverticulitis as a precursory or producing agent of carcinoma is so rare as to be almost unique.

The diagnosis of diverticulosis or diverticulitis is readily made by barium enema observed roentgenoscopically. The diverticula manifest themselves as rounded, knob-like projections along the lumen of the bowel, showing considerable variation in size, and usually occurring thickest in the sigmoid portion of the colon.

The treatment of diverticulitis is largely medical, and it is my feeling that surgical intervention should be reserved for such complications as (1) acute perforation, (2) formation of abscess, (3) fistula, (4) inflammatory obstruction, and (5) malignancy. The type of operation indicated depends on the complication present, and in general it may be said that a procedure for drainage is more desirable than radical resection. It has been my experience, in dealing with diverticulitis which is causing obstruction and tumefaction, and which is uncomplicated by abscess and fistula, that prolonged diversion of the fecal current by colostomy results in recession of the inflammatory process in a high percentage of cases, permitting subsequent re-establishment of the lumen of the bowel. I have not seen such a case, if roentgenologic methods have satisfactorily demonstrated stenosis or inflammatory reaction to be absent, in which a second operation has been necessary. Resection must be undertaken only for urgent reasons, and its performance, I would emphasize, is more hazardous than resection in the presence of carcinoma.

Unhappy experience, as well as a review of the efforts of other surgeons which I find parallel my own relative to surgical intervention in cases of fistula between the bladder and the sigmoid, has convinced me that in attacking this complication one is more likely to be successful if a graded procedure is attempted. For obvious reasons, the most prominent of which is injury to the urinary tract, one is dealing here with undermined resistance which is not too easily estimated. Further than that, these cases are very difficult and hazardous technically, because the patients almost invariably are short and obese, and the mesosigmoid is thickened from the inflammation. The diverticulum which is the site of diverticulitis has an unfortunate

habit of fastening itself to the base of the bladder, close to the ureters, rather than to the dome of the bladder, making the approach none too easy. Furthermore, the thickened bowel, after division of the

FIG. 9. *Diffuse polyposis involving the entire colon (combined roentgenologic technic). The lacy network of shadows gives a pathognomonic picture.*

fistula and separation of the bladder from the sigmoid, is a poor type of tissue for primary healing following suture, and a great many fecal fistulas develop subsequently to a one-stage procedure. The

mortality rate is very high following resection in a single stage; the operation is difficult, and I believe it should be almost a routine to perform colostomy first, clear up the infection in the urinary tract,

FIG. 10. *Masses of polypoid lesions in the sigmoid. Large, polypoid tumor in distal portion of transverse colon. Stereoscopic examination revealed numerous small polypoid tags distributed throughout the colon. Surgical corroboration of the diagnosis was obtained.*

increase the patient's resistance, subsequently divide the bladder from the sigmoid, close the openings in both viscera, and at a later stage close the colonic stoma.

POLYPOSIS

Polyposis, or multiple adenomatosis perhaps it should be designated, is one of the most potentially serious lesions found in the colon (Figs. 9 and 10). The number, size, distribution and cause of polypi in the large bowel varies materially, but true polyposis usually

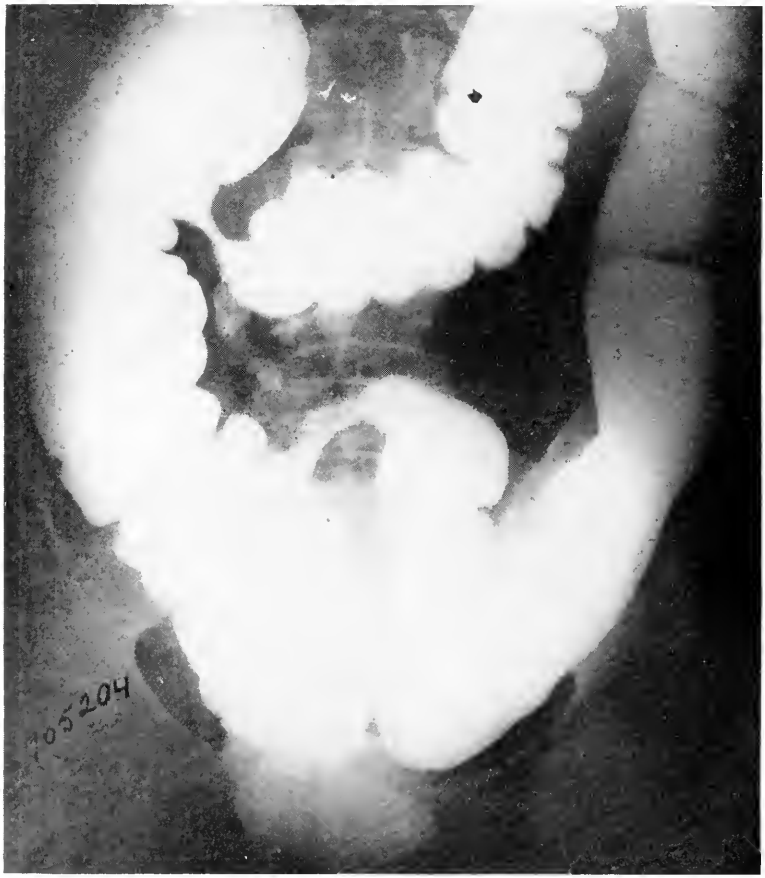

FIG. 11. *Large, polypoid tumor in the cecum. Pathologic examination after removal disclosed that this was an adenocarcinoma of low grade.*

is found in two varieties; the acquired, which is secondary to some inflammatory condition, usually such a condition as ulcerative colitis, hyperplastic tuberculosis, old strictures of the colon, and so forth, and the congenital, disseminated, adolescent type so frequently seen in

families and so dangerous because of its potential development into a malignant condition. This type, which usually manifests itself early in youth by intermittent periods of rectal bleeding, dysentery, and subsequent anemia, presents a clear-cut picture which is confirmed by roentgenologic examination in practically all cases. The mucosa of the bowel, throughout its length, usually is studded with myriads of polypi, varying in size, but actually of a constant anatomic type. The tendency in this condition for malignant degeneration to appear and for it to occur in families, is its most marked pathologic characteristic. There is small question in our minds that carcinoma develops on a basis of polyposis (Fig. 11). This, coupled with the fact that polypi are so frequently found in the rectum, and in the colon in its normal state, stimulated FitzGibbon and me to make a study of the pathogenesis of carcinoma of the colon in its relation to polypi. Our observations paralleled those of Wechselman, Hauser and Schmieden to such an extent that the conclusion was inescapable that a certain number of carcinomas of the large bowel unquestionably develop from polypi. Just how far this hypothesis can be pursued one hesitates to hazard, but it is an intriguing study, and convincing to me personally that a large majority of these lesions are secondary to such precursors.

FitzGibbon and I classified the polypi into three groups, depending on their histologic characteristics and on the advancement of the process. There were thirteen cases of multiple polypi of the large bowel in which we found twenty-four carcinomas. We divided these into three groups. In the first the polypi were small elevations on normal mucous membrane, smooth and regular or roughly nodular, not more than 2 cm. in diameter, and containing normal epithelium. The matrix of the stalk was loose connective tissue of the submucosa, expanding to sustain the nodular polypus, and there was no tendency to papillary growth. The outstanding characteristic of this group was that there was no indication that the growths were likely to become malignant tumors. In the second group, however, the polypi were sharply distinguishable by their structural changes in both connective tissue and epithelial elements from those of the first group, and were of a distinctly malignant type. There was failure over the entire polypus for the normal mucosa to be differentiated. The cells in the partially differentiated epithelium were elongated and compressed, and although they were arranged in single rows, in numerous places

the compression had piled up overgrowths of buds projecting into the lumens of the tubules. Their staining qualities were changed and the nuclei were elongated. The epithelial proliferation in this group, we believe, proceeded in response to the connective tissue elements, resulting in the piling up of the muscular and submucous element into the stalk, and FitzGibbon was emphatic that if the tempo is not too brisk, these elements would be drawn into branching divisions, making tree-like supporting scaffolds of epithelium. The pedicle formation, naturally, was a matter of epithelial growth in the connective tissue. Sluggish growth of the polypus, naturally, was influenced by factors extrinsic to the tumor itself, particularly by the force of peristaltic activity. In the third group the condition was an advanced stage of that seen in the second group, and the growths were potentially deep-seated, infiltrating carcinomas. There was more rapid epithelial proliferation, the connective tissue was outdistanced, and the polypus form consisted merely of epithelium and tangled skeins of glandular tubules. These polypi necessarily were not bulky or sizable, and resulted in deep-seated, rapidly growing, infiltrating adenocarcinomas.

Such data as these, although not conclusive because of the small number of cases studied, indubitably are confirmatory and stimulate one in the search for the initiatory force which carries the tissue cell into abnormal activity, resulting in malignant degeneration. The obvious conclusion in dealing with such a potential source of malignancy, and malignancy has been proved to result in about 58 per cent of the familial cases of polyposis, is that radical extirpation of the large bowel as a prophylactic measure should be undertaken. Although this is a formidable procedure, the chronic invalidism, anemia, and unpleasant existence of the youthful host to such an ailment, with the almost certainly fatal outcome as age advances, warrants, I think, colectomy.

In the clinic, in the last two years, total or subtotal colectomy has been performed in multiple stages for this ailment in seventeen cases. The primary establishment of ileostomy is the first step. This is not a hazardous procedure, but the convalescence is protracted and unpleasant because of the rapid loss of fluid, and there is always a certain deviation from the physiologic norm until the fluid balance is re-established. Subsequently, it has been my plan to remove the colon in a second stage down to the rectosigmoid and, at a third

stage, to remove the rectum. In a series of six cases in which total colectomy was performed in the last eighteen months, either for congenital adenomatosis or for late complications of chronic ulcerative colitis, there has not been a casualty.

CARCINOMA

The overwhelming numerical preponderance of carcinoma among the organic lesions of the large bowel and rectum indicates its very definite importance as a problem of public health. About 10 per cent of all carcinomas of the gastro-intestinal tract occur in the large bowel or the rectum, and, fortunately, more than three-fourths of this group occur in the sigmoid and rectum where they are easily accessible, in the majority of instances, to proctoscopic, digital, or at least to roentgenologic examination. This situation, unfortunately, does not prevent the malignancy in a large group of these cases being allowed to progress to advanced states, nor does it even prevent the patients being subjected to operations for other supposed conditions. One of the most interesting problems relative to carcinoma of the large bowel and rectum is the relationship of small adenomas to its development. In considering polyposis, I drew attention to the fact that a great many of these lesions were precursors of malignancy, and urged their prophylactic extirpation. This, I think, cannot be emphasized too strongly, nor should the presence of multiple, benign tumors in this situation be casually passed over as without significance.

The diagnosis of carcinoma of the colon has been so forwarded by roentgenology, and by better understanding of the usual symptoms of the disease, that careful anamnesis, general examination and roentgenologic examination of the intestine, either in a case in which an organic lesion is suspected or as part of a routine general examination, should enable localization of the growth to a given segment and identification of it pathologically with a high degree of efficiency. The physiologic processes and the types of pathologic change which occur in the different segments of the large bowel are so intimately associated in the chain of symptoms produced by carcinoma that we must consider, for diagnostic purposes as well as from a functional standpoint, the colon as a dual organ. Developed as it is from the midgut in association with the small intestine around to the papilla of Vater, the right half of the colon, up to the middle of the trans-

verse segment, is the functioning, absorptive portion of the bowel, and here lesions which undermine physiologic processes, producing toxemia, desiccation, and dehydration, are mostly found, These growths, situated laterally, large in diameter, and ulcerating, are

FIG. 12. *Annular carcinoma of the descending colon at the level of the iliac crest.*

prone to affect the function of the mucous membrane of the large bowel and to influence the physiologic processes of this segment rather than to produce obstruction.

Diametrically opposed to this, one finds obstructing lesions of the large bowel, beyond the middle of the transverse colon (Figs. 12 and 13), which are usually "signet-ring" in type and, furthermore, are assisted in their stenosing processes because of the anatomic type of

bowel in which they occur, and the type of its content. Practically, it may be said that although there are no early pathognomonic symptoms of colonic carcinomas, increased irritability and change in intestinal habit should influence one to undergo general examination

FIG. 13. *Filling defect in the sigmoid. Carcinoma.*

whenever symptoms persist over a short period of time. One of the most important points in the diagnosis of an organic lesion of the large bowel is the necessity of as thorough examination of this organ as one would give a stomach, gallbladder, or other portion of the gastro-intestinal tract on so slight evidence. Furthermore, it is evi-

dent that as routine examination is undertaken more and more widely, and as the colon is made a portion of this routine and not left to guesswork as to whether it harbors malignancy, earlier diagnosis of these lesions will be affected, and there will be concomitant increase in the number of favorable end-results following extirpation.

There are four groups of symptoms which one finds most often accompanying carcinomatous processes of the large bowel, three of them calling attention to right colonic growths and the fourth to left colonic growths. Right colonic carcinomas, then, divide themselves uniformly into the three groups, as follows: (1) in which symptoms resemble those of chronic appendicitis, in which this diagnosis frequently is made and appendectomy performed, and in which there are few localizing symptoms beyond vague, indefinite discomfort, with some localizing tenderness, but little, if any other evidences of a lesion; (2) in which the disease produces reduction of the concentration of hemoglobin and number of erythrocytes without visible loss of blood, and (3) in which there is an unsuspected and accidentally found tumor in the right iliac fossa, which roentgenologic examination reveals to be a carcinoma. The fourth group comprises the obstructive type of phenomena common to carcinoma of the left half of the colon, beyond the middle of the transverse segment, and in which symptoms may be acute, subacute or chronic. Usually the chronic type of symptoms persists, but the acute type, in which obstructive symptoms come on without premonitory warning, constitutes a relatively large number of cases in this division.

Concerning carcinomas of the right half of the colon, I would call attention especially to those accompanied by anemia, which is so frequently allowed to progress to a very advanced stage without recognition, and for which the patients are treated with various medicaments to improve the blood picture without a definite conclusion as to the underlying etiology. True it is that primary and secondary anemia in the great majority of cases are readily distinguished from each other by the blood picture or by the presence of a debilitating lesion, or both, but not infrequently one is considerably confused in trying to explain profound anemia which is not characteristic of the primary type until a roentgenogram reveals a growth in the right iliac fossa. I feel confident that in a high percentage of cases of anemia, without visible loss of blood, or of uncertain eti-

ology, carcinoma of the right half of the colon should be suspected rather than carcinoma of the stomach, which is so frequently blamed.

The obstructive symptoms which characterized, in their frequent variations, growths in the left half of the colon, are produced because of the type of intestinal content and the type of bowel in which they occur. There is little absorption in the left half of the colon, and for this reason anemia and dehydration are not often met with, but the stenosis of the lumen produces irritability, increase in intracolonic pressure, and accompanying pain because of the inability of the intestine to rid itself of its normal content. Strangely enough, as the stenosis advances, the patient is frequently able to put his hand on the exact spot where, to use his own words, "the gases stop." This is a very satisfactory clinical sign, long recognized by older surgeons, and expressed most satisfactorily by Rutherford Morison, who said that in any case in which a patient has reached or has passed middle life, and who has progressive constipation that is unrelieved except by catharsis, malignancy should be strongly suspected.

May I not enlarge somewhat on the importance of blood in the stool or on the stool as a diagnostic symptom of carcinoma of the large bowel? Blood in the stool or on the stool, it should be recognized, may come from any portion of the alimentary canal. Its significance in relation to a carcinoma in the gastro-intestinal tract is mostly that it is an urgent sign, inviting careful and thorough examination. Bright red blood in the stool or on the stool almost always comes from lesions distal to the splenic flexure, and more often is due to hemorrhoids or to some benign lesion than to carcinoma. Yet, one is culpable if one does not rule out malignant lesions when blood occurs repeatedly in the stool or on the stool. That is the important point with reference to the presence of bright red blood: it should compel discovery of its origin. Perhaps it is just to postulate that one should always consider blood on the stool or in the stool as coming from a malignant growth until it can be proved that it does not, with the realization that in the majority of instances it will be proved to be of benign origin. Occult blood likewise is of little significance unless it occurs in repeated tests after proper dietary control. We have found that it is much more likely to persist in some obscure or rare condition of the small bowel than in growths of the colon.

To epitomize the diagnostic evidences of carcinoma in any segment of the colon, it is suggested that the most significant early symptoms are: (1) change in intestinal habit, as evidenced by increasing irritability of the bowel, such as some type of diarrhea which is usually called by laymen "mucous diarrhea," or alternating periods of diarrhea and constipation; (2) localized pain or tenderness, not of marked severity, but without a tendency to disappear; (3) tumefaction; (4) anemia, not asssociated with visible loss of blood, and (5) obstruction of the acute, subacute or chronic variety. May I emphasize that the textbook symptoms of loss of weight, cachexia, and dehydration are not symptoms of carcinoma of the large bowel at any stage in which helpful intervention can be instituted, but rather, evidences of advanced lesions with metastasis, in which the outcome from any type of treatment is certain. While certain combinations of symptoms and signs that have been described are often fairly diagnostic, it must be said that a roentgenologic examination at competent hands is indispensable for confirmation, exact localization, and knowledge of the pathologic type of growth.

The statement that the treatment of carcinoma of the large bowel is surgical, needs no expansion. The standardization of preoperative measures and the increase of factors of safety unquestionably has resulted in lowering of operative mortality. By isolating patients with lesions of the large bowel and rectum into a single section at The Mayo Clinic, it has been possible to institute a series of preoperative and postoperative measures as factors of safety which we feel have been advantageous. The preoperative measures aim first at rehabilitation of the patient; second, at reduction of intracolonic pressure in cases of obstruction, and third, at the employment of intraperitoneal vaccine. As these patients are admitted to the hospital, the majority of them are in a state of lowered resistance, even to a severe degree, and this is accompanied by a severe degree of toxemia and dehydration. By the institution of a diet high in caloric value and low in residue, together with a large intake of fluids and frequently blood transfusions, we are able to increase the general resistance of patients of this group. To reduce intracolonic pressure, frequent rectal irrigations with warm saline solution are given, supplemented by mild purgation with the fluid extract of senna. Such measures tend not only to lower the intracolonic tension but to reduce inflammatory reaction in and about growths in the

rectum and left side of the colon. A vaccine of streptococci and colon bacilli, derived from patients who have succumbed to peritonitis, is given intraperitoneally as a routine, and its employment in a large series of cases has increased our confidence that it has been a vital factor in the reduction of mortality from peritonitis. By the selection of an optimal time for operation, the choice of a suitable anesthetic, and the selection of the appropriate type of operation, with preference for procedures in multiple stages, we have been able to increase the horizon of operability rather than to reduce it, and at the same time to carry out a radical surgical procedure in a large group of cases.

It is my belief that surgical procedures advantageous in the dealing with growths of the right half of the colon differ from those desirable in dealing with growths of the left half of the colon. As a routine I have employed aseptic ileocolostomy between the terminal portion of the ileum and transverse colon, followed by resection of the colon at the same stage or subsequently, as the operation of election for carcinoma of the right half of the colon. My preference is for end-to-side anastomosis, for I consider this method superior in bypassing the fecal current. Whether the operation should be completed in one stage, or whether extirpation of the growth should be deferred to a subsequent stage must be determined by the circumstances of the individual case, without prejudice from personal or economic considerations. In about half of the cases, an operation in a single stage is possible without enhancing the risk, but it is a formidable procedure which should be reserved for sturdy patients with high general resistance.

In dealing with carcinoma of the left half of the colon, there are two procedures which I think are eminently satisfactory: (1) preliminary surgical drainage followed by resection and anastomosis at a subsequent stage, and (2) obstructive resection; that is, resection in one stage with temporary obstruction of the cut ends of the bowel by a clamp. If obstruction is present, producing edema and distention, preliminary drainage, either by cecostomy or colostomy, is indicated. Later, resection and anastomosis of the growth can be performed more safely. Relatively few patients require this emergency procedure. It is my experience that in the vast majority of instances, chronic and subacute obstruction can be reduced by preoperative measures, and in the event that the bowel is flat at explora-

tion, it has been my custom to employ the obstructive type of resection as a radical procedure, embodying the desirable features of the Mikulicz operation and attended by an enormously lowered mortality rate. The original Mikulicz-Bruns procedure carried a high mortality rate and was followed by recurrence of the malignant growth in the abdominal wall in 12 per cent of the cases because it not only did not provide for wide resection of the lymphatic tributaries to the growth, but it implanted a living carcinoma in a cut wound surface, where direct growth of the cells produced recurrence.

To carry out this obstructive resection, the affected segment of the colon is mobilized down to the middle of the sigmoid by dividing the bloodless outer leaf of the peritoneum and rotating the bowel mesially, at the same time wiping the glands and the fat of the mesentery inward. The vessels are ligated close to the root of the mesentery and as large a block of tissue as is feasible, including the carcinomatous bowel, is removed. A clamp on the cut ends of the bowel is left closed for at least forty-eight hours, and preferably for sixty to seventy-two hours. Then the proximal blade is opened to permit escape of gas. The clamp is allowed to remain on the distal portion until it falls off as a result of pressure necrosis, usually about the seventh or eighth day. Two blind gun barrels remain, much as in the original Mikulicz operation. When the septum between them is severed by an enterotome, spontaneous healing occurs in most cases, provided that the mucosal surface is not attached to the skin and everted, and provided sufficient time is allowed before an attempt is made to close the colonic stoma. I have employed this obstructive resection in a large series of cases with a mortality rate of 5 per cent, and have come to look on it as the operation of choice for carcinomas of the left half of the colon which do not cause obstruction, or in which the obstruction has been relieved by preliminary decompression. I would emphasize that it is not applicable in the face of continued obstruction by the growth, but in such an instance, preliminary decompression is imperative.

Although these maneuvers which I have described are, in my hands, the procedure of choice in the majority of instances, by no means must one be limited to them in selection of an operation for malignant growths in either segment of the colon; one must be led by the circumstances in the individual case. Unquestionably, rigid

adherence to these fundamental principles has been of enormous advantage in reduction of mortality at the clinic and in forwarding a more satisfactory plan of procedure for the future. Mortality statistics are always comparative, and although it is highly desirable to have a small number of immediate deaths in hospital from any type of operation, I believe that in the main, one must regard operability as the main key to successfully combating malignancy. That is, one should rather consider how many persons out of a hundred will be benefited either by operative measures or curative interference over a term of years than how many brilliant technical achievements may be executed with a low casualty list. The mortality rate has varied slightly during the last two years in the colonic service in the clinic in favor of the operations on the left half of the colon. During 1929 and 1930, the mortality from operations on the left half of the colon was a little more than 7 per cent, and the mortality from operations on the right half of the colon, considering all lesions, a little more than 8 per cent. That this is a satisfactory surgical index is my belief, and yet, to reduce the number of patients to whom help may be offered in an effort to cut this figure lower is to be distinctly deprecated. Operability at the clinic during the last two years in the entire group of cases of malignancy was 58 per cent. The extension of this horizon without increasing the percentage of deaths in hospital is the ideal at which one should aim. Happily, the prognosis in dealing with malignancy of the large bowel and rectum is a favorable one. A study of any statistical data which are available indicates that more patients with carcinomas of the large bowel and rectum are found to survive over a given period of years than those with carcinomas of any other portion of the gastrointestinal tract. There are many reasons for this. The growth remains local for a long time in a high percentage of cases before distant implantation takes place because of the scanty lymphatic drainage of some segments and because of the tendency of many of these carcinomas to be of low or only moderate intensity, as graded by Broders' index of malignancy. This fortunate circumstance should encourage surgeons to more radical attack in properly selected cases and should, I think, at the same time influence favorably the attitude of members of the profession and of the laity toward the prognosis of malignancy in this situation.

TABULATION

Diagnosis of surgical diseases of the large intestine and rectum (1930)

	Cases
Carcinoma	369
Intestinal obstruction (acute and subacute)	70
Fecal fistula	32
Diverticulitis	12
Benign lesions (not classified elsewhere)	12
Tuberculosis	9
Ulcerative colitis	7
Stricture (benign)	6
Imperforate anus	5
Lane's kink and adhesions	2
Diverticulum (Meckel's)	4
Polyposis	3
Prolapse of rectum	3
Rectovaginal fistula	2
Intussusception	2
Sarcoma	1
Megacolon	3
TOTAL	542

BLASTOMYCOSIS OF THE SKIN

By Harry M. Robinson, M. D.

Baltimore, Md.

Notwithstanding that cutaneous blastomycosis has been thoroughly discussed in the literature, a brief account of two hitherto unpublished cases should be of interest for the following reasons: (1) the rarity of such cases in Baltimore and (2) the presence of subcutaneous nodules in one of the cases which made it resemble sporotrichosis.

In 1894, Gilchrist recovered a hitherto undescribed protozoon-like body from a specimen of skin removed from the back of a man's hand. This specimen was sent to him by Dr. Duhring who had the patient under observation for what he considered a typical scrofuloderma verrucosa. These peculiar bodies measured from 10 to 15 microns in diameter and were generated by budding. The organism impressed Gilchrist as being vegetable in origin and the cause of the lesion. After exhaustive cultural studies and animal experimentation, he described his findings in an address delivered the same year in Washington before the American Dermatological Association. At that time he had not determined the nature of the organism. Three months later, Busse, of Germany, recorded a case of the cutaneo-systemic type in the lesions of which yeast-like cells were demonstrated. In 1898, Buschke made a critical survey of the subject and added a case of his own. Since then numerous cases have been registered from all parts of the World. The majority of these cases, however, have been reported from Chicago and the contiguous territory. Buschke's communication was based on a case with simultaneous involvement of the cutaneous and systemic tissues. His paper served the very useful object of directing attention to the many cases of the same type which previously had been mistaken for carcinoma. In 1908, Montgomery and Ormsby were able to assemble 22 examples of systemic blastomycosis.

Report of Cases

Case 1.—The patient, a negress, 21 years old, single, a native of Virginia but a resident of Baltimore for the past six years, was seen in the dermatological dispensary of the University of Maryland Hospital

5 years ago for a sore on the right hand of 18 months' duration. The family and past histories were negative. The lesion began as a pimple on the dorsal aspect of her right hand. As this did not show any tendency to disappear, she attempted to open it herself, but she could not recall whether any pus escaped. In the meanwhile the sore continued to spread. She did not remember the receipt of any injury prior to the appearance of the lesion.

Examination revealed on the dorsal surface of the affected hand a raised band-like area which began at the interdigital space between the thumb and the index finger whence it crossed to the ulnar side

FIG. 1, CASE 1. *Blastomycosis resembling tuberculosis cutis.*

of the wrist and extended a short distance down the little finger (Fig. 1). The lesion averaged 2 cm. in width. In its upper and lower portions, it felt semi-solid, was dull red in color and sloped abruptly from the normal skin. Its center, or one-third of its extent, was frankly papillomatous. On pressure upon the papillomatous portion of the ulcer, pus exuded. As blastomycosis was suspected, a smear was made of the exudate, and numbers of the characteristic, doubly-contoured yeast-like fungi associated with blastomycosis, were found on microscopic examination.

The physical examination revealed nothing else of importance. The heart, the lungs, and the abdomen were negative to palpation, to percussion and to auscultation. No masses were felt anywhere, nor was there any pain on pressure. There was no cough nor increased expectoration. As no free accommodations were available

in the University of Maryland Hospital, the patient was sent to the Baltimore City Hospitals. The treatment consisted of excision of the diseased tissue and potassium iodide by mouth. No biopsy was made.

Case 2.—The patient, a negro, 32 years old, single, a native of North Carolina, but a resident of Baltimore for the past 15 years with only one trip outside of its immediate vicinity, 8 or 9 years ago for a few months, was admitted the latter part of April, 1931 to the outpatient surgical clinic of the University of Maryland Hospital complaining of a "sore" leg. He was seen by Dr. Nathan Winslow who suspected the disease was mycotic in origin and called me in consultation.

The family history was negative.

Five years previously, he had had an attack of urethritis, but he denied that he had had a sore on the genitalia. This statement was substantiated by a negative blood-Wassermann test, but a two plus ice-box complement fixation, and a two plus Kolmer reaction were obtained.

FIG. 2. CASE 2. *First lesion appearing with papillomatous projection, from which pus was expressed.*

While on his way to his work a year ago, the patient walked through a field in his bare feet. Shortly afterwards he noticed a pimple on the sole of his right foot. He picked this pimple with a pin, but only a small amount of pus escaped. However, instead of healing the sore grew larger. Six months later a similar lesion ap-

peared on the inner side of the thigh just above the knee, and five months after this five lumps developed in rapid succession on the medial aspect of the same leg. The sore on the bottom of the foot made walking difficult.

On admission, examination disclosed a moist, oval-shaped ulcer on the plantar surface of the right foot (Fig. 2). It measured 4 by 2½ cm. in diameter. Its margins were irregular, but well defined in outline. Its base was studded with innumerable, small, closely packed papillomatous verrucosities, from which could be expressed by pressure a scanty, thick, mucoid, yellowish green pus. There was a similar lesion on the inner aspect of the right thigh a few centimeters above the knee-joint. It also was oval-shaped and measured 2 by 4 cm. in diameter. Its papillomatous nature was unmistakable, but the projections were not as marked as those on the sole. On the inner surface of the right leg were five semi-fluctuating lumps (Fig. 3). These nodules were situated at different levels and formed an irregular column in the course of the lymphatic channels between the lesion on the sole and that on the thigh. They ranged from 1½ to 2½ cm. in diameter and projected from 4 to 6 mm. above the

FIG. 3. CASE 2. *Showing nodules on the leg extending to papillomatous lesion at knee.*

surrounding skin. The integument covering three of these lumps appeared thinner than normal, and was shiny and of a pinkish hue. Over the remaining two the skin was unchanged.

The scalp, the eyes, the nose, the lungs, the heart and the abdomen were negative. There were no visible nor palpable lumps on the

chest. The thoracic movements were normal. The reflexes were active, but not exaggerated. The teeth were badly decayed. Associated with the dental caries was a moderate pyorrhoea, but this exudate did not contain any doubly-contoured spores.

The appearance of the lesions suggested a tuberculous infection as a possibility; but the onset of the disease after the age of 20, and the expression of pus from the verrucosities pointed to blastomycosis as the probable diagnosis. On the other hand, as neither the writer nor any of the other dermatologists of the city (personal communications) had seen blastomycosis in this vicinity with nodules, sporotrichosis could not be banished from the suspect-list. Nor was syphilis,

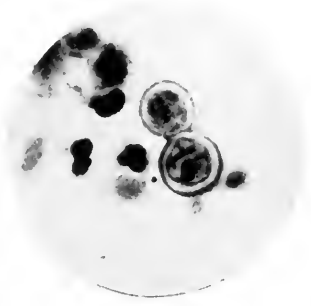

FIG. 4. *D[illegible]-contoured budding spores demonst[illegible]ed in pus, from Case 2*

nor carcinoma beyond a measure of suspicion. The diagnosis, however, was not long in doubt; for microscopic examination of the pus, mixed with a 20 per cent aqueous solution of potassium hydroxide, revealed the presence of numerous roundish, doubly-contoured, for the most part vacuolated blastomycetes. Many of these fungi were in the budding stage, the process whereby this organism reproduces itself (Fig. 4).

Most of the cultures were contaminated with cocci and penicillium but eventually a whitish mold was obtained which showed thick club-like mycelium with large spores.

On microscopical examination of sections taken from the papillomatous lesion on the thigh, the surface was covered with detritus and an incomplete horny layer. An occasional abscess was seen immediately beneath the horny layer. The epidermis was hypertrophied and sent down into the corium prolongations with some side branch-

ing. Many miliary abscesses nestled in these branches (Fig. 5). Scattered throughout the epidermis and the upper part of the corium were numerous abscesses of various sizes. Round-cell infiltration was present everywhere, especially in the epidermis. Giant cells were few in number. In none of these giant cells were any organisms. All of the abscesses harbored one or more doubly-contoured spores with vacuoles and a granular protoplasmic body. These cells were about 12 microns in diameter (Fig. 6). No budding spores were seen in the sections.

The histologic structure of specimens obtained from a nodule did not differ materially from that of the papillomatous lesion. The papillae did not extend as deeply into the corium but instead seemed to be pushed upward. The principal feature in these sections was the occurrence of numerous abscesses. The horny layer, while thinned, was intact. No superficial abscesses were seen.

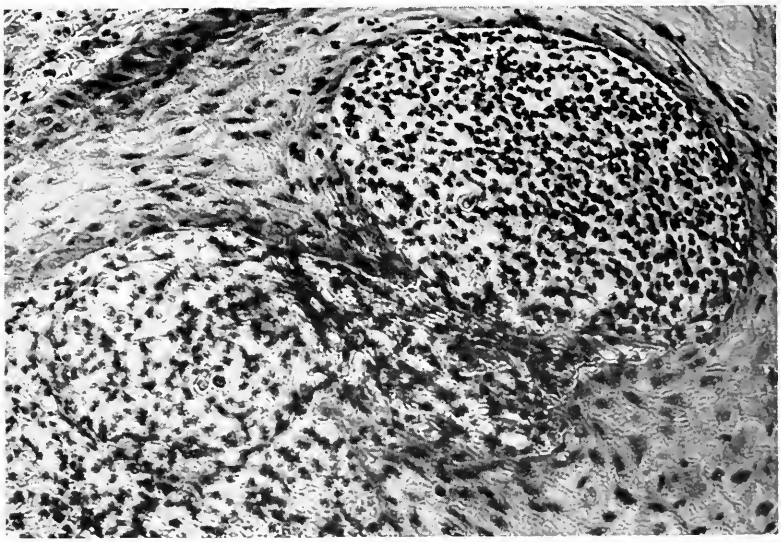

FIG. 5. CASE 2. *Miliary abscesses containing double contoured spores.*

For the purpose of observing the progress of the disease, no medication was given for three weeks. During that period all of the lesions remained stationary except the largest nodule, which became definitely fluctuant. Five drops of concentrated potassium iodide

solution was then prescribed for the patient three times a day. Some improvement in the condition was noted within a week. The dose was now increased to twenty drops, thrice daily. A week later, the condition had materially improved and pain on walking had ceased. The patient is still under treatment.

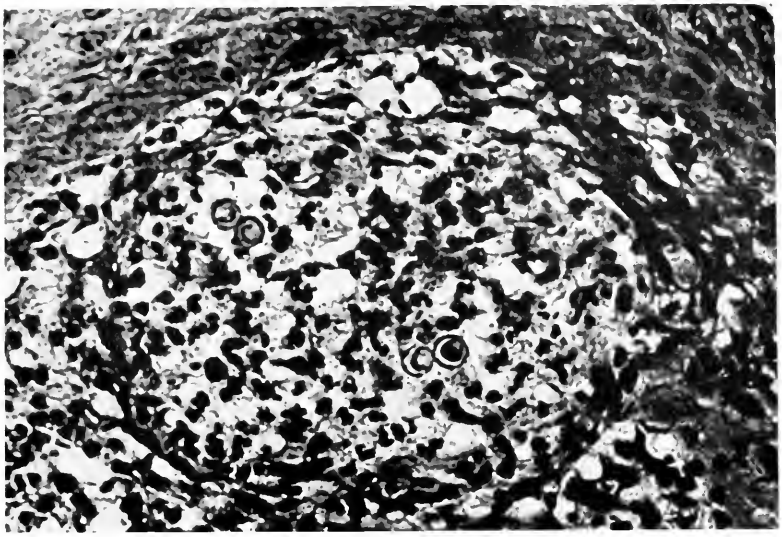

FIG. 6. CASE 2. *Higher magnification of a miliary abscess, showing double contoured budding spores.*

SUMMARY

1. Two cases of cutaneous blastomycosis are reported.

2. In case 1, the lesion resembled lupus vulgaris.

3. In the second case, there were two types of lesions, papillomatous and nodular; the nodules were distributed so as to simulate sporotrichosis.

4. Under the administration of potassium iodide, even in small doses, immediate and progressive improvement was noted in case 2.

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TUMOR OF THE BREAST

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In spite of the extensive educational crusade that is being waged against cancer of the breast both in the lay and in the medical press, many women suffering with mammary neoplastic disease, do not apply to the surgeon for relief until the lump begins to grow or to give pain or to cause discomfort. This tardiness may mean the loss of the most opportune time to operate, as malignant degeneration may have occurred in an originally benign tumor. Owing to this tendency of an innocent lesion of the breast to change to malignancy, every lump sheltered by the mammary gland should be extirpated without delay, and women with tumor of the breast should be warned of the possible penalty attached to procrastination. Under no circumstance should a woman with a mammary growth be advised to await developments, for abundant evidence has been collected to show that a benign tumor in this situation may change suddenly and without warning to the most virulent cancer. Stimulating ointments, salves, iodine, etc., should be proscribed. They can do no good, but may do harm by transforming a benign into a malignant growth. When the nature of the condition is in doubt, a microscopic examination of a frozen section should be made by a competent pathologist. The magnitude of the operation will depend upon the information thus obtained.

It is nothing unusual for a woman to harbor a tumor in the breast for many years and then to become aware that the neoplasm has begun to grow. This activity frequently marks the initiation of a malignant process. Peculiarly, the public looks upon pain as an essential feature in cancer of the breast, whereas suffering seldom occurs except in the late stages of the disease. Therefore, until women realize the urgency for the extirpation of a tumor of the breast as soon as it is discovered, progress in the control of mammary cancer will be greatly hampered; for no man can predict when a benign growth may become cancerous.

In 1911, R. Winslow and the writer[1] reported the results of a study on 100 cases of mammary tumor observed at the University of Maryland Hospital. Sixty-three were carcinomas; 3, sarcomas; 20, fibro-adenomas; 1, pericanalicular myxoma; 5, fibro-cystic-adenomas; 2, galactoceles; 3, tuberculous mastitis and 3, abscesses. Ninety-nine of the patients were females and one was a man with a fibro-adenoma. Eighty-eight were white and twelve colored people. As these figures were somewhat at variance with the generally accepted opinion, R. Winslow[2] reviewed the cases admitted to the University of Maryland Hospital in the years, 1917- 1918, and 1919, to ascertain whether there had been any material change in the statistics of mammary affections as observed in this particular institution since the publication of the above report. During the period under investigation, 102 mammary neoplasms were observed; viz., 61, or 59.80%, carcinomas; 3, or 2.94%, sarcomas and 38, or 37.26%, non-malignant growths. Eighteen of the benign tumors were solid and twenty cystic lesions. Ninety-nine of these patients were females and three were males. Of the women, 90 were white and 9 were colored people. The men were white and all had non-malignant conditions.

The purpose of this paper is to present the results of a statistical study based on 33 additional but consecutive cases of mammary tumors observed more recently at the University of Maryland Hospital. One of these cases had a cancer of the left breast and a recurrence in the scar of a radical amputation done on the right side in 1919, and two were readmissions for innocent growths in the opposite mamma. In one of the latter, the original admission was for carcinoma, in the other for a benign growth. This leaves 30 cases of first admissions; viz., 15, or 50%, carcinomas; 1, or 3.33%, sarcoma and 14, or 46.67%, benign lesions. However, if the three cases in which the growth occurred in the opposite breast are considered as new cases, the incidence would read: 16, or 48.48%, carcinomas; 1, or 3.04%, sarcoma and 16, or 48.48%, benign lesions. Thirty-two were women. The man was 70 years of age. The hardness of the tumor and palpable axillary glands led to a diagnosis of malignancy, and the breast was amputated, but on microscopical examination the tumor proved to be a fibro-cystic-adenoma and the glands, chronic inflammatory hyperplasia. The social status of the

[1]Foot-note—Maryland Med. Jour., Balto., 1911, lix, 335.
[2]Foot-note—Annals of Surg., Phila., 1921, lxxiv, 341.

patients was as follows: married, 23; widows, 2; and single, 8. Thirty-two were white people and one was a colored person. Twenty-nine did housework; 2 taught; 1 farmed and 1 was a school-girl. The right breast was affected 18 times and the left, 15. The youngest patient was 15 and the eldest 79 years old. The number of patients to the decade was as follows: 1 in the 2nd; 3 in the 3rd; 12 in the 4th; 7 in the 5th; 5 in the 6th; 3 in the 7th; and 2 in the 8th. Only one case of non-malignancy was seen after the 46th year. This patient was 70 years old. All of the patients were operated on. None died. At the time of the operation, the tumor had been present 1 month, 4 times; 1 year, 17 times; 2 years, 3 times; 3 years, 2 times; 4 years, 2 times; 6 years, once; 8 years, once; 10 years, once; and 12 years, twice. On the last two occasions, the patients were penalized for their temporizing tactics by having the pathologist report the neoplasms as schirrhus carcinomata with axillary metastases.

All 16 patients with carcinomatous lesions were females. Fifteen were of the white and one was of the colored race. Fourteen were married and two were single. Fifteen were residents of Maryland and one was a Virginian. The youngest patient was 28 and the oldest 79 years of age. Only 3 of these patients were younger than 45 years. Four were between 45 and 50; 6 between 50 and 60; 2 between 60 and 69; and 1 over 70. The colored woman was 28 years old and single, but had given birth to 5 children. Incidentally this case is of interest because the experience of others as well as personal observation shows that mammary cancer is an appanage of motherhood rather than of wedlock. Three patients reported that other members of their family had suffered from malignancy. Four patients attributed the condition to a preceding trauma. The growth had ulcerated in 2 instances and was attached to the skin or to the muscles or to both of these structures on 12 occasions. The axillary glands were palpable in 10 cases. The tumor was located in the outer and upper quadrant 9 times; lower and outer thrice; upper and inner once; lower and inner once and central twice. The size of the neoplasm varied from that of a marble to a clenched fist. The following operations were performed: Halsted's radical amputation, 13 times; Stewart's, once; palliative, once and the breast, the pectoral fascia and the axillary glands without disturbance of the muscles, once. The latter patient was alive and well five years after the operation. The following case illustrates the great utility of a micro-

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scopical examination of a frozen section. The patient, a young negress and the only colored person in the series, entered the hospital with what clinically simulated a fibro-adenoma. As the tumor did not appear to be encapsulated, the question of malignancy arose. It was therefore decided to make a frozen section of the tumor while the patient was under the anesthetic. The examination revealed a carcinoma. The course of treatment was then no longer in doubt. The palliative operation consisted of an amputation of the breast and a dissection of the axilla to prevent the patient from becoming loathsome to herself and her companions, as the mass was on the point of sloughing. Eleven of these tumors were classified from the microscopical picture as scirrhus carcinomata; 2 as adeno-carcinomata; 2 as cystic-adeno-carcinomata, and 1 as a simple carcinoma. Postoperative recurrence occurred promptly in 2 cases. Three patients were living and in good health five years or more after the operation. A history of pain or discomfort was obtained 6 times. Fourteen of the patients had axillary metastases. The left breast was affected 9 times and the right 7 times. In 2 of the patients the condition had been present for 3 months; in 1 for 6 months; in 2 for 8 months; in 1 a year; in 2 for 2 years; in 1 for 2½ years; in 1 for 3 years; in 2 for 4 years; in 1 for 6 years; in 1 for 8 years, and in 2 for 12 years. Certainly some of these tumors were innocent in the beginning and an earlier eradication of them would have forestalled the development of a cancer with its dire consequences. Two cases had a preoperative roentgenographic examination of the lungs to determine whether the process had extended to these organs. This is an advisable practice in all mammary malignancies, as not infrequently the lung is already secondarily involved when the patient seeks relief from the primary condition. If the X-ray examination should show the existence of pulmonic metastasis, only some intolerable condition such as fungus haematodes would justify the removal of the breast.

The sole representative of the sarcoma family occurred in a 65-year-old, white, married woman who entered the hospital, August 24, 1920, with an ulcerating mass in the left breast. The condition began 7 years previously as a small lump and the neoplasm had gradually grown to the size of a grape fruit. The breast had been replaced by a gangrenous, sloughing, bleeding fungous, infiltrating tumor with a profuse, foul discharge. The growth was attached both to the skin and to the muscles. There was no discharge from

the nipple, nor was the mamilla retracted. The breast was tender to touch. The axillary glands were palpable. The patient complained bitterly of pain in the affected organ. She was positive that the breast had not been injured. A diagnosis of malignancy was made and on September 11, 1920, the ulcerated area was cauterized, the breast was amputated and the axillary glands were enucleated. The dissection included the pectoral fascia but the muscles themselves were preserved. The pathologist reported the tumor as a large spindle-cell sarcoma. The unusual feature of this case was the age of the patient. While sarcoma is pre-eminently a disease of youth, fugitive cases may be encountered at the other extreme of life. For instance, R. and N. Winslow[3] report two cases of sarcoma of the breast in patients aged 51 and 52 years respectively. Although it is, as a rule, unsafe to draw conclusions from a limited experience, these studies would seem to indicate that sarcoma constitutes 3 per cent of mammary tumors; namely, 3% in the first, 2.94% in the second and 3.04% in the current series, or a combined average of 2.993% for the three series.

All 16 of the patients with non-malignant tumors were white people. Fifteen were women and one was a man. Twelve were residents of Maryland; 2, of Virginia; 1, of North Carolina, and 1, of New York. The youngest patient was 15 years old and the eldest, 70. The next oldest was 46. Ten were in their thirties. The right breast was involved 10 times and the left, 6. Nine of the neoplasms were solid growths; 5 cystic and 1 was a benign hyperplasia. They had been present anywhere from 1 to 10 years and varied in size from a marble to a hen's egg. Seven of the patients sought advice because of a rapid and sudden increase in the size of the tumor. Nine complained either of pain or of discomfort. Two had injured their breasts. In none of the cases was the neoplasm attached to the skin or to the muscles. In 11, the growth was described as hard. Excision was practised 8 times; simple amputation, in 6, and radical amputation twice because the presence of enlarged axillary glands suggested a strong possibility of carcinoma. One of these patients was a woman, 36 years of age and the other a man, aged 70 years. However, on microscopical examination, the glands in both cases proved to be chronic hyperplasia. Five of the patients were single and 11, married. Four of the married women had had children, 1 had not,

[3]Foot-note—Maryland Med. Jour., Balto., 1911, liv, 337.

in 5 not mentioned; 3 of the single women had not, 1 had, and in 2 the history did not contain this information. The nipple was retracted in none of the cases, nor could any secretion be milked from the affected breasts. None of the immediate or remote members of the family of these patients have had cancer. The growth was located in the upper and outer quadrant 13 times; upper and inner, once; lower and outer, twice. Eleven of the patients did housework; 2 taught; 1 was a farmer; 1 a clerk, and 1 a school-girl. One patient of this group had had a radical amputation of the left breast 8 months previously for malignancy. As a small fibro-adenoma had been removed from her right breast several months earlier, amputation was advised and accepted. Another woman, aged 38 years, had had her right breast removed for polycystic mastitis. She was readmitted to the hospital some months later with a fibro-adenoma in the other breast. This breast also was amputated. The nature of 3 of the benign tumors was looked upon with suspicion until microscopical examination of frozen sections proved their innocency. These findings were important because they had a distinct bearing on the type of the operation that would be most suited to the best interests of the patient. For example, a 15-year-old girl came to operation for a suspected sarcoma of the breast. Microscopical examination of a frozen section revealed a fibro-adenoma. The tumor was enucleated. Thus the child was saved from the dangers of a radical operation and the parents were relieved from the torment of suspense. Another instance of its use is the following: A 32-year-old nulliparous single woman entered the hospital with a suspected carcinoma. Although the microscopical picture was that of a precancerous fibro-adenoma, it was thought safe to limit the operation to extirpation of the tumor because the lump was encapsulated and freely movable in the tissues of the breast. The wisdom of preserving this breast seems to have been justified by no evidence of local recurrence or metastasis now more than seven years after the operation. However, it is, as a rule, unwise to ignore the pathological protocol. The third and last patient of this group was admitted to the hospital also for carcinoma. The breast was riddled with nodules. The pathologist diagnosed the condition as chronic cystic mastitis. As the patient was 42 years old and the damage was irreparable, the breast was amputated.

The chief lessons to be drawn from this study are:

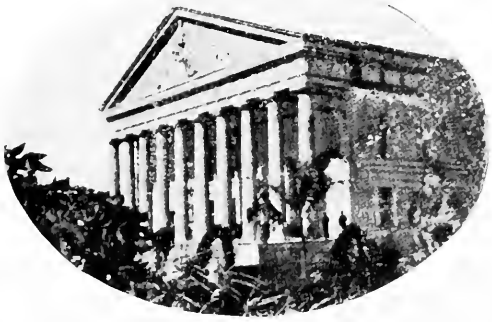
1. All breast tumors should be removed in their incipiency; for benign tumors may become malignant and malignant neoplasms may become inoperable.

2. No woman is justified in keeping a growth in her breast, and this injunction is the more imperative as the woman advances in life.

3. It is sometimes impossible to predict whether a given growth is benign or malignant until a microscopical examination has been made. Therefore, in doubtful cases a frozen section should be made by a competent person and reported on immediately in order that the surgeon may select the proper type of operation.

4. When cancer of the breast is suspected the lungs should be radiographed to determine the presence or absence of pulmonic metastasis. If the examination should reveal the existence of metastatic deposits, only an obnoxious condition, such as fungus haetodes, would justify the amputation of the breast.

5. Carcinoma forms about 50 per cent of mammary tumors.



DR. CAMPBELL MORFIT

Honorary M. D., University of Maryland, School of Medicine, 1851, and Professor of Applied Chemistry, University of Maryland, School of Arts and Sciences, 1854-1858

By Isidore Siegel, M. D.
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Dr. Campbell Morfit was the grandson of Henry Pittman Morfit who fought under George Washington in the Revolutionary Army. Henry Mason Morfit, father of Dr. Morfit, was born in Norfolk, Virginia. He was a distinguished lawyer, a member of the Maryland Legislature, and served the United States Government under Henry Clay. Henry Mason Morfit came to Baltimore in 1861, and lived here until his death. He married Catherine Campbell, who was born on April 1, 1801, in Philadelphia, Pennsylvania. They had a family of 16 children. Catherine Campbell Morfit died in Baltimore on August 2, 1893.

Dr. Campbell Morfit was born at Herculaneum, Missouri, in 1820. He was a student at Columbian College, Washington, D. C., and studied chemistry in Philadelphia. He married on April 13, 1854, Marie Clapier Chancellor who was born in Germantown, Pennsylvania. Marie Clapier Chancellor Morfit died in childbirth on April 26, 1855, in Baltimore, after having given birth to a daughter who was named after her mother, Marie Clapier Chancellor Morfit. Dr. Morfit never married again. His daughter followed in his footsteps and became a chemist, working with her father. She never married and died in London, England, on February 21, 1916. Her address as late as 1914 was 71 South Hill Park, Hampstead, N. W., London.

Dr. Campbell Morfit died in South Hampstead, London, England, December 8, 1897.

Dr. Campbell Morfit had a brother, Dr. Charles M. Morfit, a physician. He practised in Baltimore and died here.

The Morfit family is a large one and fairly well scattered over the United States. There is only one member of the family now living in Baltimore. He is Mason P. Morfit, a lawyer, and a nephew

of Dr. Campbell Morfit. He has many of the chemical formulas written in the hand of Dr. C. Morfit. Mr. Mason P. Morfit has three brothers all of whom live in St. Louis, Missouri, viz.:

Dr. John Campbell Morfit, a graduate of the College of Physicians and Surgeons of Baltimore, class of 1895;
Thomas Garrison Morfit, in the investment business;
James Clarke Morfit, real estate.

BIOGRAPHICAL NOTICES OF DR. CAMPBELL MORFIT

MORFIT, CAMPBELL, chemist, was born at Herculaneum, Mo., 1820. He was a pupil at Columbian College, Washington, D. C., and studied chemistry in Philadelphia. He became a manufacturer of commercial chemicals. In 1848, he was co-editor of the Encyclopedia of Chemistry, with Professor Booth. He organized the chemical department of the Maryland Institute and filled the chair of analytical and applied chemistry in the University of Maryland from 1854 to 1858.—Dictionary of American Biography, by Drake, Boston, James R. Osgood Company, 1876.

This book is in the Hopkins Library, Homewood, Baltimore.

MORFIT, CAMPBELL, address as given in one of his books: Campbell Morfit, Analytic and Consulting Chemist, Laboratory in Arch, above 6th St., Philadelphia, Pa. 1849.

MORFIT, CAMPBELL, Subsequently he entered a laboratory for the manufacture of commercial chemicals and in time became its owner, receiving for his products medals from American and Franklin Institutes. Meanwhile he organized the chemical department of the Maryland Institute, but declined to take charge of it. In 1854, he became a professor at the University of Maryland. Since his residence abroad (1861), he has devoted more attention to the improvement of chemical processes, notably in the preparation of condensed food rations, the manufacture of paper, the refining of oils, etc. During the native American riots in Philadelphia, he held the office of major of the 2nd. Brigade. He was joint author with James C. Booth of a report to the ordnance department in "Gun Metal," in 1853, from investigations by him in a laboratory that he established on his own plans at Pikesville Arsenal, Maryland.—Appleton's Cyclopedia of American Biography, 1888, vol. iv, p. 394.

This book is in the Peabody Library, Baltimore.

MORFIT, CAMPBELL, For bibliography of Morfit's works, see American Jour. of Pharmacy, 1898, lxx, 128; also Royal Soc. Catalogue of Scientific Papers, Royal Society, London, 1800-1863, vol. 4.

MORFIT, CAMPBELL, In 1851, Mr. Morfit made an offer to establish at his own expense, in connection with the medical (school) department of the University, a School of Applied Chemistry. The plan of the proposed building accompanied the offer, and indicated a great liberality and public spirit on the part of the proposer. It was to be built on the College grounds, and was to cost about $10,000.00. The offer was declined on the ground that the character of the instruction proposed did not come within the scope of a medical college. As an evidence of their appreciation, however, the Faculty conferred upon Mr. Morfit, who since became a renowned chemist of London, the honorary degree of M.D.—University of Maryland, 1807-1907: Its History, etc., by Eugene F. Cordell, M.D., New York and Chicago, The Lewis Publishing Company, 1907, vol. i, pp. 222-223.

This book is in the University of Maryland Library (School of Medicine).

MORFIT, CAMPBELL, A description of Morfit's steam twirl for soap manufacture with illustrations appears in Soap, Candles, Lubricants and Glycerine, by Carpenter and Leask, published by E. and N. Spon, London, 1895.

This book is in the Pratt Library, Baltimore.

MORFIT, CAMPBELL, Obituary notice in Chemical News, 1897, vol. lxxvi, p. 301. By death of Dr. C. Morfit, formerly Fellow of the Chemical Society and of the Institute of Chemistry, which took place on the 8th inst. (Dec., 1897), at South Hampstead, etc. He was one of the scientific advisors of the U. S. Government previous to the Civil War.

This book is in the Peabody Library, Baltimore.

MORFIT, CAMPBELL, Born, November 19, 1820; died, December 8, 1897, at London, England. He became a student in Columbian University, but before completing the course he began studying chemistry with James C. Booth, in Philadelphia. Practised his profession in New York City, 1858-1861. In the last year he removed to London, where he resided till his death (Obituary notice from the Annual Cyclopedia, Appleton, 1897, 3, s., ii, 609).

This book is in the Peabody Library, Baltimore.

MORFIT, CAMPBELL, Obituary notice in "The Sun," Baltimore, December 14, 1897, and the "Times," London, December 9, 1897.

PUBLICATIONS BY DR. CAMPBELL MORFIT

MORFIT, CAMPBELL, assisted by MUCKLE, ALEXANDER: Chemical and Pharmaceutic Manipulations, Philadelphia, Lindsay and Blakiston, 1849.

This book is in the Chemical Library of the Johns Hopkins University.

JAMES C. BOOTH, A.M., M.A.P.S., assisted by CAMPBELL MORFIT: The Encyclopedia of Chemistry, Philadelphia, Henry C. Baird, successor to E. Carey, 1850; remarks in the preface: Mr. Campbell Morfit was associated with the author in the last half of the work. The larger articles written by him are, Cochineal, Cotton, Essential Oils, Fats, Gelatin, Madder, Oils, Proteins, Oxunin, Salicyl, Starch, Stearin, Sugar, Tartaric Acid, Turpentine, Thermometer, Varnish, Water, Wax, Wheat, and Wood. Besides these he penned a large portion of the smaller articles from pages 465 to the end.

This book is in the Chemical Library, Johns Hopkins University.

HENRY M. NOAD, with Numerous Additions by CAMPBELL MORFIT: Chemical Analysis, Qualitative and Quantitative, Philadelphia, Lindsay and Blakiston, 1849.

This book is in the Welch Library, Johns Hopkins University, Baltimore.

MORFIT, CAMPBELL: Practical Treatise on Pure Fertilizers, London, 1873.

JAMES C. BOOTH and CAMPBELL MORFIT: On Recent Improvements in the Chemical Arts, Washington, 1862.

MORFIT, CAMPBELL, Professor of Analytic and Applied Chemistry in the University of Maryland and MORFIT, CLARENCE, Assistant Melter and Refiner in The United States Assay Offices: Chemical and Pharmaceutical Manipulations, Philadelphia, Lindsay and Blakiston, 1857.

This book is in the Chemical Library, Johns Hopkins University, Baltimore.

MORFIT, CAMPBELL: Sur le dosage du corbone dans le fer, Paris Bull. Soc. Chim., 1864, ii, 245-246.

MORFIT, CAMPBELL: Practical Treatise on the Manufacture of Soaps, London, 1871.

MORFIT, CAMPBELL, Professor of Analytic and Applied Chemistry in the University of Maryland: A Treatise on Chemistry Applied to the Manufacture of Soap and Candles, Philadelphia, Parry and McMillan, London, Truber and Company, 1856.

A description is given of Bracconnot and Morfit's process of making candles on page 430.

This book is in the Pratt and Peabody Libraries, Baltimore.

MORFIT, CAMPBELL, M.D., F.I.C.: A New and Original Process for Refining Crude Cottonseed Oil, London, July 7, 1892.

This is a note book written in the handwriting of Dr. Morfit and is now in the possession of Mr. Mason P. Morfit, of 1335 Bolton Street, Baltimore, Md.

JOHN BEALE DAVIDGE
One of the Founders

BULLETIN

OF THE

SCHOOL OF MEDICINE UNIVERSITY OF MARYLAND

Board of Editors

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JOHN SAMUEL FULTON, M.D.

1859-1931

Among the many sons of our University, of whom she is justly proud, none has occupied a more prominent and unique position than Dr. John S. Fulton, due to the part he has played in the advancement of the health of the people.

His good fortune in being the eldest son of a Scotch minister assured him the excellent training in the classics which doubtless greatly aided him to be the more benefited by his later training at St. John's College, Annapolis, to obtain the degree of B.Sc.

Before he entered the University of Maryland to be educated and trained as a physician, Dr. Fulton taught in the public schools of Wicomico and Somerset Counties. The experience thus obtained, coupled with his natural talents, made him the better leader and guide to the citizens of the State in adopting measures for the protection and promotion of their health.

Immediately after receiving the degree of M.D. from our University, he entered into the practice of his profession. It was not long, however, before broader fields for the exercise of his education and talents brought him to Baltimore and he received in 1895 the appointment of "Chief of Clinic" in Internal Medicine and later was made

Dr. John S. Fulton

Professor of Clinical Medicine in the University. In 1902 he was appointed to the chair of Professor of State Medicine which he occupied until the entrance of our country into the World War during which he served on the staff of the Surgeon-General of the U. S. Army.

In the year 1896 the State Board of Health appointed Dr. Fulton as its Secretary and Executive Officer. He soon realized that this position demanded his whole time should be devoted to its work.

The great scientific discoveries during the latter half of the 19th century determined the specific causes of diseases and their mode of transmission and it was necessary that Health Officers should forcefully lead the people to the surer means of protecting and promoting their health.

Diseases transmitted by contact of the sick with the well; by human carriers; by insects; by direct and indirect conveyance of infections due to improper disposal of the body wastes—all received his attention. It is believed by many, however, that his outstanding piece of work was that against tuberculosis. In 1902 he was able to attract the attention of the then Governor of the State, John Walter Smith, to the possibilities of lessening its prevalence which resulted in the Governor appointing his committee to study the problem and to recommend curative and preventive measures. In 1904 Dr. Fulton in McCoy Hall, Johns Hopkins University, collected and exhibited facts concerning tuberculosis to the eyes of the people; presented the writings of authorities in books and pamphlet form and brought together the leaders in medicine to lecture concerning the truths as to what might be done to lessen the prevalence of the disease. This exhibition was the first of its kind in the United States. The attention of the leaders in medicine and the citizens in many, if not all the States, was thus aroused to the immediate formation of the National Tuberculosis Association. The report of the Governor's Tuberculosis Committee resulted in the building of State and Private Tuberculosis Sanatoria.

The Reorganization Act of 1922 placed in the hands of the Governor the appointment of the Director of Health and President of the State Board of Health. Dr. Fulton was appointed as Director and assumed the office January 1st, 1923.

In May, 1928, he retired because of poor health and was named Director Emeritus by the Board of Health.

He was a member of the following organizations:

Director, American Association for the Study and Prevention of Infant Mortality (American Child Health Association),
American Public Health Association,
Maryland Medical & Chirurgical Faculty,
National Tuberculosis Association,
American Medical Association,
American Association Advancement of Sciences,
National Health Council,
Hygiene Reference Board,
Conference State & Provincial Health Officers.

Naturally his deepest interest was in the last mentioned organization which he served as its President in 1905.

Dr. Fulton was called to Washington, D. C., to serve as Secretary General in two important International Congresses:

1907—The 6th International Congress on Tuberculosis,
1913—The 15th International Congress on Hygiene and Demography, which he served with distinction and credit to his country.

Dr. Fulton had a pleasing and forceful personality. In social life he was always entertaining not only in recounting his varied experiences but also because of keenness of perception of topics of discussion and the clearness of expression of his opinions.

He was always most considerate of the opinions of others but fearless in standing alone when he considered it to be necessary. He was fortunate in possessing a lively spirit that expressed itself frequently in a hearty laugh that evidenced his keen enjoyment of affairs in his daily life.

His death has left a void in the hearts of his friends that can never be filled.

THE DEPARTMENT OF ANATOMY IN THE MEDICAL SCHOOL

The question whether or not any attention should be devoted to its clinical application in the preclinical teaching of anatomy, and as to what degree it should be considered, is a much debated one; yet it can scarcely be said that it has been answered to the satisfaction of everybody.

It is notorious that in France the clinical point of view has penetrated deeper into the preclinical departments than in any other country. The practice, however, that only medical doctors are allowed to teach anatomy in the medical school, adhered to rigidly in other European countries, is expressive of the opinion of the medical school authorities of these countries, that only persons who are in the full possession of a medical training and capable of teaching anatomy in its application to medicine, are fit to teach anatomy in the medical school. In strict opposition to this opinion are the conditions in the United States, where at the present moment anatomy is taught in many of the leading schools by anatomists and not by medical men.

Personal contact with the conditions here and in such countries as Germany shows, however, that the actual teaching of anatomy does not corroborate the conclusion which one would be apt to draw from the above-mentioned facts. The strictly abstract and theoretical method of teaching anatomy as employed by some of the leading German anatomists of the past and present time could hardly be surpassed, while in many of our American anatomical departments the theoretically trained Ph.D. has adopted a predominantly clinical point of view in teaching anatomy.

It is probably impossible to decide conclusively and in a manner satisfactory to everybody, questions like the one before us. The success of teaching any subject is a problem so intimately personal, so much depending on personality, knowledge and ability to inspire, that an attempt of narrow limitation will only interfere, but not aid. Keeping this in mind, however, one may venture to develop a picture of an ideal method of teaching anatomy in the medical school.

While there is found, in some of the more recent writing on the development of medical schools and perhaps in the actual trend of medical teaching, an inclination to consider the medical school, as a

whole, less a place for the highest degree of learning and more a school of technical training, there can be little doubt that few anatomists would be willing to see this viewpoint applied to the department of anatomy of the medical school. At present the department of anatomy is the one academic department, which owing to its facilities as well as to the training and inclination of its members can be considered the highest authority in the science of morphology. There is no other school or department which is more fit than the department of anatomy to increase our knowledge and standards of pure morphological science beyond its present boundaries.

The present obligation of the department of anatomy is not to advance medicine but to advance anatomy. To this task the anatomical department should devote every available time. If anatomy is an indispensable pillar of medicine, then it is obvious that the medical school will profit the more the less the anatomist attempts to teach medicine and the more he tries to teach and develop facts of abstract anatomy.

If the anatomist is supposed to teach anatomy in relation to surgery, then, there exists no logical reason why he should not be called upon, in addition, to teach his subject in relation to obstetrics, orthopedics, pediatrics, psychiatry, internal medicine, pharmacology, physiology, anthropology, constitutional medicine, etc. The time available for the general course is short even for the teaching of the facts of anatomy proper. It would be impossible to give in this short course anything that would approach an outline of obstetrical, surgical, pediatrical, etc., anatomy. And what would be the function of the surgical anatomist in the medical school, if we would teach this branch in the department of anatomy?

I believe the department of anatomy will render the most efficient service to any one branch resting on anatomical knowledge, if an earnest endeavor is made to keep the standards of anatomy as nearly as possible those of a biological science, and acquaint its students with as many anatomical facts as possible. Whatever branch of medicine or biology these students may specialize in later, they should be in the possession of an ample store of anatomical knowledge from which to draw. Equipped thus, they will find it very easy later on, to correlate their anatomy with any particular aspect of the medical practice they may become interested in.

Don't let us forget that, if today's medicine, in a large measure, is the product of past advances in anatomy, tomorrow's medicine will be made by the advancement of today's anatomy.

EDUARD UHLENHUTH.

THE ENDOWMENT FUNDS

The Board of Trustees of the Endowment Funds reports for the fiscal year ending December 31, 1930, as follows:

	Invested	*Cash*	*Total*
Faculty of Physic Fund	$ 53,709.93	$ 1,225.55	$ 54,935.48
General Endowment Fund	18,378.70	1,100.38	19,479.08
Katherine Gibson Fund	2,556.99	796.63	3,353.62
Charles M. Hitchcock Fund	5,000.00	276.03	5,276.03
Leo Karlinsky Fund	3,000.00	342.23	3,342.23
Leon Frank Fund	2,466.56	395.78	2,862.34
Randolph Winslow Fund	2,500.00	86.36	2,586.36
David Streett Fund	350.00	701.93	1,051.93
Burt J. Asper Fund	.....	251.49	251.49
Daughters of American Rev. Fund	945.00	683.34	1,628.34
Chas. Frick Research Fund	500.00	847.84	1,347.84
J. C. Hemmeter Fund	9,719.87	408.91	10,128.78
Law Fund	.....	245.06	245.06
Pharmacy Fund	.....	66.47	66.47
Dental Fund	.....	34.92	34.92
L. S. Ashman Fund	.....	39.02	39.02
J. Friedenwald Fund	11,003.29	1,025.29	12,028.58
I. and C. Cohen Fund	4,920.14	374.32	5,294.46
G. H. H. Emory Fund	.....	610.66	610.66
J. M. H. Rowland Fund	5,568.95	658.68	6,227.63
E. and L. Zimmerman Fund	1,003.47	30.68	1,034.15
A. Bradley Gaither Fund	.....	525.48	525.48
Caroline Dorsey Coale Fund	2,250.00	33.75	2,283.75
J. W. Holland Fund	.....	19.36	19.36
	$123,872.90	$ 10,780.16	$134,653.06

Total of all funds December 31, 1930.. $134,653.06
Total of all funds December 31, 1929.. 127,113.23

Increase for 1930 ..... $7,539.83

These figures, however, do not tell the whole story, as the following funds are held by the Board of Regents: The Emerson (consisting

of securities sufficient to produce $6,000.00 a year), the Warfield (approximately $40,000.00), and the Hitchcock (of which $100,000.00 have been received with $25,000.00 more in prospect). In addition to these trusts, the death of Francis B. Harvey, on January 17, 1931, should release in the near future a residuary bequest from his father estimated at somewhat over $100,000.00. It is also reported that a part of the late Dr. John F. B. Weaver's estate, inventoried at $204,928.56, has already been received. After the deduction of some legacies, the University should ultimately inherit about $100,000.00 from this source. The full amount will not be distributed, however, until the death of Miss Harriet M. Runkle, who is left by Dr. Weaver's will a life interest sufficient to produce an annual income of $1,800.00. Besides these bequests, the University is the residuary legatee of the late Dr. Crim, whose estate is valued at $40,000.00. When all of these benefactions have been received, the total endowments of the University of Maryland should approximate $675,000.00. As will be noticed, each annual report has shown a steady improvement in the permanent finances of the University. This should be welcome news to our alumni. While these gifts will help to lighten our financial burdens, they only scratch the surface. Much more fluid assets are needed. Every department is sorely hampered in doing its best work by lack of revenue. Therefore, any assistance, be it large or small, will be greatly appreciated by the University authorities. As a friend of this venerable institution, may we not enroll your name among its benefactors either by a gift now, or at least by a remembrance in your will. Let not our appeal fall upon deaf ears. A bigger and better University of Maryland is dependent upon your generosity.

Contributions, bequests, legacies and donations, if intended for the School of Medicine, may be given to the general medical fund, or to any object the devisor may specify, such as library, hospital, research, publication, or the endowment of a chair. Inasmuch as these contributions are administered by the Board of Trustees of the Endowment Funds, a body incorporated under the laws of Maryland and independent of the Faculties, the inviolability of the corpus of the gift is absolutely guaranteed, and the donor is assured that his wishes will be strictly observed, for not even the interest can be expended without the consent of the Board of Trustees. Lest ye forget, he who gives now, gives twice.

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The names listed above are our officers for the term beginning July 1, 1931, and ending June 30, 1932.

A HALF CENTURY OF SERVICE

The Medical Alumni Association of the University of Maryland was organized March 8, 1880, with Dr. George W. Miltenberger, as its first president, and Dr. Eugene Fauntleroy Cordell, as its secretary. From that remote day of fifty years ago until the entrance of the United States in the World War, the Society functioned without interruption; but from 1917 to 1921, though no sessions were held, the organization continued a nominal existence on paper. However, with the return of conditions to normalcy, some of the University officials realized that the active support of an alert, energetic, wide-awake alumni association would be a powerful stimulus in advancing the program which had been developed for the betterment of the Medical School. It was, therefore, decided to resurrect the Alumni Association. Accordingly, the last regularly elected presiding officer, Dr. J. M. H. Rowland (in the capacity of president ad interum), issued a call to a coterie of stalworths who foregathered at the Uni-

versity April 14, 1921, and elected John B. Schwatka, president, and Nathan Winslow, secretary, to serve until the annual meeting, May 30th, at which time Dr. Schwatka was elected president for the ensuing year. Since its rebirth the Medical Alumni Association has definitely established itself as an important cog in the affairs of the University and yearly has broadened its scope of usefulness. It has bought a permanent home, the "Alumni House," 519 W. Lombard St., located directly across the street from the administrative building, where it maintains an office staff with a full-time executive secretary who is on duty from 9 a. m. to 5 p. m. daily. It acts as custodian of the alumni roster. Through the pages of the Bulletin it keeps the alumni fully informed concerning the policies and happenings at the University. It lends a cooperative hand to every movement that tends to enhance the prestige of the University of Maryland. Since the reorganization the Association has had 11 presidents and 5 secretaries, viz:

	Presidents	*Secretaries*
1921	John B. Schwatka	Nathan Winslow
1921-22	John B. Schwatka	William S. Love
1922-23	G. Milton Linthicum	William S. Love
1923-24	Alexander D. McConachie	William S. Love
1924-25	Robert L. Mitchell	Charles W. Maxson
1925-26	William S. Love	Charles W. Maxson
1926-27	Charles W. Maxson	Howard M. Bubert
1927-28	Frank Keating	Howard M. Bubert
1928-29	C. Reid Edwards	Howard M. Bubert
1929 30	Alexius McGlannan	Howard M. Bubert
1930-31	John Evans	Thomas B. Aycock
1931-32	Albert E. Goldstein	Thomas B. Aycock

These men, with the abetment of the other officers, have done a splendid work. To make the Association a worth-while venture, they have given generously of their time and money. No words can adequately express the praise that is their due. Theirs has been a hard, a disagreeable task, but in spite of many obstacles they have had the courage and determination to carry on.

In the final analysis, however, a school is no stronger than its alumni make it; and in educational affairs as in every other walk of life,

"It ain't the individual,
Nor the army as a whole,
But the everlastin' teamwork
Of every bloomin' soul."—*Kipling.*

One way each alumnus can effectually serve the institution is by joining the Alumni Association. By so doing, he performs a threefold service: (1) identifies himself with his alma mater; (2) personally participates in the movement to place the Medical School upon the highest scholastic plane, and (3) stimulates the officers of the Alumni Association to continue their best efforts in promoting the program of development now in progress at the University.

Get on the band-wagon; sign the application blank provided on the inside of the back cover and mail at once to the secretary, ere ye forget.

CHANGES IN THE BOARD OF INSTRUCTION

The following changes have been made in the Board of Instruction:

New Appointments

Conrad B. Acton.....Assistant in Pathology
R. W. Johnson.....Assistant in Pathology

Promotions

J. S. Eastland.....From Instructor in Medicine to Associate in Medicine
Thomas C. Wolff.....From Instructor in Medicine to Associate in Medicine

UNIVERSITY OF MARYLAND NURSES ALUMNAE REGISTRY

When the Nurses registry for graduates of the University of Maryland Training School for Nurses was discontinued with the disbanding of the Nurses Club at 21 North Carey Street, Baltimore, the Nurses Alumnae Association took over the work of the registry.

This activity has been successfully administered for and by the graduate nurses for the past eight years.

At the present time there are on the registry approximately 75 graduates of the School of Nursing, registered by the State Board of Examiners of Nurses. These nurses are available for all types of graduate work and calls from any graduate of the Maryland University School of Medicine to the registry, Gilmor 4974, will be given immediate and painstaking attention. Such consideration from the doctors will be much appreciated by the nurses.

ELLEN C. ISRAEL, R. N.

AN APPRECIATION

It seldom falls to the lot of a colleague to have as a friend and companion, a ninety-two year old physician; such was my good fortune in having the companionship of the late Doctor Charles F. Russell, a graduate of the Medical Department in the Class of 1867.

Doctor Russell was a native of Virginia and spent his early boyhood there until feeling the urge he decided to take up the study of medicine, matriculating in 1860.

At the outbreak of the Civil War he laid aside his medical study and flew to the defense of his Homeland by enlisting in the Confederate Cavalry, serving until the close of hostilities, when he again resumed his studies at the University, graduating in 1867.

His army life was very colorful, the Cavalry always being filled with action and well suited to his adventuresome young spirit. He was severely wounded on several occasions. He spoke entertainingly of his experiences, but never in a boastful spirit or disparagingly of the Union Troops.

The most appealing part of his career to me was his early life in medical practice, having started as a Country Doctor, and in the days of Horseback and Saddlebags, which required a large amount of stamina and resourcefulness.

He was deeply interested in the profession to the end and only two days before his death he attended a medical meeting.

He was of a magnetic and fascinating personality, attracting and holding everyone by his kindly and benevolent manner. His charm was irresistible and one always left him with a feeling of having spoken to one of "God's Chosen People." Nothing gave him greater pleasure than mingling with his colleagues and he was the center of attraction at gatherings of medical men. He liked nothing better than to be called upon for an address, and his remarks about the early days in medicine were exceedingly interesting and listened to with marked attention.

No better tribute can be paid to his memory than by the action of his fellow townsmen who are erecting a public drinking fountain with his name inscribed and the following inscription:

"He Was A Friend To Everyone"

A. W. VALENTINE.

DR. C. EMIL BRACK

On May 25th seventy physicians and surgeons of Baltimore gathered at the Baltimore Club to do honor to Dr. Charles Emil Brack, obstetrician. While this group was largely made up of the members of the Staffs of the Mercy and University Hospitals, it was not confined to them as Dr. Brack's service to humanity is recognized by the entire profession. Dr. Alexius McGlannan, who was Toastmaster, explained to Dr. Brack that the dinner in his honor was to "show you the width of admiration and depth of affection for you." Other speakers were L. E. Neale, George Washington Mitchell, Melvin Rosenthal who voiced the tributes of the assembly as well as the many friends of Dr. Brack who were unable to be present. Dr. Brack has been the Treasurer of the City and State organizations for eleven years and last year declined the presidency of the Society in order that he might complete the program he set for himself as Treasurer. "The doctor who impresses upon all who are associated with him that his paramount instinct is to pursue a ministry of healing need not wonder that he is honored, even if he has neither written a book nor invented an instrument."

ITEMS

Dr. Allen Fiske Voshell, Professor of Orthopedic Surgery, has opened officies at 4 East Madison Street, Baltimore, Maryland.

Dr. Luke M. Shipley, class of 1869, resides at West Friendship, Maryland. He is in his ninetieth year.

Dr. Fred W. Rankin, Mayo Clinic, Rochester, Minn., class of 1909, was the secretary of the section on general and abdominal surgery of the American Medical Association for 1931.

Dr. Emil Novak, Baltimore, Md., B. M. C., class of 1904, was the chairman of the section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association for 1931.

Dr. Porter Paisley Vinson, Rochester, Minn., class of 1914, is assistant professor of medicine, University of Minnesota, Graduate School of Medicine.

DEATHS

Dr. John Samuel Fulton, Baltimore, Md.; class of 1881; formerly secretary of the Maryland State Board of Health; served in the United States Army, Medical Corps, during the World War; aged 72; died, August 12, 1931, of a lingering illness. He was the father of Dr. William J. Fulton, of Baltimore, class of 1922. Dr. John S. Fulton was a native of Ohio, where he was born at Fremont, in 1859. His parents were the Reverend William Fulton, a native of Glasgow, Scotland, and Nancy Organ, of Cable, Ohio. In 1861, the family removed to Snow Hill, Md. Dr. Fulton was only 2 years old at the time. He began his education in the rectory of All Hallows parish on the Eastern Shore of Maryland, with his parents for teachers. He then attended St. John's College at Annapolis, Maryland, from which he was graduated in 1876 with the B.A. degree. Immediately afterwards he began the study of medicine as a student to Dr. Stephen Purnell Dennis, of Salisbury, Maryland. He next entered the Medical School of the University of Maryland, from whence he was graduated with the degree of M.D. in 1881. After graduating, he engaged in private practice on the Eastern Shore. He soon manifested a strong interest in the welfare of the tuberculous and limited his practice largely to this disease. In 1897, he was appointed secretary and director of the State Board of Health and ever afterward confined his efforts to the field of public health. He led a campaign for the enactment of the first registration law that required reports to be made of patients with tuberculosis. He was instrumental in many advances in state health administration and was active in backing the pure food and drug laws. In 1904, he planned and supervised the first tuberculosis exposition held in Baltimore and was largely instrumental in the formation of the National Tuberculosis Association. From 1906 to 1910, he served as secretary-general of the International Congress on Tuberculosis in 1908, and of the International Congress on Hygiene and Demography in 1912. He served his alma mater for some years as professor of state medicine, and was president of the Conference of the State and Provincial Health Officers of North America in 1905. He was a fellow of the Royal Society of Physicians of Hungary, a member of the American Medical Association, the American Public Health Association, the National Association for the Study and Prevention of Tuberculosis and a lieutenant-colonel in the Medical Corps of the United States Army during the late war. Dr. Fulton married on October 25, 1888, Nancy Helen White, of Salisbury, Md. By his accomplishments he attained an international reputation as a thoroughly competent, resourceful and efficient public health official. He served his city, state and nation, long and faithfully. In his dealings with his fellow physicians, he was courteous, patient and fair. The University of Maryland will ever remember gratefully his services as a teacher.

Dr. Elgie La Vernze Wasson, Butler, Pa.; B. M. C., class of 1898; president of the Butler County Medical Society; member of the Board of Education; formerly member of the State Legislature; aged 55; died, June 13, 1931, of pulmonary edema.

Dr. Leonidas Constantine Smith, Polkton, N. C.; B. M. C., class of 1892; aged 64; died, June 21, 1931, of cerebral hemorrhage.

Dr. Emerson Land, Virginia Beach, Va.; class of 1886; formerly mayor of Virginia Beach; for 20 years county health officer; aged 70; died, July 29, 1931, of chronic myocarditis and bronchitis.

Dr. Claude Joyner, Avon, Va.; P. & S., class of 1888; formerly health officer of Jacksonville, Fla.; aged 70; died, July 27, 1931, of carcinoma of the pancreas and the liver.

DR. ALBERT SQUIRE BOSWORTH, Elkins, W. Va.; B. M. C., class of 1893; aged 72; died, July 17, 1931, of paralysis and carcinoma of the colon.

DR. WILLIAM G. PETTUS, Georgetown, Texas; class of 1867; Civil War veteran; aged 87; died, March 14, 1931.

DR. EMORY WALLACE STRICKLER, Fairmont, W. Va.; B. M. C., class of 1893; also Eclectic Medical Institute, Cincinnati, 1889; president of the Marion County Medical Society; aged 65; died, July 1, 1931.

DR. LOUIS A. KOCH, Newark, N. J.; B. M. C., class of 1902; aged 52; died, July 7, 1931, of carcinoma of the sigmoid.

DR. WILLIAM COCHRAN HALL, Coffeyville, Kan.; P. & S., class of 1885; aged 70; died, July 4, 1931, of pneumonia.

DR. CHARLES E. GIBSON, Beaver, Pa.; P. & S., class of 1892; aged 63; died, July 14, 1931, of angina pectoris.

DR. LAWSON ARNOLD CRAWFORD, Alliance, Ohio; B. M. C., class of 1892; aged 62; died, July, 20, 1931, of cerebral hemorrhage.

DR. CHARLES F. RUSSELL, Herndon, Va.; class of 1867; past president of the Fairfax County Medical Society; Confederate veteran; aged 92; died, July 16, 1931, of senility. Dr. Russell, one of the best known of the old-time doctors of Northern Virginia, was loved and respected by hundreds. A Civil War veteran, he enlisted in the cavalry division of the Confederate Army in 1861 and served as a private. He witnessed the John Brown raid on the arsenal at Harpers Ferry. At the time he entered the Southern Army he was a medical student at the University of Virginia. With the cessation of hostilities he resumed his studies and was graduated from the University of Maryland with the degree of M. D., in 1867. He practiced at Hillsboro, Va., Graceham, Md., Sharpsburg, Md. and later at Herndon, Va., for 64 years. At the time of his death, he was adjutant of Marr Camp, Confederate Veterans. He visited the University of Maryland last June during Commencement activities and made a speech to the alumni. At the time he seemed healthy, active and good for a number of years on this earth. He was truly one of the old-time Southern gentlemen, a rapidly disappearing type of citizen.

DR. HENRY A. CHAPIN, Jacksonville, Ill.; B. M. C., class of 1895; past-president of the Morgan County Medical Society; member of the Radiological Society of North America; aged 59; died, August 10, 1931, of a tumor in the head of the pancreas and internal hemorrhage.

DR. FRANK WESLEY LOCKWOOD, East Orange, N. J.; P. & S., class of 1893; aged 59; died, August 9, 1931, of arteriosclerosis.

DR. JOHN A. PINNIX, Yanceyville, N. C.; P. & S., class of 1875; Confederate veteran; aged 85; died, July 29, 1931, of chronic nephritis and uremia.

DR. EBENEZER WIDEMAN PRESSLY, Clover, S. C.; class of 1887; past-president of the South Carolina Medical Association; formerly member of the state board of medical examiners; served during the World War; aged 68; died, July 24, 1931, of cerebral hemooahe. The Bulletin is indebted to Dr. W. K. McGill for a copy of the following beautiful tribute paid to the memory of Dr. Pressly. The eulogy is entitled,

IN MEMORIAM

E. W. PRESSLY, M. D.

Dr. Ebenezer Wideman Pressly was born in Anderson County, S. C., November 20, 1863 and passed from the scenes of this life July 24, 1931. We was the son of Rev. W. L. Pressly, D.D., and Frances E. Wideman. He received his literary education in Due West, S. C., graduating from Erskine College in the class of 1883. He came to Clover, S. C., first as a school teacher to fill the unexpired term of the teacher who had died. He was elected for the ensuing year and taught the entire term.

Deciding to take up the practice of medicine as a life work he entered the University of Maryland and graduated from this institution in 1887. He received a gold medal from that institution for making the highest average grade of any student up to that time. With the ties of friendship of his former years pulling upon the strings of his heart he returned to Clover and became associated with Dr. A. P. Campbell. The younger physician admired the older man as a genius in the practice of the art of medicine.

He gave himself with whole hearted devotion to the service of his people. For about 20 years he took no time off for pleasure not even so much as was necessary for his participation in the medical meetings of the county and state. When he began to turn his interest to the organized side of medical life he soon became a leader in the county and state societies. His consultation was called for both in lower North Carolina and upper South Carolina. Everywhere his ability as a diagnostician was recognized by the specialists, surgeons and practicioners alike.

During the World War, Dr. Pressly willingly turned his attention from those dear to him in his large practice to accept the opportunity to give his professional service to his country in its time of need. He first served with Exemption Board No. 2, in York County. Later he volunteered for the Medical Corps and was commissioned First Lieutenant and stationed at Camp Sevier. His ability as a diagnostician was soon recognized by his superior officers. On one occasion a troop of new recruits came in from whom the officers were unable to get the desired results in the way of duty. After discussion by the entire medical staff, Dr. Pressly expressed the belief that the new men suffered from hook worm. One day Lieutenant-Col. Scott said "Lieutenant Pressly do you think you can go through and pick out these hook worm cases as you come to them." Lieut.-Col. Scott, "I know I can," was his quick reply. Of the 12 cases selected 10 by laboratory examination proved his diagnosis correct. Lieut.-Col: Scott then appointed him to make a talk to the staff on hook worm disease. His speech opened the eyes of the staff anew to his ability and promotion after promotion followed till he was made Lieutenant-Colonel and placed in charge of the Base Hospital. After his discharge he practiced in Greenville for about three years. All the while he could not forget his first love and finding his health failing he decided to return to Clover for his last years. In 1923 he returned to Clover and gave his services to the citizens of York and surrounding counties when able to work.

Dr. Pressly was happily married during the first years of his practice to Harriet Louisa Smith of Clover. Two daughters survive to mourn the loss of their father—Mrs. A. B. Love of Covington, Tenn., and Mrs. J. S. Smith of Atlanta, Ga.

The professional services of Dr. Pressly unusual as they were did not excel his services to the church and to his God. He found time in the midst of his busy practice for the culture of his soul in the eternal verities. He translated the teachings of the Saviour into sacrificial ministries in behalf of suffering humanity and so made the heart of the widow and orphan to sing.

He was a valued member of his county, state, tri-state and national medical associations. In the following words one of his fellow members speaks of him. "While Dr. Pressly's services on the State Board of Examiners was valuable to the medical association perhaps his outstanding service was that of President of the South Carolina Medical Association. He was elected to this high office, the highest in the gift of the Medical Society in 1919. One of the unique features of his election as I recall it was that he was elected by acclamation unanimously, without opposition. A most unusual occurence to take place at a state association, for this very high honor, ofttimes several candidates are nominated. This tribute of respect to Dr. Pressly showed very clearly how he was appreciated by the medical profession, and this was done as an expression of their love and confidence."

"With a cheery word and wave of the hand,
He has wandered into a foreign land.
He is not dead, He is just away."

J. E. MASSEY
W. C. WHITESIDERS (U. of Md., 1914)
W. K. McGILL (U. of Md., 1920).

DR. JOHN ROBINSON IRWIN, Charlotte, N. C.; class of 1877; past president of the Medical Society of the State of North Carolina; formerly professor of gynecology and abdominal surgery, North Carolina Medical College; aged 77; died, June 28, 1931, of cardiac disease.

DR. ELISHA HENRY COHOON, Medfield, Mass.; P. & S., class of 1903; president of the Massachusetts Society of Psychiatry; superintendent of the Medfield State Hospital; aged 56; died, July 21, 1931, of rectal carcinoma.

DR. LOUIS C. AHLBORN, Marietta, Ohio; B. M. C., class of 1895; aged 72; died, July 19, 1931, of cardiac disease.

DR. JOSIAH J. GOFF, Parkersburg, W. Va.; P. & S., class of 1891; aged 65; died, May 28, 1931, of cerebral hemorrhage.

DR. CHARLES WILSON DAVIS, Oteen, N. C.; class of 1919; formerly on staff of U. S. Veterans' Hospital No. 60; aged 38; died, July 2, 1931, of tuberculosis.

DR. WILLIAM THOMAS RILEY, Baltimore, Md.; P. & S., class of 1890; aged 60; for 30 years a coroner of Baltimore; died, July 7, 1931.

DR. HENRY D. LEH, Egypt, Pa.; class of 1884; formerly member of the board of education and physician to the board of health of Whitehall Township; aged 69; died, January 17, 1931, of endocarditis and paralysis agitans.

DR. ALEXANDER LEWIS HODGDON, Pearson, Md.; class of 1884; aged 71; died, August 5, 1931, of cardiac disease.

DR. THOMAS MCCLELLAN WILSON, Elkins, W. Va.; P. & S., class of 1892; aged 69; died, May 22, 1931, of cardiac disease.

DR. LOUIS L. RORIPAUGH, Ventura, Calif.; class of 1889; aged 69; died, March 19, 1931, of myocardial insufficiency and arteriosclerosis.

DR. J. B. LOHAN, Charleston, W. Va.; P. & S., class of 1915; formerly city health officer; aged 41; died, May 13, 1931, of cardiac disease.

DR. THOMAS DEO. GILCHRIST, Reno, Nev.; class of 1909; aged 51; died, July 5, 1931, of pneumonia. He was born in London, England and came to America at the age of 14 years.

DR. FREDERICK LOUIS DETRICK, Baltimore, Md.; class of 1913; served during the World War; aged 42; died, June 4, 1931, of cardiac disease.

DR. JUDSON HENRY COLE, Pasadena, Calif.; B. M. C., class of 1898; aged 65; died, April 26, 1931, of chronic myocarditis and auricular fibrillation.

DR. WILLIAM PATRICK CLANCY, Warren, Pa.; B. M. C., class of 1910; aged 49; died, May 11, 1931, of acute gastritis and hepatic cirrhosis.

DR. JAMES MARSHALL PRICE, Frostburg, Md.; class of 1890; past president of the Allegany County Medical Society; aged 62; died, May 24, 1931, of chronic myocarditis and angina pectoris.

DR. CALVIN NEWTON GABRIEL, Baltimore, Md.; B. M. C., class of 1897; aged 65; died, July 13, 1931, of pneumonia.

DR. MADISON REDD DREWRY, Cascade, Va.; class of 1887; aged 65; died, June 2, 1931, of cerebral hemorrhage.

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SOME GYNECOLOGICAL APPLICATIONS OF ENDOCRINOLOGY*

By Emil Novak, M.D.
Baltimore, Md.

A concept of gynecology now happily becoming obsolete is that it is only a part of surgery. The surgeon who entertains such a viewpoint, and practices accordingly, is reasonably certain to be a poor gynecologist. On the other hand, the gynecologist who views his work only through surgical lenses will be hard put to it to justify the separate existence of his specialty. As a matter of fact, gynecology is becoming less and less a purely surgical specialty, and its intelligent practice presupposes, or should presuppose, a thorough knowledge of the special anatomy, physiology and pathology of the female generative organs.

In no way is this better illustrated than in the changed viewpoint with regard to gynecological endocrinology. Not so many years ago this subject would have had to be approached almost apologetically, for the profession had, to use a slang expression, become "fed up" on the immense amount of misinformation and speculation emanating from the early enthusiasts on the subject. Such a cynical attitude is no longer justified, and, indeed, is no longer evident. The reason for this is obvious. No longer is endocrinology a happy hunting-ground for clinicians armed only with high-powered imaginations, or for commercial pseudo-scientists with something to sell. The field is

*Abstract of address at joint session of Sections on Gynecology and Obstetrics, Southern Medical Association, New Orleans, November 19, 1931.

now being painstakingly worked by an army of scientific investigators. Many of the weeds have already been gotten rid of, and an ever-increasing growth of the hardier plants of truth is being developed.

No branch of clinical medicine makes more points of contact with endocrinology than does gynecology, and none better illustrates the transition, stressed above, from the early speculative era to the more recent scientific one. Too often the trained laboratory investigator is unfamiliar with clinical medicine and hence not infrequently is little interested in the practical application of his researches. This is apt to be left to the clinician, who can do it intelligently only if he maintains a close liaison with those engaged in investigative work.

No "rules of thumb" can be given for the treatment of various gynecological disorders. Such a crystallization of our knowledge is not now possible, nor will it be for many years. It may be of service, however, to outline briefly the general principles of gynecological organotherapy and to discuss the application of these broad principles to a few of the more common gynecological disorders.

Ovarian therapy began its turbulent career in 1896 at the Landau clinic in Berlin. It may be stressed that at this time it was not known that the ovary even possesses an endocrine function, and that this is responsible for menstruation. This discovery did not come until several years later. The plan of feeding ovarian substance to patients with supposed ovarian deficiency owes its inception merely to an assumed analogy with the thyroid and its disorders. Since Murray and others, some years previously, had demonstrated brilliant results from the feeding of thyroid in cases of thyroid deficiency, why would not ovarian feeding be equally efficacious in the treatment of ovarian deficiency? It was on just such speculative grounds that ovarian therapy was inaugurated.

The discovery of the important endocrine function of the corpus luteum, by Fraenkel in 1903, set gynecologists off on a new scent. Since then many millions of corpus luteum tablets have been consumed by patient womankind, as have also huge quantities of ovarian tablets. Clinicians have always in their therapeutic efforts been inclined to keep just a few jumps ahead of demonstrated fact.

Physiological Basis of Ovarian Therapy. What are some of these demonstrated facts which make past efforts at ovarian therapy seem

grotesque, and which perhaps point the way toward a more intelligent policy for the future? It would be interesting to sketch the development of our knowledge of reproductive physiology, but space forbids, and I have done this elsewhere.[1] Only a brief summary of the present status of the problem is possible here.

It is now definitely established that *the ovary produces two internal secretions* concerned with the reproductive cycle. One emanates from the growing follicle, is called *folliculin or theelin,* and is responsible for the first or proliferative phase of endometrial development, i.e., the period extending from the end of the menstrual period to about the mid-interval phase, at which time ovulation occurs. The second hormone, *progestin,* emanates from the corpus luteum. It begins its effect upon the endometrium where the follicle hormone leaves off, carrying the uterine mucosa through the so-called secretory or progravid phase, which reaches its acme just before the onset of the next period.

Folliculin alone is not capable of producing in the endometrium, of either the human or the lower animals, the complete series of changes seen during the menstrual cycle. It can produce oestrus in the lower animals, for the ordinary non-fertile sex cycle in these is completely under the control of the follicle, the corpus luteum playing no part until after fertilization of the egg. To apply these statements to the human, folliculin (theelin) can not produce all the endometrial changes essential for real menstruation. It can, however, reproduce the first or proliferative phase, and it can even, in a small minority of cases, produce bleeding. This, however, is not analogous to true menstruation, but rather to the oestrous or prooestrous bleeding seen in some of the lower animals. It is of course not preceded by the characteristic progravid hypertrophy of the endometrium seen before the appearance of the human menstrual hemorrhage.

Furthermore—and this is a fundamental point in organotherapy—practically all the available evidence indicates that *the injection of even large amounts of theelin has no effect on the ovary,* its action being apparently a purely substitutional one. To apply this fact clinically, one can see that even though, as sometimes happens, folliculin therapy is followed by bleeding, there is no reason to expect a periodic return of this hemorrhage, nor is one justified in considering it as real menstruation. Furthermore, ovulation is not in any way

stimulated, so that there is no reason to expect benefit from folliculin therapy in sterility.

Theelin is a substance of undoubted physiological potency. It is now readily available commercially, in definitely standardized form. It has even been isolated in a crystalline form of enormous potency. The unit of dosage is the rat-unit, one unit being the smallest amount which when injected in a prescribed way into a castrated rat of standard weight will bring about the vaginal phenomena of oestrous, the latter being readily demonstrable by the so-called Allen-Doisy vaginal smear test.

Theelin also possesses some potency when given by mouth, but the dose necessary is many times (variously estimated from ten to as much as a hundred) as large as that required for the hypodermic route. The latter is undoubtedly the method of choice, especially in view of the expensiveness of the substance. It may be added that none of the older commercial preparations for oral use (ovarian or corpus luteum tablets, capsules, or powders) show any physiological activity when submitted to experimental tests such as those indicated above.

So far we have dealt only with the active principle of the ovarian follicle. What about the other ovarian factor concerned in the menstrual cycle, the hormone of the corpus luteum, or progestin? This has been isolated by Corner and Allen, and its physiological properties satisfactorily determined. Unfortunately, it is not yet available in a form suitable for clinical use. However, efforts are being pushed along this line, and are likely to be successful before very long.

Experimental studies indicate that *progestin is concerned chiefly in the production of the progravid phase in the endometrium, and in the implantation of the embryo in the early phase of pregnancy.* Even when it becomes available for human use, it should be remembered that, like theelin, it exerts no stimulating effect upon ovarian function, and that its action, like that of theelin, would be merely a substitutional one. Moreover, it may be stressed, because of its clinical importance, that progestin can produce the progravid changes in the endometrium only when the latter has been previously primed, so to speak, with theelin. The application of this fact to the treatment of amenorrhea, for example, is obvious.

No consideration of the physiological factors in the reproductive cycle is complete without a reference to the *dominating role of the*

anterior pituitary lobe over the ovaries and their two chief sex hormones, theelin and progestin. As I have reviewed this subject elsewhere, I need merely say that the anterior hypophysis, in addition to other functions, secretes *two sex hormones* which are responsible for the secretion and activation of theelin and progestin by the ovaries. One of these, spoken of as the *follicle ripening hormone or Prolan A,* is responsible for follicle maturation and the activation of theelin. The other, designated as the *luteinizing hormone,* or *Prolan B,* is concerned in the luteinization processes in the ovary and the production of progestin. There are of course still many controversial points as to the exact nature and mechanism of this pituitary control of ovarian function, but that it exists is demonstrated beyond all doubt.

Already at least one of these sex principles in the anterior hypophysis, the luteinizing factor, has been made available for clinical use. It is prepared from the urine of pregnant women, for it is well known that the urine, especially in early pregnancy, is very rich in these pituitary sex hormones. On this fact, of course, is based the well-known *Aschheim-Zondek test* of pregnancy, as well as the Friedman and Brouha tests.

The availability of the luteinizing hormone is of great importance, especially since we do not as yet have the ovarian progestin for clinical use. Since the luteinizing pituitary hormone, however, is the underlying factor responsible for the production of progestin, one may reasonably expect that its administration would stimulate the ovary to form its own progestin. This assumption, as will be seen, has already been put to clinical use.

The oral administration of pituitary substances has been found to be without physiological effect on laboratory animals. Such substances are frequently employed clinically by the oral route, but it is doubtful if they are of any value.

Some clinical applications. The physiological considerations so briefly sketched may make more intelligible an equally sketchy outline of a few clinical applications of these endocrinological principles.

First of all, it may be stated that, in general, the various *older commercial preparations of the ovary or corpus luteum,* formerly so widely used, produce no objective results whatever, and that their subjective effects are very questionable, to say the least. To translate this, there is no worthwhile evidence that they can produce menstruation in cases

of amenorrhea, and none that they are of value in sterility, dysmenorrhea, or any of the many other indications for which they have been recommended. There are many excellent clinicians who sincerely believe that the oral use of such preparations is of value in the subjective symptoms of the menopause.

This is not an easy question to evaluate, because of the difficulty in eliminating the psychic factor, and because of the well-known variations in different women, and in the same woman at different times, in the severity of menopausal symptoms. Skeptical as many of us now are on this point, there can be little quarrel with those who use this method of treatment, since, whether through psychic channels or otherwise, patients often report improvement, and since other methods of treatment of menopausal symptoms are rarely any more successful than this.

Theelin can be rationally employed in the treatment of certain cases of *amenorrhea.* The etiology of the latter is very varied, and every effort should be made to interpret each case along etiological lines. In most cases amenorrhea produces no detrimental effect upon the woman's health, so that it often needs no treatment in itself. When it does, theelin is usually indicated, being given hypodermically in doses of from 50 to 100 rat units daily for at least 6 days, although many believe that far larger doses are necessary to produce results in the human.

Moreover, from what has already been said, no amount of theelin can produce the complete endometrial cycle. Its use, therefore, should be followed by the administration of progestin, for reasons already indicated. This alone would reproduce physiological conditions. As progestin is not yet available, I have personally been using in its place the *anterior pituitary luteinizing substance,* supplied through the courtesy of the Department of Experimental Medicine of Parke, Davis & Co. It is hoped that this will soon be available commercially.

By such methods as these, a certain proportion, though not the majority, of women can be made to menstruate. Unfortunately, the function rarely returns with any degree of periodicity, so that it is usually necessary to go through with this long course of hypodermic treatment each month. There are very few women who will display any great enthusiasm over such a prospect, especially when it is explained that amenorrhea in itself is harmless, and that, in the case of

the often associated sterility, there is no enhancement of the patient's chances for pregnancy by such treatment.

Aside from this ovarian therapy, the management of cases of amenorrhea often calls for the administration of *thyroid extract,* probably of greater value in most cases than the ovarian substances themselves. *Pituitary therapy* will probably some day be the chief method of attack, but for the present it has yielded very unimportant results. As already mentioned, no active preparation of progestin, the corpus luteum hormone, is yet available for clinical use. When it is, it will be a rational adjuvant in the treatment of amenorrhea, after a preliminary course of theelin. For the present, the only logical substitute for progestin is the anterior luteinizing substance to which I have already made reference.

Theelin is frequently of value in the treatment of the severe *nervous and vasomotor menopausal symptoms* seen in some women. In many women little disturbance is produced by the menopause, in some there is moderate discomfort, and in a few the symptoms, especially the characteristic vasomotor flushes, are so frequent and so severe as to make the patient quite miserable. In such cases the oral administration of corpus luteum or ovarian extracts is often of little help, and better results are not infrequently obtained from the hypodermic use of theelin. An occasional course of six or eight injections of 50 units each, given on successive or on alternate days, will often prove of value.

An extremely important indication for the use of *progestin,* or of the *anterior pituitary luteinizing substance,* is in the treatment of a type of menstrual disorder which is characterized chiefly by an absence of corpora lutea and progestin. I refer to so-called *functional uterine hemorrhage,* so common in women of middle life, though often seen in younger patients, and not infrequently in girls at or near the age of puberty. Progestin, were it available, would be a logical treatment, but since it is not to be had, it occurred to me that the anterior pituitary luteinizing hormone might offer a satisfactory substitute. This has apparently been borne out, as shown in the report of a large series of cases by Hurd and myself in a recently published paper.[2]

This method of treatment bids fair to be of great value in the management of these exceedingly frequent and troublesome cases, especially in young women in whom preservation of the reproductive function is important. It will save many of these from repeated curettage

or from radiotherapy, which should be a method of last resort in young women, because of the danger of permanent sterilization. For the details of this new plan of treatment the reader is referred to our original paper.

There are, of course, many other conditions in which ovarian therapy has been employed, but those already mentioned are the most commonly encountered. The results in such conditions as *sterility* and *dysmenorrhea* have thus far been negligible. With regard to the latter, and more particularly the common type spoken of as primary, there is reason to believe that endocrinology may soon offer an effective treatment. This would be an inestimable boon, for no gynecological disorder causes a greater aggregate of suffering than this troublesome menstrual or premenstrual pain which affects so many girls and young women. We are now studying this problem on the basis of recent physiological investigations, and hope soon to be able to report upon a method of treatment which has already given us gratifying results.

REFERENCES.

1. NOVAK. Recent advances in the physiology of menstruation. (Jour. Amer. Med. Asso., 94: 833, 1930.)
2. NOVAK. The use of an anterior pituitary luteinizing substance in the treatment of functional uterine bleeding. (Amer. J. of Obst. and Gyn. 22: 501, 1931.)

CORRECTION

Illustrations to Dr. Fred W. Rankin's article "Progress in Surgery of the Colon" in the October issue of the BULLETIN should be changed as follows:

Figure No. 1—Page 57 to Figure No. 12—Page 80
Figure No. 2—Page 58 to Figure No. 11—Page 76
Figure No. 3—Page 59 to Figure No. 6—Page 66
Figure No. 6—Page 66 to Figure No. 9—Page 74
Figure No. 7—Page 70 to Figure No. 8—Page 71
Figure No. 8—Page 71 to Figure No. 7—Page 70
Figure No. 9—Page 74 to Figure No. 13—Page 81
Figure No. 11—Page 76 to Figure No. 3—Page 79
Figure No. 12—Page 80 to Figure No. 2—Page 58
Figure No. 13—Page 81 to Figure No. 1—Page 57

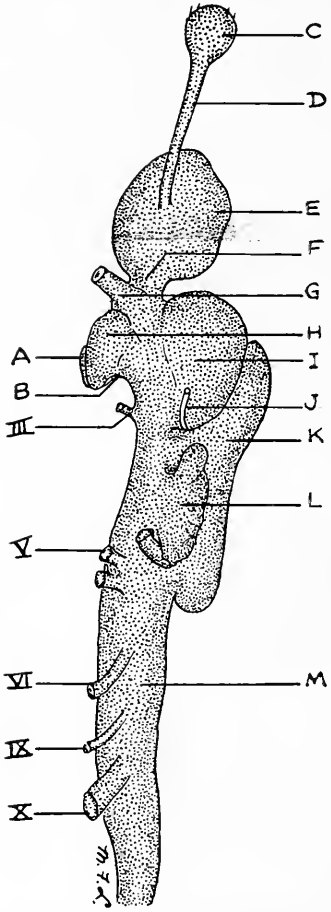
THE DOG-FISH BRAIN IN THE STUDY OF NEUROLOGY

By H. S. Rubinstein, Ph.G., M.D.
Instructor in Neuro Anatomy
University of Maryland Medical School.

Many students of biology seem to be satisfied with rushing through their courses of studies upon lower animals so that they may more quickly begin working on human material. If this is not true of the elementary student of biology, it is at least true of the average student whose goal is medicine. It is the purpose of this communication to show the advantage of analyzing an elementary brain form in preparation for a clearer appreciation of the vastly more highly developed human brain. For this purpose I know of no animal more suitable than the dog-fish. Although the forebrain of elasmobranch fishes is extremely simple, it is quite similar in structure and appearance to the early human brain and it is upon this basic structure that all the more complex gyrencephalic characteristics of the human brain develop.

In this early form, we already see, the brain grossly subdivided into the components as seen in a seven millimeter embryo of the human. For example, we already note a telencephalon (forebrain), a diencephalon (interbrain or thalamus); a mesencephalon (midbrain) and a rhombencephalon or hindbrain. Attached to the cerebral hemisphere of the elasmobranch brain we find, entering on each side, one to each hemisphere, an olfactory tract. This same phenomenon occurs in the human, only in the latter, it is covered above by the greatly expanded material making up higher centers of the cerebrum. Because in the human these cortical masses occur later in development, and because in phylogenetic study we find it occurring only in the more highly evolved animals, this part of the brain, covering and hiding the olfactory tracts from a dorsal view, has been given the name neopallium (new mantle). From this one would suppose that the fundamental and elementary cerebral hemisphere in the elasmobranch would be called old brain or old pallium. We are, therefore, not surprised when we read the term archipallium, as signifying that part of the brain which was evolved first and which in higher forms represents that part of the cerebrum which is given over to the function of olfaction.

Just as in the human, so in the dog-fish, the cerebral hemispheres contain each a cavity, the representatives of evaginations from the neural tube. However, while the elasmobranch cavity or ventricle



KEY TO FIGURE I.

A—Hypophysis
B—Vascular Sac
C—Olfactory Bulb
D—Olfactory Tract
E—Telencephalon
F—Optic Tract
G—Optic Nerve
H—Inferior Lobes (smell and taste)
I—Optic Lobe (mesencephalon)
J—Trochlear Nerve
K—Cerebellum
L—Medullary Auricle (origin of 5th, 7th and 8th Nerves)
M—Myelencephalon
III—Oculomotor Nerve
V—Trigeminal Nerve
VI—Abducens Nerve
IX—Glossopharyngeal Nerve
X—Vagus Nerve

FIG. I. *Brain and Cranial Nerves of Squalus Acanthias (spiny dogfish) Lateral View.*

represents almost in every detail, the shape of the external surface, in the human this cavity has been greatly decreased in size due to the corresponding enormous thickening of the wall of the brain. This is due to the accumulation of cell masses and their processes so that

in man the ventricular cavity has acquired a more or less arched tri-peaked shape, the peaks passing respectively into the frontal, occipital and temporal poles of the forebrain.

KEY TO FIGURE II.

A—Optic Nerve
B—Inferior Lobe
C—Hypophysis
D—Vascular Sac
E—Olfactory Bulb
F—Olfactory Tract (hollow)
G—Lateral Ventricle
H—Corpus Striatum
I—Paraphysis
J—Epiphysis
K—Third Ventricle
L—Optic Ventricle
M—Aqueduct Cerebri
N—Cerebellar Ventricle
O—Fourth Ventricle
P—Velum Transversus

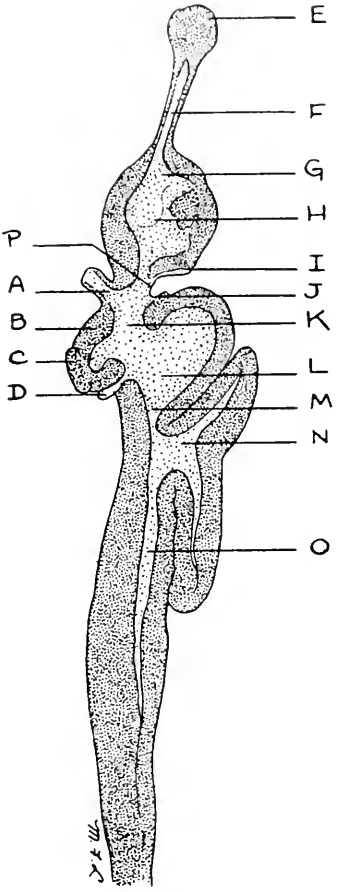


FIG. II. *Brain and Cranial Nerves of Squalus Acanthias (spiny dogfish) Sagittal Section—Modified.*

On sagittal section of the lateral ventricle of the dog-fish brain, there is noted, located on the ventral floor of the ventricle, near its caudal end, a small raised area. This area represents the corpus striatum or basal forebrain ganglion. This in the dog-fish is analo-

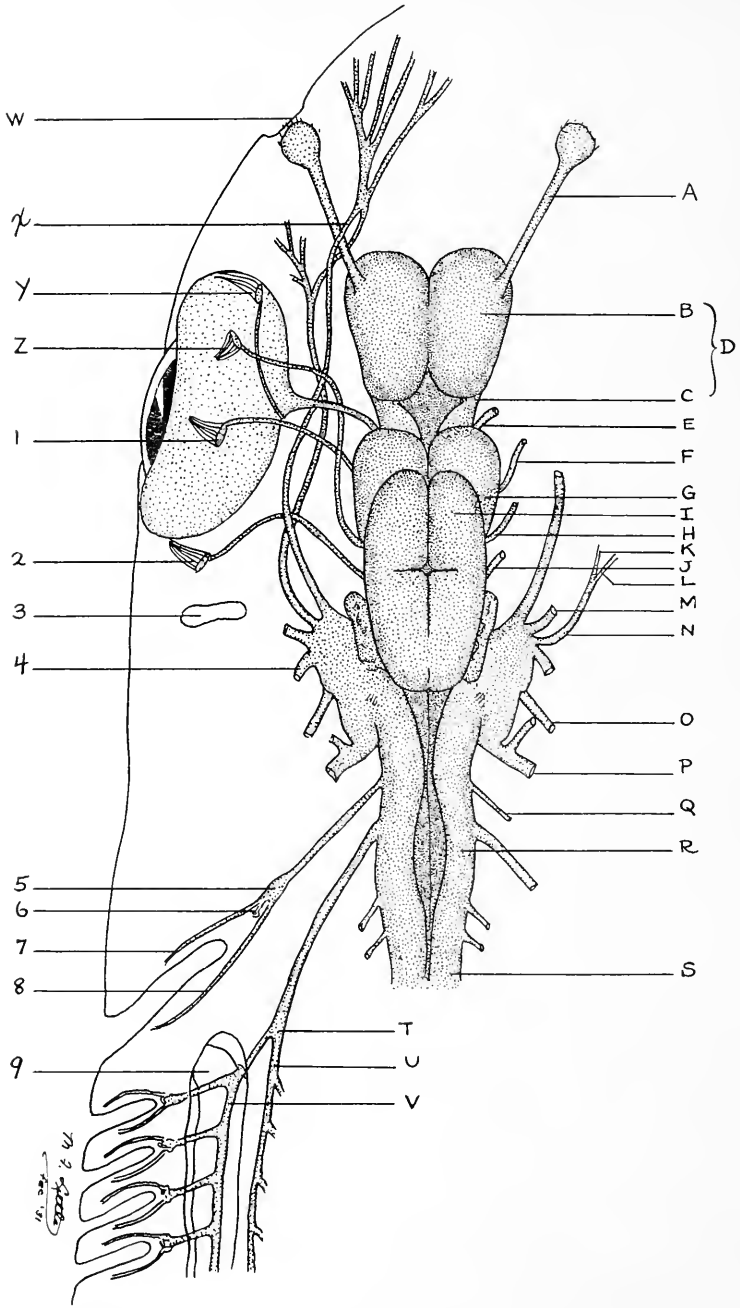


FIG. III. *Brain and Cranial Nerves of Squalus Acanthias (spiny dogfish) Dorsal View.*

gous to the pallidal portion of the corpus striatum in the human brain and histologically presents cells which are basically of the same type seen in the human.

The striatal area gives rise to a great stream of fibres, the basal forebrain bundle (basal fasciculus) which passes distally through the basal portion of the brain, through the entire brain stem and thence into the spinal cord. It seems therefore, that this fasciculus basilaris is homologous with the pyramidal system in man. It differs from the pyramidal system, however, in that some of its fibres are supposedly afferent being of a sensory nature. The basal fasciculus also contains shorter fibres which seem to terminate in the nuclei of the thalamus. The remaining fibres of this fasciculus may be properly considered the homologue of the pyramidal tract in man. Thus it is evident that even the basal forebrain ganglion is a stepping stone in the study of the corpus striatum of man; and the fibre tract emanating therefrom gives an excellent evolutionary example of the pyramidal system present in the mammal. Because of this, the connection between the basal ganglion and the lower seg-

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KEY TO FIGURE III.

A—Olfactory Nerve—Purely Sensory.
B—Telencephalon
C—Diencephalon
D—Prosencephalon
E—Optic Nerve—Sensory
F—Oculomoter Nerve (Somatic Motor). To muscles of first head myotome visceromotor to iris
G—Mesencephalon (Optic Lobe)
H—Trochlear Nerve (Somatic Motor)
I—Cerebellum
J—Abducens Nerve (Somatic Motor)
K—Sensory Nerve to Skin of Rostrum
L—Nerve to Infra-orbital Lateral Line Canals
M—Deep Ophthalmic Nerve (Somatic Sensory)
N—Infra-orbital Nerve—Composed of Maxillary Nerve (medial) and Buccal Branch of 7th Nerve (lateral)
O—Facial Nerve—Hyomandibular Trunk
P—Vestibular Nerve
Q—Glossopharyngeal Nerve
R—Myelencephalon (Medulla Oblongata)
S—Spinal Cord
T—Vagus Nerve
U—Lateral Branch—To lateral line organ
V—Visceral Branch—To gills and viscera
W—Olfactory Sac
X—Superficial Ophthalmic Nerve (sensory to skin dorsal to orbit)
Y—Medial Rectus Muscle
Z—Superior Oblique Muscle
1—Superior Rectus Muscle
2—Lateral Rectus Muscle
3—Spiracle
4—Mandibular Nerve—to gill arch muscles in floor of orbit; to muscles of lower jaw; sensory to skin of lower jaw
5—Petrosal Ganglion
6—Pharyngeal Branch
7—Pretrematic Branch
8—Post-trematic Branch
9—Anterior Cardinal Sinus

mented portion of the cord is known as the paleo-pathway or old pathway and is seen to exist alone as the fasciculus basilaris in animals without well developed cerebral hemispheres. This is true in the dog-fish. To this simple kinetic or motor system is added, in the case of man, the neokinetic pathway or that which functions as pyramidal giving volitional control which originates in the suprasegmental cerebral cortex.

Just distal to the telencephalon of the dog-fish, we note the very elementary diencephalon or interbrain. This is quite similar in position to the thalamus of man, but is entirely uncovered by the forebrain, a condition which exists only in the embryonic stage in humans. Within the thalamus is the third ventricle which is similarly located in both species although in the dog fish, the space is relatively larger than in man because, during development its cavity had not been encroached upon by as many structures. It is evident at a glance that the diencephalon possesses a true thalamic, an epithalamic and a hypothalamic area. The epithalamic examination discloses a true paraphysis which is the evagination dorsally of the pia mater in this area. Tracing the attached margin of the paraphysis we find that it is continuous ventrally with the choroid plexuses of the third and lateral ventricles. Another significant structure in the epithalamus is the epiphysis. This body which is the analogue of the pineal body is quite distinct. In the dog-fish as in man, it shows no visual characteristics, an attribute which some forms (Sphenodon) distinctly show. However, the true pineal eye and the pineal body as we know it develops from different parts of the neural tube.

The thalamus proper in the elasmobranch receives branches from the totally decussating optic tracts as they wend their way to the optic lobes. The thalamus likewise, receives numerous sensory fibres so that, like in man it is a great sensory station.

The hypothalamus is especially well developed and presents a distally placed vascular sac, pituitary gland and the very important inferior lobes. The latter are primary centers for taste and possibly also for smell, although the forebrain is practically entirely relegated to the sense of smell. Definite evidence of this inferior lobe is lacking in man since taste is largely, if not entirely, suprasegmental (in the human).

From a lateral view of the shark's brain one can easily see the unburied optic tracts coursing their way dorsally and distally into the

optic lobe. The optic lobe in the dog-fish represents the entire mesencephalic portion of the neural tube since unlike in man, there is no true quadrigeminal plate. At this point, we see that by delving into fundamental study we learn not only something of the structure, but also the function of the nervous system. The fish has no true sense of hearing, therefore, an inferior colliculus is not needed. Hence, the entire midbrain instead of becoming a corpus quadrigeminum with its two superior colliculi for sight reflexes and its two inferior colliculi for audition, remains just a corpus bigeminum with two colliculi which are designated optic lobes. Without going into too much detail, suffice it to say that the dorsal part of the midbrain is the tectum or roof region and is homologous to the tectum of the human midbrain. Like the human midbrain, there are present in this region the nuclei of the third and fourth cranial nerves and in the ventral part of the midbrain there are likewise present, in the form of diffuse nuclear splotches, the homologues of the reticular and red nuclei. Again we find, however, that the ventricular space allotted to the tectal area, instead of becoming solid like in man, remains cavernous and receives the name of "ventricles of the optic lobe."

Passing into the hindbrain, we find here, too, a condition in the adult elasmobranch which we find in about eight week embryos of humans. The rhombencephalon shows its definite divisions into the metencephalon and myelencephalon. However, while the myelencephalons of dog-fish and man appear as medulla oblongata, the metencephalon differs. In the case of dog-fish the metencephalon is present as cerebellum while in man, because of the addition of neopallial systems, the pons is also present. The pons which in man carries fibres of cortical origin to the cerebellum, is absent in elasmobranches and this, as explained before, is due to the absence of higher cortical centers in the primitive brain. Another significant difference, although, quite comparative, is the relative sizes of the ventricular space in the two forms. While the shark's cerebellum is quite hollow forming a definite cerebellar ventricle, that of man's, as in other mammals, has become filled in with the substance forming the arbor vitae and medulla.

This homology between the brain of man and fish can be carried on and on but already it is quite evident how the study of the elementary in full detail can be considered as more than just a stepping stone towards a thorough understanding of human neurology.

It is true that certain differences exist as for example, in the comparison between the lateral line system of the elasmobranch and the vestibular system of man; but even here fundamentally, they are quite comparable. In the case of the lateral line system, a histological study shows its closeness structurally to the vestibular hair cell.

Likewise, a study of the cranial nerves shows similar homologies except that instead of twelve pairs of cranial nerves as in man, the dog-fish presents ten pairs. In the fish the components for the most caudal group of cranial nerves (accessory and hypoglossal) have not become a part of the brain as seen in man, but spring from the first and second cervical segments and pass proximally to supply the pharynx and tongue respectively.

The student, therefore, may with advantage study the dog-fish brain as a stepping stone to human neurology. This would be in keeping with every other highly technical study, since the human brain is the "calculus" of neurology and its fundamentals ought to be appreciated. Although it probably would be quite serviceable to begin such a study with a human embryo in the medullary plate stage and study more highly developed embryos step by step until we actually traced the simple form to the complex, it is obvious that such a study presents difficulties which almost preclude general usage. On the other hand, a thorough study of the brain of such a relatively simple form as the elasmobranch actually serves the ground plan for the study and appreciation of the complexities, functions and wonders of the human brain.

Note: The dog-fish is easily obtainable from the Marine Biological Laboratory, Woods Hole, Mass., or from any reliable biological supply house at a comparatively insignificant cost.

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CORONARY THROMBOSIS*

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It is only in the last decade that the medical profession as a whole has begun to appreciate the frequency of thrombosis of the coronary arteries. Cases of coronary thrombosis seen in the past were classified as instances of angina pectoris. The attack of precordial pain with characteristic accompanying symptoms, which was described so clearly by Heberden and termed angina pectoris, is associated in the majority of instances with arteriosclerotic changes in the walls of the coronary arteries. But when thrombosis has occurred in such a diseased artery and caused infarction of heart muscle, an attack of pain ensues whose clinical characteristics and sequelae are quite sufficiently distinct from those of angina pectoris to enable us today to make the diagnosis of coronary thrombosis.

We may justly feel some satisfaction in the fact that it is owing almost entirely to the acumen of American clinicians that in the last decade the recognition of this striking clinical picture has become widespread. It is not that the various features of the condition had not been frequently noted, both abroad and in this country in the last fifty years, but that here first, beginning with the noteworthy article of Herrick in 1912, these symptoms and signs were accurately observed, carefully correlated to the pathological findings, and clearly presented to the medical profession as constituting a distinct disease entity (Libman, Gordinier, Pardee, Wearn, Hamman, Gorham, Levine, Willius, et alia). Indeed so definite in most instances is the clinical picture that those of us whose life in medicine extends back over twenty years may well feel some humility over our earlier lack of appreciation of the significance of what we observed. Perhaps too we may see in the history of the development of this subject convincing evidence that close clinical observation coupled with accurate pathological study is still a fruitful method in the investigation of human disease.

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*From the Department of Medicine—University of Maryland.

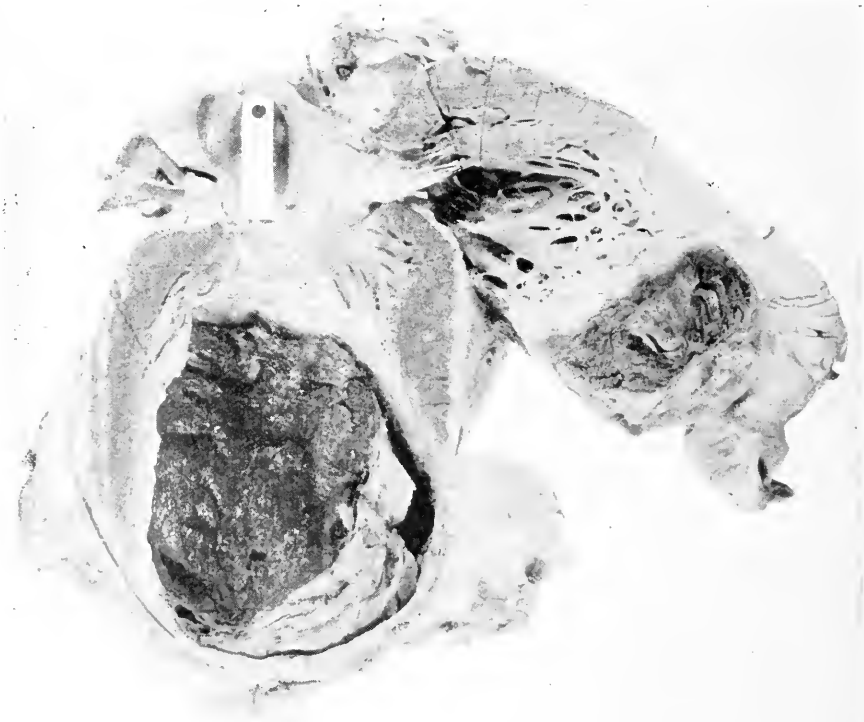

FIG. I. *Extensive old infarction of left ventricular wall with marked thinning of wall. Adhesive pericarditis over apex. Large intraventricular thrombus.*

PATHOLOGY

A discussion of certain points in the pathological picture may well precede a description of the clinical symptoms of such an attack.

The distribution of the coronary arteries is of importance in relation to the effects of thrombi in the various branches. While there is some variation between individuals, in the average case the left coronary supplies the left ventricular wall from the interventricular septum in front, nearly, but not quite, around to the same septum posteriorly. In addition it supplies the anterior half of the septum

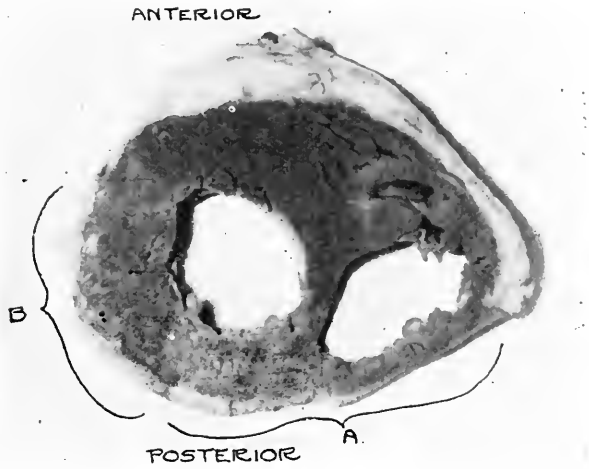

FIG. II. *Cross-section of ventricles. The right coronary was occluded by an old thrombus causing an organized infarct (A). Freshly infarcted area (B) corresponds to occlusion of a posterior branch of left coronary.*

and a narrow zone of the right ventricular wall beyond this septum. The distribution of the right coronary is similar; it supplies the right ventricular wall from the septum posteriorly nearly but not quite around to the septum anteriorly. It also supplies a narrow zone of left ventricular musculature adjacent to the septum posteriorly and the posterior half of the septum itself.

Where the areas of distribution join, on the posterior left ventricular wall, on the anterior right ventricular wall and in the interventricular septum, there is an abundant capillary and precapillary anastomosis. Similarly anastomoses exist between branches of the

same artery. Finally the heart muscle receives some accessory blood supply directly from the ventricular cavities through the Thebesian vessels (Wearn). Occlusion of a coronary vessel may, therefore, occur without infarction; and when infarction does occur it is usually smaller in extent than the anatomical distribution of the occluded vessel.

Thrombosis is far more common in the left coronary artery than in the right. (93.3% of Levines autopsied cases showed infarction in the area of the left coronary). The anterior descending branch of the left coronary is more frequently involved than all other coronary branches added together. This vessel supplies the apex of the heart, a portion of the anterior surface of the left ventricle and of the right ventricle, and the anterior portion of the interventricular septum. Infarction is, therefore, commonest in this area. It is to be noted that portions of the wall of both ventricles as well as a portion of the interventricular septum may be infarcted as a result of occlusion of this arterial branch.

The basic lesion in the coronary arteries, which leads to occlusion, is arteriosclerosis. If syphilis plays any part it is with extreme rarity. Syphilitic occlusion of the mouths of the coronary vessels is not unusual, especially in the coloured syphilitics, and has a characteristic symptomatology and a fatal termination; but such syphilitic occlusion of the coronary orifices has not in our autopsy experience been found associated with evidence of infarction of heart muscle. The arteriosclerotic lesions of the coronaries may be only a local manifestation of a generalized process; but it is of practical interest to the clinician to remember that serious grades of coronary sclerosis may be found in cases whose peripheral vessels are quite normal. In the coronary arteries themselves the arteriosclerotic process may be diffuse, or limited to one or more small areas of atheromatous degeneration. Calcareous deposits are frequent; so that on palpation the arteries may have a "beaded" feeling. The lumen at such points on cross section is found to be much encroached upon by intimal thickening and atheromatous deposits. It is upon such a basis that thrombi usually form.

The immediate consequences of coronary thrombosis will depend upon the size of the vessel occluded and upon the available collateral circulation. The finding of old canalized thrombi in the branches of the coronaries of hearts showing no evidence of infarction indicates that the accident of thrombosis may be survived with comparatively

little myocardial damage. On the other hand a smaller or larger segment of the ventricular musculature may be infarcted. The fresh infarct shows in the gross a slight pallor and on section its cut surface has a somewhat glazed appearance alongside the adjacent healthy glistening muscle. For some hours at least the only microscopic changes consist in slight evidence of edema of both the interstitial tissues and the muscles fibres with slight deterioration in staining qualities of the nuclei. Later the infarcted area may be reddish or purplish with extravasation of blood and still later with the onset of histolysis, liquefaction and leucocytic infiltration, the area involved becomes yellowish and may even suggest the picture of abscess formation (Levine). The invasion and organization of the infarct by connective tissue may be observed to have begun by the end of the first week: is well advanced by the third week; and may be completed within two months. The size of the area involved must of course markedly affect the time necessary for its repair.

Rupture of the ventricular wall through the infarcted area is not an infrequent sequel to coronary thrombosis and as might be expected it is most likely to occur during the first few weeks before the repair by connective tissue is far advanced. On the other hand, the only end result may be a well organized white or yellowish scar in the myocardium. Where the infarcted area is large, a well marked thinning out of the ventricular wall may result from the conversion of the musculature into connective tissue. Such an area may undergo aneurysmal dilatation through the influence of the intraventricular pressure.

An infarction involving the whole thickness of the ventricular wall has manifest effects both upon the visceral pericardium overlying it and upon the endocardium lining the ventricle in the involved area. A fibrinous exudate upon the pericardial surface may give rise to the frequently observed pericardial friction rub which is such a valuable confirmatory sign of coronary thrombosis (Gorham). Later the pericardium frequently becomes adherent. It is probably that such adhesion enables the tough parietal pericardium to act as an effective reinforcement to the weakened ventricular wall.

The involvement of the endocardium frequently gives rise to the formation of mural intracardiac thrombi which may give clinical evidence of their presence by embolic phenomena such as hemiplegia or pulmonary infarction.

ETIOLOGY

It would appear that coronary thrombosis is far more common in the white race than in the colored. Although in charge of a service of colored ward patients for the last ten years the author has not yet seen a case of coronary thrombosis in this race. In the white race the condition is far more frequent in men than in women. In Levines large series there were 111 males and only 34 females.

All forms of coronary disease have a distinct familial tendency and in cases of coronary thrombosis it is not unusual to get a history of angina or of sudden death in other members of the same family. The incidence of the disease is highest in most series between the ages of 50 and 60, but it is very common in both the fifth and the seventh decades.

Probably a half of the number of patients who suffer an attack of coronary thrombosis have previously had attacks of angina pectoris. Many of the remaining cases have had milder symptoms of precordial oppression whose significance was not recognized until the thrombotic attack occurred. In a very considerable number of instances, however, the attack of coronary thrombosis is apparently the first clinical evidence of coronary disease. The author has been impressed by the frequency of a prodromal attack, unusual for the patient, preceeding by two weeks or less the severe attack of thrombosis.

Arterial hypertension is found to have been preexistent in the majority of cases of coronary thrombosis and in the more elderly subjects peripheral and retinal arteriosclerosis is usually evident on examination. Freedom from hypertension and manifest arteriosclerosis does not, however, yield immunity from coronary thrombosis since there are many instances of its occurrence in patients with normal blood pressure and with no detectable changes in the accessible arteries.

The middle aged diabetic is peculiarly prone to develop coronary arteriosclerosis. A history of preexisting diabetes is obtained very frequently in cases of coronary thrombosis.

CLINICAL COURSE

From a clinical point of view angina pectoris is a brief attack of precordial pain with certain characteristic associated symptoms; while coronary thrombosis, from the same point of view, is an illness, beginning with an attack of pain, but developing, thereafter, during days, weeks, or months, specific sequelae and complications.

The first stage in this illness begins with the abrupt onset of severe precordial pain. The time of onset is not usually related to physical exertion, to overeating, or to excitement. The pain which seizes the patient has the same gripping agonizing character as in angina, but the patient, if a sufferer from angina, describes it as more severe and more threatening. It is usually retrosternal in site; more frequently over the lower sternum, and not rarely in the epigastrium. It may radiate to one or both arms. Having set in, it lasts, not for minutes as in angina, but for many hours. It is a more or less continuous pain but frequently may die down to a dull soreness, only to return with almost unendurable exacerbation. It is characteristic of this pain that nitroglycerine has practically no effect in giving relief, and that even morphia in large doses only blunts the suffering.

The appearance of the patient suggests the gravity of the condition. There is a facies expressive of pain and shock; a sudden ageing; a grayish pinched look. This grayish leaden color is indeed an important diagnostic feature. Often there is profuse cold sweating. A very common feature is vomiting. It is no doubt because of the epigastric pain and the vomiting that these cases are so frequently miscalled "acute indigestion". The patient himself often feels that relief would follow the proper emptying of the stomach.

The degree of prostration is very variable. The patient may be found sitting in a chair or even moving about in the room. He is usually entirely conscious and aware of the danger of his situation. But, sometimes he is found reclining inertly against the pillows, semi-conscious or mildly delirious.

In the majority of cases there are few physical signs, during the first six hours, to indicate the serious damage which the heart has suffered. In such cases the heart action is quiet; not infrequently slow, or only moderately accelerated. The sounds are soft; the first sound, especially, may be muffled. This fallacious quietness of the heart often leads to errors in diagnosis. The blood pressure during the first few hours in the average case is well maintained at about its usual level. Those who feel that a sharp drop in pressure is an essential early sign of this disease may thereby be misled. In a few cases I have observed at the onset of an attack of coronary thrombosis, a temporary sharp rise of blood pressure above its usual known level. There is in the average case no dyspnoea in the first few hours and the lungs on ex-

amination are clear. In summary then the average case presents, early, little evidence of myocardial insufficiency.

It needs to be said, however, that it is not at all uncommon to have manifest early cardiac failure. The pulse may be rapid and running; the blood-pressure may fall abruptly to low levels. Dyspnoea may increase rapidly; moist rales appear throughout the lungs; or manifest acute pulmonary edema set in.

In some instances as Wearn has pointed out, pain is absent and the onset is characterized by intense dyspnoea and acute pulmonary congestion.

Death in this first stage of the disease occurs frequently. It may come suddenly or after rapidly increasing evidence of cardiac failure. The majority of patients, however, survive this stormy onset of the disease.

After the first twelve hours the intensity of the pain has usually abated and the patient is left weakened and with definite evidence of mycardial damage. The second stage of the disease may be dated from the disappearance of the pain. Of course, such a division is to some extent arbitrary since there are many cases in which recurring attacks of pain appear for many days. In general, however, severe pain is not seen after the onset, though a heavy sore feeling may persist, and there is frequently some tenderness on pressure over the precordium and especially over the sternum.

The characteristic clinical picture of the second stage of the illness following coronary thrombosis arises from a mingling of symptoms of circulatory failure with those suggestive of an infectious process. The circulatory failure is easily understood in view of the myocardial damage. The presence of necrotic tissue in the infarct accounts for the febrile character of the illness, the fibrinous pericarditis, and the embolic phenomena.

The circulatory failure that follows coronary thrombosis presents difficulties in description because of its variability as to time of onset and as to severity. It is perhaps best to stress first its individuality in a typical case; for this type of circulatory failure has features which differentiate it from other types.

The appearance of the patient is often characteristic in that the gray pallor of the initial attack is retained, to some extent at least, for many

days or weeks. There is a chronic cyanosis of the lips and finger nails, and a cyanotic blotching of the flanks and back which blanches on pressure and fills in sluggishly. There may be all grades of dyspnoea; but perhaps most frequently none is apparent until the patient moves or even talks when breathing at once becomes labored. The pulse is not usually rapid but is soft and weak. The blood pressure is found to have fallen in a striking manner, since the onset of the attack. The systolic pressure is commonly below 100 mm. and the pulse-pressure is very small. Evidence that the heart has enlarged is not readily obtained. If accurate measurements prior to the attack and during this stage of failure were available moderate dilatation would probably be demonstrable. The heart sounds are soft and distant. There is a notable absence of the heaving pulsation and abrupt sounds so often met with in the commoner types of circulatory failure. Disturbances of rhythm are frequent (vide infra). The lungs may show all grades of evidence of congestion. Frequently, if the patient is turned, fine moist rales will be heard from apex to base of the most dependent lung, witnessing the imminence of a general pulmonary edema. The liver is not usually enlarged though, in the occasional case, marked painful enlargement of the liver is a feature. Libman suggests that in such cases the walls of the right ventricle has suffered the chief damage. Edema of the back and extremities does not appear at this stage. The urine output is apt to be scant in the first few days and there may be anuria with increase of the non-protein-nitrogen in the blood.

This form of circulatory failure, it may be again stressed, bears little resemblance to that observed in the gradual failure of the hypertensive heart, the syphilitic heart, or the rheumatic heart. It recalls rather the various forms of toxic myocarditis and in particular diphtheritic myocarditis.

There remains much to be done in the study of this form of circulatory failure. The determination of cardiac output, of circulation time, of blood volume, of venous pressure, etc., will add to our understanding of the condition. The clinical condition of these patients, however, renders difficult the obtaining of such data. There exists, however, a considerable mass of information concerning the occurrence of arrhythmias and of characteristic changes in the electrocardiogram which assists the clinician materially both in diagnosis and in therapy.

In hospital practice it is often possible, without any serious dis-

turbance of the patient, to obtain electrocardiographic tracings at any stage of coronary thrombosis. Such studies have revealed some interesting findings which may be briefly summarized here. Pardee first pointed out abnormalities of the T wave and of the ST interval from which, when present, inferences may be drawn as to the presence of coronary thrombosis with infarction, in either an acute or more chronic stage and some indication as to whether the left or right coronary artery is occluded. In the acute stage of the attack the normal iso-electric interval between the Q.R.S. complex and the T wave is replaced in one or more leads by a high take-off from the R wave (above the iso-electric line) going over directly into a broad upwardly rounded T wave. As the lesion progresses towards chronicity the take-off becomes lower and at the end of the upwardly rounded curve appears a gradually deepening sharp V shaped inversion. This deep inversion of the T wave preceded by the convex curve is the characteristic feature of the later stages of coronary occlusion. The recent studies of Barnes and Whitten, and of Bell and Pardee have led these authors to believe that infarction of the region supplied by the left coronary artery produces inversion of the T wave in lead 1, or in leads 1 and 2, whereas infarction of the region supplied by the right coronary caused inversion of the T wave in leads 2 and 3.

The diagnostic value of these findings when they are typical is very great; especially in the acute stage when the alterations are apt to be most striking. The absence of such changes in the electrocardiogram, however, in no way disproves the presence of coronary thrombosis, since they may either develop late, or in some instances be lacking entirely (Levine).

In addition to the electrocardiographic abnormalities which are diagnostic of coronary disease the tracings frequently show nonspecific evidences of serious myocardial damage. Lengthening and notching of the Q.R.S. complex, evidences of bundle branch block or of defective intraventricular conduction, are especially frequent.

Finally the electrocardiogram is of great assistance in the discovery or identification of arrhythmias which occur with great frequency in the first weeks following the onset.

The clinical importance of these abnormalities of rhythm both from the diagnostic and the therapeutic point of view must be further stressed. The types of arrhythmia observed are familiar and common

to many forms of heart disease; but their sudden appearance following an attack of pain, and their spontaneous variability within a period of hours or days is highly characteristic of cardiac infarction. In the first stage of coronary thrombosis the disturbances of rhythm most commonly observed are premature beats in groups or "showers", and gallop rhythm. During the ensuing few weeks paroxysmal auricular fibrillation is of especially frequent occurrence. It is often very transient and may readily go undetected unless, as is frequently the case, it causes an aggravation of the patients dyspnoea and cyanosis with each attack. Less frequent but of great importance is the occurrence of various grades of heart block to which attention may be drawn by the sudden decrease in the pulse rate. Paroxysmal ventricular fibrillation has been observed frequently since Herman and Robinson first called attention to its association with coronary thrombosis. Its detection without the electrocardiograph is difficult, but its presence may be suspected when a regular tachycardia of 150-200 suddenly appears, which is not slowed or arrested by vagal pressure and which on auscultation shows slight pauses and occasional variations in the intensity of the first sound at the apex.

The known frequency of ventricular tachycardia supports the hypothesis that ventricular fibrillation may be the cause of the curiously sudden death that overtakes so many cases of coronary thrombosis in the first few weeks of their illness.

In summary then the circulatory failure during the second stage of coronary thrombosis is characterized by the gray pallor of the face, the cyanosis, the varying grades of dyspnoea and pulmonary congestion, the quiet weak action of the heart, the small soft pulse, the striking fall in blood-pressure, the characteristic electrocardiogram and the appearance of transient arrhythmias. These symptoms and signs, however, vary markedly in severity. In some patients only careful analysis confirms the impression that the pain was accompanied by myocardial damage. In other cases the circulatory collapse is dramatic; the patient cyanotic, stuporous, with Cheyne-Stokes respiration, pulseless, the heart sounds almost inaudible, the lungs edematous, the secretion of urine stopped.

The clinical picture is further complicated during this second stage by the appearance of symptoms and signs suggesting an infectious process.

Fever and leucocytosis are quite constant accompaniments of coronary thrombosis. Both may appear within a few hours after the onset of pain but more usually they are detected on the second or third day. The fever is usually remittent and irregular; it commonly reaches levels of 101° and sometimes 102°, and lasts from a few days to several weeks. The leucocytosis is usually of moderate grade, 10,000 to 15,000, but occasionally the count is over 20,000. It is probable that both fever and leucocytosis are due to the presence of the infarcted tissue in the heart wall. It must be remembered, however, that acute edema of the lungs is often followed by several days of low fever and that there may be in some instances, therefore, a pulmonary factor in the fever of coronary thrombosis.

At any time during the first week a pericardial friction rub may be detected. It is often limited to the lower portion of the cardiac area. The duration of the audible rub is brief so that it may well be missed unless frequent search is made. In most series pericarditis is not reported in more than 20% of the cases. It rarely produces symptoms.

In one case of the author's, however, an inhibition of deep breathing by pain was apparently coincident with the appearance of the friction rub on the third day; and on autopsy this patient showed a fibrinous pericarditis best developed over the diaphragmatic surface of the heart. The appearance of a pericardial friction rub is of such great diagnostic value as a sign of cardiac infarction that it should be listened for several times daily.

Further complication of the clinical picture may result from the formation of mural thrombi in either the right or left heart over the area of necrotic muscle. Embolism from the detachment of fragments from such thrombi may occur even in the first few days of the illness but is perhaps most frequent a little later. It is not unusual to find these mural thrombi at autopsy months or years after the initial attack. Presumably, therefore, they may remain a permanent source of danger. Pulmonary embolism of minor grade is often found at autopsy after having passed unperceived during the stormy illness. Sudden embolic hemiplegia is not an infrequent complication. Less frequently the extremities or abdominal organs are involved. Without doubt some of the instances of sudden death are due to pulmonary or cerebral embolism.

Modes of Death and of Recovery

In a series of 143 cases Levin found the immediate mortality of coronary thrombosis 53%; while Conner and Holt in a series of 284 cases noted an immediate mortality (within the first month) of only 16.2%. The latter figure is certainly lower than the average of the reported cases. Both authors agree as to the not infrequent sudden death in apparently mild attacks and as to the recovery of some patients after the most profound collapse.

Death in coronary thrombosis may occur as a culmination, so to speak, of increasing symptoms of circulatory failure, or it may come unexpectedly and instantaneously during the attack of pain or at any time during the ensuing weeks. The death due to circulatory failure may occur with the type of circulatory failure described above as characteristic of this disease. There are many patients, however, in whom a partial recovery takes place but in whom the heart never regains normal competency. In these cases the usual picture of congestive heart failure replaces the initial symptoms and signs. Edema, ascites, hydrothorax, enlargement of the liver, etc., make their appearance and by their progression lead to the death of the patient.

The type of instantaneous death described is most striking when it occurs, as it frequently does, in the second stage of the disease in a patient in whom recovery seems to be well under way. Autopsy in certain deaths of this type reveals rupture of the heart through the infarcted area. This accident is most apt to occur towards the end of the first week. In some instances sudden death is no doubt due to cerebral or pulmonary embolism. There remain, however, many cases in which even at autopsy no explanation is found. It is probable that the sudden inception of ventricular fibrillation, or of complete heart block with ventricular arrest, is the cause of such deaths.

The mode and extent of recovery after an attack of coronary thrombosis are as varied as the clinical features of the attack itself. In general the clinical evidences of recovery are the return of the blood pressure to a higher level, disappearance of dyspnoea and other evidences of myocardial weakness, return of temperature and leucocyte count to a normal level and fading out of the coronary type of curve in the electrocardiogram.

In many cases after the severe attack of pain the course of the illness is a very mild one with slight fall in blood pressure, little evidence

of myocardial weakness and no complications. In a few days the patient may feel as well as ever. Such patients often resume their former mode of life within a week unless restrained by the physician's orders. They may, nevertheless, meet with sudden death in the first few weeks; they may suffer a second and more serious attack; or they may live for many years without further evidence of cardiac disease. They may indeed be freed of a preexistent angina.

A second group is constituted by those cases which recover (usually more slowly) from the attack and which thereafter show manifest evidence of cardiac insufficiency. It is not infrequent to meet with patients with varying degrees of chronic congestive heart failure who date the onset of all their symptoms to a severe attack of precordial pain. For the most part such cases run an unfavorable course and do not survive the initial attack by more than a year.

In a third group might be placed those patients who make an apparently satisfactory recovery with no marked evidence of residual myocardial weakness but in whom attacks due to coronary disease soon make their appearance. Such patients may suffer with angina pectoris, and may die in this way. They may have a second attack of coronary thrombosis. Some patients have suffered as many as six attacks thus diagnosed. Finally, patients who have recovered from coronary thrombosis are particularly prone to develop attacks of the coronary syndrome in which nocturnal anginal pain is accompanied by an abrupt rise in blood pressure, intense dyspnoea and often acute pulmonary edema.

In general then, recovery is usually only partial or temporary. The majority of those who have recovered from the initial attack will nevertheless, not survive the ensuing two years. A limited number of cases, however, are now living eight or more years after an attack of coronary thrombosis without obvious clinical evidence of cardiac impairment.

DIFFERENTIAL DIAGNOSIS

The classical attack of coronary thrombosis presents few diagnostic difficulties; but there are atypical cases which demand all of the physician's acumen.

Perhaps the most puzzling of these are the cases with intense epigastric pain and vomiting, together with early fever and leucocytosis.

Abdominal rigidity is not uncommon in such instances. Occasionally an enlarged tender liver and jaundice may further confuse the picture. In such instances coronary thrombosis may not be sufficiently considered by the physician. A history of preceding angina; the observation of a rapid fall in blood pressure; of pulmonary congestion; of a transient arrhythmia; best of all of a pericardial friction rub may lead to the correct interpretation and save the patient from an unnecessary operation. A characteristic electrocardiogram is of great assistance if obtainable.

Occasionally where the physician has not seen the initial attack and finds a dyspnoeic patient with fever and leucocytosis and moist rales throughout the chest he may be misled into a diagnosis of bronchopneumonia with early pleuritic pain. Where the trouble is taken to obtain a detailed history of the onset of the illness such an error will not be made.

At the onset of coronary thrombosis it may be difficult to differentiate the attack from angina pectoris. Often indeed the most experienced will wish to await the events of the next few ensuing days before pronouncing judgment. Usually, it is true, angina is of much briefer duration and is relieved more readily by the nitrites, but this is not always the case. It is the author's belief indeed that in recent years the diagnosis of coronary thrombosis is being made rather too readily and that careful autopsies would convince some physicians that not every prolonged and obstinate attack of anginal pain is due to this cause.

TREATMENT

The treatment of coronary thrombosis is of necessity chiefly symptomatic. The principal indications for treatment are the pain; the myocardial weakness; the anoxemia; the arrhythmias.

During the acute attack, morphia should be used freely to abate the pain. Hypodermatic injections of from ¼ to ½ grain will usually be required to produce any effect and will frequently need repetition. If a fresh tablet of 1/100 grain nitroglycerin by hypodermic or dissolved under the tongue has no effect it is not advisable to continue the use of this drug.

Mild grades of circulatory failure need no treatment other than rest and sedatives, but the severer grades of circulatory collapse, in

the first few days, should in the author's opinion be treated energetically. The most effective available method of administering oxygen (nasal catheter, tent, chamber) for the relief of the manifest anoxemia should be employed, and continued as long as outspoken cyanosis persists. If there is pronounced pulmonary congestion or edema, venesection should be performed, even though the blood-pressure be very low. The blood should be drawn at a slow rate. The amount should vary between 300 and 500 cc. according to the size of the patient. Stimulants such as caffein-sodium-benzoate may be employed. Theoretically this drug offers less risk than either adrenalin or the digitalis preparations, in this stage of myocardial injury of unknown site and extent. The increase of peripheral resistance through adrenalin vaso-constriction is probably not desirable; and the effect of adrenalin on the heart is evanescent and often disadvantageous. The frequency of partial block renders the use of digitalis in effective dosage not without risks.

The treatment of auricular fibrillation, of heart block and of ventricular tachycardia in patients with myocardial infarction is full of uncertainty. It is highly probable that the response of the acutely damaged heart to radical drug therapy may vary from what theory might lead us to expect. Unless the patients general circulatory condition warns the physician that continuance of the arrhythmia will certainly prove fatal it is probably wisest to do nothing. When forced to intervene, the author believes that he has seen reduction of ventricular rate in auricular fibrillation by smaller dosages of digitalis by hypodermic than are usually required in other types of cardiac disease. Its use seems preferable to that of quinidine in this condition. Levine has reported a very striking case in which ventricular tachycardia with a rate of 200 and evidences of imminent death was broken by the use of heroic doses of quinidine sulphate (1.5 grams five times in 24 hours). Barium chloride may be considered as a last resort in instances of heart block.

As the patient rallies from the circulatory collapse of the first days the treatment of the cardiovascular condition approaches more closely to that employed in any chronic heart failure. The use of the theobromine derivatives both for their diuretic action and because of their supposed effect on coronary blood-flow appears to be indicated at this stage. Cardiac stimulation should be avoided if possible during the period of the greatest danger of cardiac rupture, i.e., from

about the third to the fifteenth day. It is inadvisable also to use diuretics or other remedies containing potassium salts (potassium citrate, or acetate, or iodide, etc.,) because of the possible depressing effect upon the damaged myocardium.

In the general care of the patient adequate nursing is of supreme importance. The patient should be spared every possible exertion. Skill in shifting and adjusting his position for comfort in breathing, drinking and in emptying the bowel and bladder, is especially required.

The bowels should be moved by a low enema after the first day and kept open by mild laxatives. In older patients, especially, the physician should keep in mind from the onset the almost equal dangers of violent purging and of impaction.

The fluid intake should be ample (2,000 to 3,000 cc.) but no attempt should be made to force fluids above this level. In some instances in which vomiting is persistent it may be advisable to give normal saline solution by hypodermoclysis. The giving of fluids intravenously should be barred, with the possible exception of small amounts of 50% glucose solution in the stage of circulatory collapse.

A liquid diet including hot, weak tea and coffee, fruit juices, milk, etc., should be given during the acute stage as soon as the stomach will tolerate food.

If the patient is a diabetic the urine should be carefully watched for evidences of any serious grade of acidosis which would of course require treatment. This is probably a rare complication. Glycosuria and hyperglycemia without acidosis should be ignored. In particular no attempt should be made to lower the blood sugar by the use of insulin—a procedure which may have an unfavorable effect upon this type of heart. When the patient is convalescent, moderate dietary restrictions will usually suffice to control the diabetes, and a more rigid regime may be instituted if necessary upon recovery.

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BULLETIN

OF THE

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JOHN WHITRIDGE WILLIAMS

(1866-1931)

In the recent tragic loss of Doctor John Whitridge Williams, long-time professor of obstetrics in the Johns Hopkins University (associate professor, 1895-1899; professor, 1899-1931), the science and the art of his specialty lament the passing of a great obstetrical leader, and his alma mater, the University of Maryland, mourns the departure of another of the group of her eminent graduates. Doctor Williams' pre-eminence as a scientist is evident to a remarkable degree in all his writings, the tale of which is about one hundred. One who passes these contributions under a critical review, as I have done but recently, cannot fail to be profoundly impressed with their abiding value as basic to the science in his field. He had the rare gift of a thorough preliminary training in pathology under William H. Welch, and to this as a sort of super added an exhaustive monograph on sarcoma of the uterus done at Prague under Chiari. He made a great impression in the early nineties, on the Hopkins Medical Society in its halcyon days, when it used to meet in the cellar under Ward B, by his communications on papillomata of the ovary and tuberculosis of the genital organs (1892) and calcified tumors of the ovary (1893), not forgetting a fine study of deciduoma malignum (1895), associated with the gift of a specimen from Doctor Wm. T. Howard, Jr.

DR. JOHN WHITRIDGE WILLIAMS

Williams was a full time man, illustrative of the motto, "This one thing I do"; it was his strong conviction that as gynecology and obstetrics were genetically allied, they should be merged in one chair represented in the faculty.

His "Textbook on Obstetrics" is, and I think universally held to be, the best we have yet had in our language, presenting as it does, with an easy accessibility of all the data, a happy amalgamation of pathology with clear-cut presentation of the facts in good understandable English.

No doubt many of his excellencies were derived from a long line of distinguished ancestors both in Virginia and New England, reaching back over one hundred and sixty years.

It was particularly delightful in preparing a sketch of his life to realize how invariably his colaborers and students in training loved and expressed their indebtedness to him; some eleven of these now occupy leading professorial positions.

HOWARD A. KELLY,
Emer. Prof. Gynecol., Johns Hopkins Univ.
Consultant to the Johns Hopkins Hospital.

This is the One Hundred and Twenty-fifth Anniversary of the founding of the University of Maryland School of Medicine, be sure to attend the activities that will be held in commemoration of the event during commencement week.

PROCEEDINGS

OF THE

University of Maryland Biological Society

Officers of the Society

Harvey G. Beck, President — John C. Krantz, Jr., Secretary

O. G. Harne, Treasurer

C. O. Appleman, W. H. Schultz, Eduard Uhlenhuth, C. C. Plitt, Councillors

The University of Maryland Biological Society held the first meeting of the 1931-1932 year on Tuesday evening, November 3, 1931. The speaker of the evening was Dr. William H. Welch of the Johns Hopkins University. Preceding the meeting, there was a dinner held in the Alumni Dining Room of the Medical School, which was attended by the speaker, President Pearson, and about thirty-five members and guests of the Biological Society. The meeting was opened at 8.30 by President Beck, and Dr. Uhlenhuth was invited to present to the meeting the purpose and scope of the Biological Society. After the remarks of Dr. Uhlenhuth, Dr. Welch presented his address on "Reminiscences of Biological and Medical Discoveries of a Half Century Ago." The address of Dr. Welch was inspiring, edifying, and teeming with interest of his personal experience with the great minds of the biological and chemical world. He told of his work with Ehrlich, with Virchow and other of the great master minds of a quarter to a half century ago. After the address of Dr. Welch, Dr. Pearson spoke to the Society, and the meeting was closed by fitting remarks of President Beck.

The University of Maryland Biological Society held its first December meeting on Tuesday evening, December 1, 1931 at 8.30 in the School of Dentistry of the University of Maryland. There were two papers presented at this, the Thirty-second Program Meeting.

The first paper was by A. Y. Russell, D.D.S., formerly Professor in the Dental School of the University of Maryland on "Studies in Dental Caries, A Preliminary Report." Dr. Russell with numerous slides illustrated the influence of dietary measures on dental caries

and its prevention. He laid special stress on the formation of teeth in the fetus and the influence of the mother's diet upon proper teeth formation. During the course of his paper he emphasized especially the bone repair when patients were placed upon a special calcium diet.

The second paper of the Program was delivered by Myron S. Aisenberg, D.D.S. of the Department of Bacteriology of the School of Dentistry of the University of Maryland. The title was "The Significance of Connective Tissue Reactions about the Apices of Vital and Non-vital Teeth."

Because of the prevailing opinion, that repairative changes do not occur about teeth that are injured by trauma, fractures and following root canal therapy, and to observe the nature of those changes that do take place, this study was undertaken to obtain a basis from which to formulate a satisfactory method of treating such involved teeth.

Photomicrographs showing the types of repair following trauma, fractures and root canal therapy were shown.

THE ONE HUNDRED AND TWENTY-FIFTH ANNIVERSARY CELEBRATION

OF THE

UNIVERSITY OF MARYLAND

WILL BE HELD DURING THE

SPRING ACTIVITIES IN JUNE

Why not take this opportunity to visit your Alma Mater and also take part in these activities and renew your acquaintances with your old friends?

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The names listed above are our officers for the term beginning July 1, 1931, and ending June 30, 1932.

COLONEL F. S. L. FORD, CMG., MD., LMCC., RCAMC.

Colonel Frederick Samuel Lampson Ford, C.M.G., M.D., L.M.C.C., R.C.A.M.C. was born February 2nd, 1869, at Milton, Queens County, Nova Scotia, the son of the late James Morton Ford and his late wife Ann Letitia Ford. He received his education at the Milton High School, the Liverpool (N. S.) Academy, the College of Physicians and Surgeons, Baltimore, and at the London Hospitals. He was gold medalist at graduation from the C. P. & S., 1894, and was granted the License of the Medical Board of Nova Scotia the same year.

After some time spent in general practice, he was appointed to a commission in the Canadian Army Medical Corps with the rank of Lieutenant. In September, 1914, shortly after the outbreak of the World War, he proceeded overseas in command of the 1st Canadian Casualty Clearing Station, with the rank of Lieut.-Colonel, and reached France upon his birthday, 1915, in time to participate in the

COLONEL F. S. L. FORD, C. M. G.
Royal Canadian Army Medical Corps
C. P. & S., Baltimore
1894
Member of the *Massachusetts Society of Mayflower Descendants.* Descended from John Howland and Richard Warren, "Mayflower Pilgrims"
Toronto, Ont., Nov. 5th, 1931.

battle of Neuve-Chapelle. The fine work done by the unit under his command resulted in his being mentioned in despatches, and the award of the Companionage of the Most Distinguished Order of St. Michael and St. George, the insignia of which was personally conferred by King George at Buckingham Palace.

In June, 1916, he was attached to the Headquarters of the Canadian Army Corps, commanded by Sir Julian Byng, afterward Baron Byng of Vimy. In February, 1917, he was put in charge of all the medical services of the 1st Canadian Division, which appointment he held until June 3rd, 1917, when he was seriously wounded at Vimy Ridge, suffering a fracture of the base of skull. After ten months spent in hospital, he was returned for duty to Canada, and was Inspector of Military Hospitals for all Canada, until June, 1919, when he received his present appointment of District Medical Officer, Military District No. 2, with headquarters in Toronto, Ontario.

The honours and awards held by him include the C.M.G., the 1914-15 Star, the British War Medal and the Allied Victory Medal. He received a gold medal upon graduating from C. P. & S., Baltimore.

ITEMS

Dr. E. E. Noel, P. & S., class of 1885, is located at Huntington, W. Va., where he is engaged in the practice of medicine and surgery.

Dr. Arthur W. Erskine, Cedar Rapids, Iowa, B. M. C., class of 1908, was chairman of the section on radiology, American Medical Association, for 1931.

Captain Percival S. Rossiter, M. C., U. S. Navy, class of 1895, now the commandant of the Naval Hospital at New York, has received orders from the Navy Department to assume command of the Naval Hospital at Washington, D. C. Captain Rossiter was graduated from the University of Maryland in 1895 and was appointed an assistant surgeon in the Navy from Maryland in 1903.

At the first scientific meeting of the Baltimore Medical Club of New York held at the New York Academy of Medicine, November 12, 1931, Dr. J. M. T. Finney, Professor of Clinical Surgery at the Johns Hopkins University School of Medicine spoke on "Some Everyday Problems in the Etiology, Diagnosis and Treatment of Gastro-

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Duodenal Ulcers, and Dr. Julius Friedenwald, Professor of Gastro-Enterology at the University of Maryland School of Medicine, discussed "The Modern Treatment of Digestive Disturbances."

Dr. Joseph S. Stovin, New York, N. Y., class of 1922, is secretary of the Baltimore Medical Club of New York.

Dr. Louis Arthur Buie, Rochester, Minn., class of 1915, is associate professor of proctology in the graduate school of medicine, University of Minnesota.

Dr. J. McFadden Dick, Salisbury, Md., class of 1895, chief surgeon of the Peninsula General Hospital, has been presented a gold medal, an award given annually to the citizen who has been the greatest benefactor to the community. This is a signal honor.

Colonel Roger Brooke, M. C., U. S. Army, B. M. C., class of 1900, Colonel Frank W. Weed, M. C., U. S. Army, class of 1903, and Colonel Arnold Dwight Tuttle, M. C., U. S. Army, class of 1906, are members of the editorial board in charge of the publication of a 15 volume series entitled "The Medical Department of the United States Army in the World War."

Dr. John Frank Hewitt, Baltimore, Md., class of 1927, chief resident surgeon, Church Home and Infirmary, Baltimore, gave an illustrated talk entitled "A New Apparatus, with Some Newer Ideas Concerning Extension, Rotation and Foot-Drop, To Be Used in the Treatment of Cases Requiring Prolonged Traction of the Lower Extremity," before the Baltimore City Medical Society, October 9, 1931.

Dr. Charles Bagley, Jr., Baltimore, Md., class of 1904, professor of neuro-surgery, University of Maryland, read a paper before the neuro-psychiatric section of the Baltimore City Medical Society, October 8, 1931, entitled "Spontaneous Cerebral Hemorrhage, Its Diagnosis and Treatment."

WEDDING

Dr. J. F. Huey, Hillsboro, Ala., P. & S., class of 1887, was married, September 6, 1931, to Mrs. Mattie E. Beall. Dr. Huey writes that he would be delighted to hear from any of his class-mates.

Dr. David McAllister Aikman, Wheeling, W. Va.; class of 1916; served during the World War; aged 37; died, October 4, 1931, of pneumonia.

Dr. Edward Griswold Bray, East Mauch Chunk, Pa.; B. M. C., class of 1904; formerly county coroner and member of the state legislature; aged 55; died, November 15, 1931, of pneumonia.

We are indebted to Dr. J. H. Orff, B. M. C., class of 1904, for the following announcement, which was clipped from a Mauch Chunk paper:

DR. E. G. BRAY DIES OF PNEUMONIA

This community was inexpressibly shocked by the announcement of the death of Dr. Edward Griswold Bray, November 15th, aged 55 years. He died of pneumonia with which he was stricken a week ago. His condition gradually grew worse.

He was known to every man, woman and child in the community and there isn't one that doesn't keenly feel his death. As a physician he came in contact with them and it resulted in the cultivation of a feeling of friendship, respect and confidence. As a physician he was eminent in skill. He specialized in diseases of the eye, ear, nose and throat. He was an inspiration in the sick room by his cheerfulness, and buoyed up the depressed spirits of the patient by his words of comfort and hope.

He was a civic and professional asset that makes his death a distinct loss.

He typified the self made man. Of humble birth, by dint of hard work and personal sacrifices he shaped for himself a professional career that made him an outstanding factor in the medical profession.

Born at Lambertville, N. J., he entered Lafayette College in 1896 and his prowess and ability as a foot ball player were recognized to the extent of his being selected full back of the team. Lafayette was little known in foot ball achievements then, but with the advent of Bray, Lafayette was forced into the front ranks of leading colleges and the tradition set by the example of the youth remains to this day. He was described as a "thundering herd." He was powerful and swept the most potent and obstinate resistance off its feet by the power of his rushes. Lafayette's greatest feat was in lowering the colors of proud Pennsylvania and Bray was the great factor in the achievement by his outstanding playing.

He, however, paid the penalty of his strength and power in the diminishing energy which handicapped his future.

He was an exceptional student, applied himself energetically to his task and conquered without difficulty.

Graduating from Lafayette College he entered Baltimore Medical College, Baltimore, Maryland, and later graduated as a cum laude student.

He served a one-year interneship at the Maryland General Hospital, 1903 to 1904.

He was quick to make friends. In a short time he was well known and his practice became extensive. He was prevailed upon to enter politics being a Republican, and served as coroner, was elected assemblyman in 1925. He was an aspirant for congress and state senator.

Dr. Bray was a ravenous reader, a brilliant conversationalist and had a burning ambition to excel in his profession. He took a post-graduate course at the University of Pennsylvania in diseases of the eye, ear, nose and throat.

For many years he served as a surgeon for the Lehigh Valley Railroad Company and was a member of the American Medical Association.

Dr. Clark R. Campbell, Williamsburg, W. Va.; P. & S., class of 1885; aged 73; died, September 10, 1931.

Dr. Edward Fayette Cary, New York, N. Y.; B. M. C., class of 1906; member of the American Academy of Ophthalmology and Oto-Laryngology; aged 55; died, August 14, 1931, of agranulocytic a. gina.

Dr. B. Thaddeus Cox, Winterville, N. C.; class of 1888; formerly member of the state legislature; aged 68; died, November 1, 1931, of cerebral hemorrhage.

Dr. Joseph Henry Dixon, Holyoke, Mass.; B. M. C., class of 1894; aged 59; died, June 2, 1931, of cardiac disease.

Dr. William Walters Dodson, Greenville, S. C.; class of 1888; aged 66; died, October 30, 1931, of uremia, chronic nephritis, arteriosclerosis and hypertention.

Dr. Thomas Duncan, Jr., Pageland, S. C.; class of 1906; aged 47; died, November 18, 1931, of cardiac disease.

Duodenal Ulcers, and Dr. Julius Friedenwald, Professor of Gastro-Enterology at the University of Maryland School of Medicine, discussed "The Modern Treatment of Digestive Disturbances."

Dr. Joseph S. Stovin, New York, N. Y., class of 1922, is secretary of the Baltimore Medical Club of New York.

Dr. Louis Arthur Buie, Rochester, Minn., class of 1915, is associate professor of proctology in the graduate school of medicine, University of Minnesota.

Dr. J. McFadden Dick, Salisbury, Md., class of 1895, chief surgeon of the Peninsula General Hospital, has been presented a gold medal, an award given annually to the citizen who has been the greatest benefactor to the community. This is a signal honor.

Colonel Roger Brooke, M. C., U. S. Army, B. M. C., class of 1900, Colonel Frank W. Weed, M. C., U. S. Army, class of 1903, and Colonel Arnold Dwight Tuttle, M. C., U. S. Army, class of 1906, are members of the editorial board in charge of the publication of a 15 volume series entitled "The Medical Department of the United States Army in the World War."

Dr. John Frank Hewitt, Baltimore, Md., class of 1927, chief resident surgeon, Church Home and Infirmary, Baltimore, gave an illustrated talk entitled "A New Apparatus, with Some Newer Ideas Concerning Extension, Rotation and Foot-Drop, To Be Used in the Treatment of Cases Requiring Prolonged Traction of the Lower Extremity," before the Baltimore City Medical Society, October 9, 1931.

Dr. Charles Bagley, Jr., Baltimore, Md., class of 1904, professor of neuro-surgery, University of Maryland, read a paper before the neuro-psychiatric section of the Baltimore City Medical Society, October 8, 1931, entitled "Spontaneous Cerebral Hemorrhage, Its Diagnosis and Treatment."

WEDDING

Dr. J. F. Huey, Hillsboro, Ala., P. & S., class of 1887, was married, September 6, 1931, to Mrs. Mattie E. Beall. Dr. Huey writes that he would be delighted to hear from any of his class-mates.

DEATHS

Dr. David McAllister Aikman, Wheeling, W. Va.; class of 1916; served during the World War; aged 37; died, October 4, 1931, of pneumonia.

Dr. Edward Griswold Bray, East Mauch Chunk, Pa.; B. M. C., class of 1904; formerly county coroner and member of the state legislature; aged 55; died, November 15, 1931, of pneumonia.

We are indebted to Dr. J. H. Orff, B. M. C., class of 1904, for the following announcement, which was clipped from a Mauch Chunk paper:

DR. E. G. BRAY DIES OF PNEUMONIA

This community was inexpressibly shocked by the announcement of the death of Dr. Edward Griswold Bray, November 15th, aged 55 years. He died of pneumonia with which he was stricken a week ago. His condition gradually grew worse.

He was known to every man, woman and child in the community and there isn't one that doesn't keenly feel his death. As a physician he came in contact with them and it resulted in the cultivation of a feeling of friendship, respect and confidence. As a physician he was eminent in skill. He specialized in diseases of the eye, ear, nose and throat. He was an inspiration in the sick room by his cheerfulness, and buoyed up the depressed spirits of the patient by his words of comfort and hope.

He was a civic and professional asset that makes his death a distinct loss.

He typified the self made man. Of humble birth, by dint of hard work and personal sacrifices he shaped for himself a professional career that made him an outstanding factor in the medical profession.

Born at Lambertville, N. J., he entered Lafayette College in 1896 and his prowess and ability as a foot ball player were recognized to the extent of his being selected full back of the team. Lafayette was little known in foot ball achievements then, but with the advent of Bray, Lafayette was forced into the front ranks of leading colleges and the tradition set by the example of the youth remains to this day. He was described as a "thundering herd." He was powerful and swept the most potent and obstinate resistance off its feet by the power of his rushes. Lafayette's greatest feat was in lowering the colors of proud Pennsylvania and Bray was the great factor in the achievement by his outstanding playing.

He, however, paid the penalty of his strength and power in the diminishing energy which handicapped his future.

He was an exceptional student, applied himself energetically to his task and conquered without difficulty.

Graduating from Lafayette College he entered Baltimore Medical College, Baltimore, Maryland, and later graduated as a cum laude student.

He served a one-year interneship at the Maryland General Hospital, 1903 to 1904.

He was quick to make friends. In a short time he was well known and his practice became extensive. He was prevailed upon to enter politics being a Republican, and served as coroner, was elected assemblyman in 1925. He was an aspirant for congress and state senator.

Dr. Bray was a ravenous reader, a brilliant conversationalist and had a burning ambition to excel in his profession. He took a post-graduate course at the University of Pennsylvania in diseases of the eye, ear, nose and throat.

For many years he served as a surgeon for the Lehigh Valley Railroad Company and was a member of the American Medical Association.

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Dr. Edward Fayette Cary, New York, N. Y.; B. M. C., class of 1906; member of the American Academy of Ophthalmology and Oto-Laryngology; aged 55; died, August 14, 1931, of agranulocytic angina.

Dr. B. Thaddeus Cox, Winterville, N. C.; class of 1888; formerly member of the state legislature; aged 68; died, November 1, 1931, of cerebral hemorrhage.

Dr. Joseph Henry Dixon, Holyoke, Mass.; B. M. C., class of 1894; aged 59; died, June 2, 1931, of cardiac disease.

Dr. William Walters Dodson, Greenville, S. C.; class of 1888; aged 66; died, October 30, 1931, of uremia, chronic nephritis, arteriosclerosis and hypertention.

Dr. Thomas Duncan, Jr., Pageland, S. C.; class of 1906; aged 47; died, November 18, 1931, of cardiac disease.

DR. CARTER SLOCUM FLEMING, Fairmount, W. Va.; P. & S., class of 1914; member of the American College of Surgeons; past president of the Marion County Medical Society; aged 40; died, in November, 1931, of a self-inflicted bullet wound.

DR. WILLIAM BARTLETT GAMBRILL, Ellicott City, Md.; class of 1878; aged 82; died, October 14, 1931, of cardiac disease.

DR. WILLIAM B. KELLEY, Port Jervis, N. Y.; P. & S., class of 1882; aged 75; died, December 3, 1931, of accidental carbolic acid poisoning.

DR. EUGENE JONES, Kensington, Md.; B. M. C., class of 1896; past president of the Montgomery County Medical Society; formerly member of the state board of health; state senator, 1914-1918 and 1922-1930; aged 57; died, September 22, 1931, of diabetes mellitus. Dr. Jones was born near Poolesville, Md., September 27, 1873. He attended Briarley Academy near Poolesville and later Randolph-Macon College, Ashland, Va. He received his medical degree from the Baltimore Medical College in 1896 and soon thereafter began the practice of medicine in Kensington. He was past president of the Montgomery County Medical Society and past vice-president of the Medical and Chirurgical Faculty of Maryland. At the time of his death he was a surgeon for the Baltimore and Ohio Railroad. From 1904 to 1908, he was a member of the state board of health. Dr. Jones was a member of the State Senate from 1914 to 1918 and again from 1922 to 1930. He was a candidate for renomination in the 1930 Democratic primaries, but was defeated. He is the only man Montgomery county has sent to the State Senate for more than two terms.

DR. EDWIN GIBBONS MOORE, Elm City, N. C.; class of 1883; aged 69; died, October 6, 1931, of hemiplegia. The following beautiful tribute was taken from The News and Observer, Raleigh, N. C., Monday, October 12, 1931:

DR. EDWIN GIBBONS MOORE

As the soft-toned bells tolled in the tower of Trinity College, Duke University, from which he had graduated in 1880, the body of Dr. Edwin Gibbons Moore was laid to rest in God's acre in Elm City on Tuesday afternoon. For 48 years he had practiced medicine in Elm City, beginning the practice, after teaching one year at Ridgeway, after he had graduated in medicine at the University of Maryland in 1883. From the first he won the people of his adopted home and in all the long years of practice was beloved and honored by a constantly widening circle of patients and friends. As a physician he stood high among the leaders of his section, having broadened his education by post-graduate work in the New York Polyclinic. Honors came to him from the medical profession which he graced, having served as president of the Wilson County, Tri-State and the Fourth District Medical Society, and as a member of the State Medical Examining Board, and of the Association of Surgeons of the Atlantic Coast Line Railway. He was a director of the Hospitals for the Insane at Goldsboro. It was in the sick chamber that he shone best. To skill and courtesy he added sympathy and friendliness. Attesting the effection of many, scores who have been benefitted by his treatment paid grateful tributes and sorrowed at his funeral.

Dr. Moore had natural gifts as an orator, combining eloquence in manner and rich style and lofty sentiment in the matter. He was often in demand as speaker at medical and civic and religious gatherings. His splendid address on Lee before the John W. Dunham Chapter of the Daughters of the Confederacy in Wilson has been preserved and was the highwater mark of his eloquence.

From early youth Dr. Moore was deeply religious. He was a member of the Methodist Church, serving as steward and as superintendent of Sunday school and delegate to the conference of his church. Every preacher of his own and other churches regarded his as a friend and relied upon his counsel and aid in all good movements.

As a citizen, he was public-spirited and progressive. Dr. Moore measured up to the highest standard of his profession and to his own high ideals of Christian living. His town and county and State are poorer now that he is gone.

A FRIEND.

DR. LIGON J. MARSHALL, Broadway, Va.; B. M. C., class of 1900; aged 57; died, November 23, 1931, of a cerebral hemorrhage, as the result of injuries received in an automobile accident.

DR. GEORGE STREET MCREYNOLDS, Temple, Texas; P. & S., class of 1898; member of the American Academy of Ophthalmology and Oto-Laryngology, the American Bronchoscopic Society and of the American College of Surgeons; aged 59; died, August 26, 1931.

DR. WILLIAM F. MITCHELL, Shelby, N. C.; class of 1889; past president and secretary of the Cleveland County Medical Society; formerly member of the county board of health; aged 63; died, October 27, 1931, of cerebral hemorrhage.

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DR. JAMES FRED MORSE, Waterbury, Conn.; B. M. C., class of 1894; also Fort Wayne (Ind.) College of Medicine, class of 1902; died, November 19, 1931, of septicemia.

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DR. WILLIAM DAVID PEMBERTON, Concord, N. C.; class of 1887; past president of the Cabarrus County Medical Society; aged 72; died, September 9, 1931, of chronic nephritis.

DR. EMIL GUSTAVE REINERT, Hartford, Conn.; B. M. C., class of 1895; aged 65; died, November 21, 1931, of carcinoma of the lip with metastasis.

DR. CHARLES HYATT RICHARDSON, Montezuma, Ga.; P. & S., class of 1883; aged 72; died, August 17, 1931, of carcinoma of the face.

DR. WALTER A. RICHESON, Amherst, Va.; P. & S., class of 1883; aged 69; died, November 24, 1931, of pneumonia.

DR. GEORGE B. ROBERTS, Vanderbilt, Pa.; P. & S., class of 1886; aged 74; died, November 11, 1931, of nephritis.

DR. LOUIS A. RUSSLOW, Randolph, Vt.; B. M. C., class of 1894; aged 65; died, September 21, 1931.

DR. JOHN GILBERT SELBY, Cumberland, Md.; class of 1899; aged 59; died, November 28, 1931, of pneumonia following an operation.

DR. MARVIN R. STONE, Parkersburg, W. Va.; P. & S., class of 1908; aged 53; died, September 4, 1931, of coronary occlusion.

DR. HARVEY W. STRADER, Sacramento, Calif.; P. & S., class of 1885; a native of Virginia; aged 71; died, November 11, 1931, of chronic nephritis.

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DR. ARTHUR LEON WRIGHT, Catonsville, Md.; class of 1908; aged 47; died October 6, 1931, following an operation for appendicitis.

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DR. ROBERT JAMES TALBOT, Niagara Falls, N. Y.: B. M. C., class of 1909; aged 49; died, October 30, 1931, of laryngeal tuberculosis. The following notice was clipped from the Niagara Falls Gazette, of October 30, 1931:

DR. R. J. TALBOT, PROMINENT FALLS SURGEON, IS DEAD

Dr. Robert J. Talbot, one of the leading physicians and best known residents of Niagara Falls, died today at his home, 955 Niagara avenue, following a lengthy illness. Although his death had been expected for some time, news of his passing caused widespread sorrow among his host of friends today.

Dr. Talbot was born in Niagara Falls on August 27, 1882. He was educated in the local public schools, at Niagara University and at Baltimore Medical college of the University of Maryland, where he received his M.D. in 1909. For a year afterward he was resident surgeon in the Maryland General Hospital, Baltimore. Later, coming here, he entered medical practice and when his younger brother, Francis J. Talbot (B. M. C., class of 1911), completed his medical course the two brothers formed an association in which Dr. F. Gerald McCarty, his nephew, later joined, and which has continued up to the present time, with Dr. Robert Talbot specializing in surgery.

Dr. Talbot was health officer of Niagara Falls during the period, under Mayor Keller, when the water filtration plant was being installed and over this and other sanitary measures gave careful supervision. He was the surgeon for the Lehigh Valley and Pere Marquette railroads, for Niagara University and for numerous local industrial plants. During the World War he was a United States contract surgeon stationed with students' military training camps.

During his collegiate career at both Niagara University and the University of Maryland he was outstanding in athletics. He was pitcher for the Niagara University baseball team and while at the University of Maryland he was a member of the 1909 varsity football team.

Dr. Talbot was identified with many medical and scientific societies, including the Niagara Falls Academy of Medicine, the New York and New England Surgical Society, the Niagara County Medical Society, the Mayo Clinic Surgical Society, the New York and New England Railroad Association, the Industrial Surgeons of America and the American Medical Association. He was a Fellow of the American College of Surgeons.

Dr. Talbot was a son of the late Michael Talbot, M.D., and a brother of Dr. Francis J. Talbot.

Dr. Talbot had made a strong impression upon his community is attested by the accompanying editorial that was taken also from the Niagara Falls Gazette, of October 10, 1931:

DR. ROBERT J. TALBOT

Dr. Robert J. Talbot is dead after a brave but futile struggle against an attack of the white plague. In his passing the medical fraternity of Niagara Falls loses one of its distinguished members and the city mourns the death of the scion of an old and honored family, long identified with the community. Dr. Robert J. Talbot was a son of Dr. Michael Talbot who also won distinction in the medical world.

As a surgeon Dr. Talbot, though comparatively young in years, had earned a reputation for unusual skill and proficiency. He was identified with many of the leading organizations and associations of medical men and surgeons and was regarded as a fine exponent of his profession.

Until the germs of disease fastened itself upon him, Dr. Talbot enjoyed vigorous health. He was active in the social life of the community and always displayed the interest of a good citizen in its progress and prosperity. A great many families in Niagara Falls knew him intimately and they will sorrow with his friends and family in his departure.

Dr. Talbot had blended in him these qualities of heart and mind that win success and friendships. His colleagues in his profession will greatly miss him, and the city at large will record the passing of an estimable citizen.

It is with much satisfaction that the BULLETIN heralds the love and esteem which our late alumnus had won for himself by his high quality of mind and character.

DR. LAWRENCE BRANCH YOUNG, Rolesville, N. C.: P. & S., class of 1886; aged 72; died, August 14, 1931, of chronic interstitial nephritis and uremia.

DR. DALLAS BANCROFT ZOLLICOFFER, P. & S., class of 1881; aged 79; died, November 23, 1931, of uremia and hypertrophy of the prostate gland.

DR. JOHN WHITRIDGE WILLIAMS, Baltimore. Md.; class of 1888; since 1899 professor of obstetrics in the Johns Hopkins University School of Medicine; aged 65; died, October 21, 1931, following an abdominal operation. Dr. John Whitridge Williams was born in Baltimore, January 26, 1866. He was the son of Dr. Philip C. Williams, University of Pennsylvania, 1850, also attended lectures at the University of Maryland and Mary C. Whitridge; and grandson of Dr. John Whitridge of Tiverton, Rhode Island who settled at Baltimore in 1820, where he practised medicine for fifty-three years. Dr. John Whitridge Williams received the B.A. degree from the Johns Hopkins University in 1886 and two years thereafter the M.D. from the University of Maryland. After post-graduate study in Berlin and Vienna, 1888-1889, he returned to Baltimore, serving from 1889 to 1899 in turn as assistant, associate and associate professor. In 1899 he was advanced to the professorship and obstetrician-in-chief to the Johns Hopkins Hospital which positions he continued to fill until his death. In addition to his other duties he served as dean of the medical school from 1911 to 1923. During 1894 and 1895, he did advance work in Leipzig, Prague and Paris. Fourteen years later he went to Heidelberg for a year's research in obstetrical problems. The honorary D.Sc. was conferred on him by the University of Maryland in 1907 and by the University of Dublin, Ireland, in 1912. In 1915, he received the honorary LL.D. from the University of Pittsburgh. Dr. Williams was a member of the American Gynecological Society and its president in 1913; a member of the Medical and Chirurgical Faculty of Maryland and its president in 1916-1917; a member of the American Association for the Study and Prevention of Infant Mortality and its president, 1914-1916; and a fellow of the American College of Surgeons. Dr. Williams was a many sided man. He was a successful clinician, an exceptional teacher, a renowned investigator and a distinguished author. His Text-Book of Obstetrics was one of the most popular ever written in English. In 1930, it had gone through six editions. He contributed a supplement on the history of obstetrics in America to Siebold's "History of Obstetrics." Under his guidance many teachers of obstetrics were developed for other American medical schools. He contributed many noteworthy researches on the anatomy, and pathology of the female generative tract; on the etiology of eclampsia and toxemia; development and diseases of the human placenta; puerperal infection; metabolism and physiology of pregnancy; and syphilis in its relation to obstetrics. In his passing the American profession has lost an outstanding and dominant figure. Such men as he are hard to replace. As an appreciation of his services to the community, The Evening Sun, Baltimore, October 22, 1931, paid him the following beautiful tribute in its editorial columns:

DR. J. W. WILLIAMS

The career of Dr. John Whitridge Williams, whose untimely death occurred yesterday, was an almost perfect expression of the ideal toward which modern medicine seeks its way. He was, of course, primarily a great teacher and it was as a teacher that he acquired his fame.

But his teaching was informed with a spirit which modern physicians realize is essential to the development of their art. The obstetrical clinic which he directed concerned itself with chemical, with pathological and bacteriological problems, as well as with the more obvious surgical ones, but the research that he inspired and directed was not "pure" research in the sense in which that phrase is ordinarily understood. His primary concern was with the patient, and the work done in his laboratory and in his clinic was directed to the one end of understanding childbirth and lessening its pains and perils.

It was this singleness of aim and the knowledge of it which spread about that drew to him admiring visitors from many lands. The medical world recognized that in him academic medicine, in a clinical subject, found its finest expression.

Personally he was a gay and charming companion with a fund of humor and never-failing vitality. No students ever dozed through his lectures, for his presence was electric. But in his presence men did more than keep awake. There was about him the aura of greatness and even the tyro could sense it.

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Dr. Talbot was identified with many medical and scientific societies, including the Niagara Falls Academy of Medicine, the New York and New England Surgical Society, the Niagara County Medical Society, the Mayo Clinic Surgical Society, the New York and New England Railroad Association, the Industrial Surgeons of America and the American Medical Association. He was a Fellow of the American College of Surgeons.

Dr. Talbot was a son of the late Michael Talbot, M.D., and a brother of Dr. Francis J. Talbot.

Dr. Talbot had made a strong impression upon his community is attested by the accompanying editorial that was taken also from the Niagara Falls Gazette, of October 10, 1931:

DR. ROBERT J. TALBOT

Dr. Robert J. Talbot is dead after a brave but futile struggle against an attack of the white plague. In his passing the medical fraternity of Niagara Falls loses one of its distinguished members and the city mourns the death of the scion of an old and honored family, long identified with the community. Dr. Robert J. Talbot was a son of Dr. Michael Talbot who also won distinction in the medical world.

As a surgeon Dr. Talbot, though comparatively young in years, had earned a reputation for unusual skill and proficiency. He was identified with many of the leading organizations and associations of medical men and surgeons and was regarded as a fine exponent of his profession.

Until the germs of disease fastened itself upon him, Dr. Talbot enjoyed vigorous health. He was active in the social life of the community and always displayed the interest of a good citizen in its progress and prosperity. A great many families in Niagara Falls knew him intimately and they will sorrow with his friends and family in his departure.

Dr. Talbot had blended in him these qualities of heart and mind that win success and friendships. His colleagues in his profession will greatly miss him, and the city at large will record the passing of an estimable citizen.

It is with much satisfaction that the BULLETIN heralds the love and esteem which our late alumnus had won for himself by his high quality of mind and character.

DR. LAWRENCE BRANCH YOUNG, Rolesville, N. C.; P. & S., class of 1886; aged 72; died, August 14, 1931, of chronic interstitial nephritis and uremia.

DR. DALLAS BANCROFT ZOLLICOFFER, P. & S., class of 1881; aged 79; died, November 23, 1931, of uremia and hypertrophy of the prostate gland.

DR. JOHN WHITRIDGE WILLIAMS, Baltimore. Md.; class of 1888; since 1899 professor of obstetrics in the Johns Hopkins University School of Medicine; aged 65; died, October 21, 1931, following an abdominal operation. Dr. John Whitridge Williams was born in Baltimore, January 26, 1866. He was the son of Dr. Philip C. Williams, University of Pennsylvania, 1850, also attended lectures at the University of Maryland and Mary C. Whitridge; and grandson of Dr. John Whitridge of Tiverton, Rhode Island who settled at Baltimore in 1820, where he practised medicine for fifty-three years. Dr. John Whitridge Williams received the B.A. degree from the Johns Hopkins University in 1886 and two years thereafter the M.D. from the University of Maryland. After post-graduate study in Berlin and Vienna, 1888-1889, he returned to Baltimore, serving from 1889 to 1899 in turn as assistant, associate and associate professor. In 1899 he was advanced to the professorship and obstetrician-in-chief to the Johns Hopkins Hospital which positions he continued to fill until his death. In addition to his other duties he served as dean of the medical school from 1911 to 1923. During 1894 and 1895, he did advance work in Leipzig, Prague and Paris. Fourteen years later he went to Heidelberg for a year's research in obstetrical problems. The honorary D.Sc. was conferred on him by the University of Maryland in 1907 and by the University of Dublin, Ireland, in 1912. In 1915, he received the honorary LL.D. from the University of Pittsburgh. Dr. Williams was a member of the American Gynecological Society and its president in 1913; a member of the Medical and Chirurgical Faculty of Maryland and its president in 1916-1917; a member of the American Association for the Study and Prevention of Infant Mortality and its president, 1914-1916; and a fellow of the American College of Surgeons. Dr. Williams was a many sided man. He was a successful clinician, an exceptional teacher, a renowned investigator and a distinguished author. His Text-Book of Obstetrics was one of the most popular ever written in English. In 1930, it had gone through six editions. He contributed a supplement on the history of obstetrics in America to Siebold's "History of Obstetrics." Under his guidance many teachers of obstetrics were developed for other American medical schools. He contributed many noteworthy researches on the anatomy, and pathology of the female generative tract; on the etiology of eclampsia and toxemia; development and diseases of the human placenta; puerperal infection; metabolism and physiology of pregnancy; and syphilis in its relation to obstetrics. In his passing the American profession has lost an outstanding and dominant figure. Such men as he are hard to replace. As an appreciation of his services to the community, The Evening Sun, Baltimore, October 22, 1931, paid him the following beautiful tribute in its editorial columns:

DR. J. W. WILLIAMS

The career of Dr. John Whitridge Williams, whose untimely death occurred yesterday, was an almost perfect expression of the ideal toward which modern medicine seeks its way. He was, of course, primarily a great teacher and it was as a teacher that he acquired his fame.

But his teaching was informed with a spirit which modern physicians realize is essential to the development of their art. The obstetrical clinic which he directed concerned itself with chemical, with pathological and bacteriological problems, as well as with the more obvious surgical ones, but the research that he inspired and directed was not "pure" research in the sense in which that phrase is ordinarily understood. His primary concern was with the patient, and the work done in his laboratory and in his clinic was directed to the one end of understanding childbirth and lessening its pains and perils.

It was this singleness of aim and the knowledge of it which spread about that drew to him admiring visitors from many lands. The medical world recognized that in him academic medicine, in a clinical subject, found its finest expression.

Personally he was a gay and charming companion, with a fund of humor and never-failing vitality. No students ever dozed through his lectures, for his presence was electric. But in his presence men did more than keep awake. There was about him the aura of greatness and even the tyro could sense it.

INDEX

BULLETIN

OF THE

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE

AND

COLLEGE OF PHYSICIANS AND SURGEONS

Successor to THE HOSPITAL BULLETIN of the University of Maryland, BALTIMORE MEDICAL COLLEGE NEWS, and the JOURNAL of the Alumni Association of the College of Physicians and Surgeons.

VOL. XVI **APRIL, 1932** **No. 4**

ANNUAL ANNOUNCEMENT

SESSION 1932-33

This catalogue presents the teaching staff for the present year and the announcement of courses for the ensuing one. Changes in the teaching staff and list of graduates of the Class 1931-32 will appear in the July Bulletin.

CALENDAR

1932-1933

SCHOOL OF MEDICINE

FIRST SEMESTER

1932

September 23, Friday—*Registration for first- and second-year students.

September 24, Saturday—*Registration for all other students.

September 26, Monday—Instruction begins with the first scheduled period.

September 30, Saturday—Delayed registration, with fine included, until noon this day.

November 24, Thursday—Thanksgiving Day. Holiday.

December 21, Wednesday—Christmas recess begins after the last scheduled period.

1933

January 3, Tuesday—Instruction resumed with the first scheduled period.

January 28, Saturday—First semester ends after the last scheduled period.

SECOND SEMESTER

January 30, Monday—*Registration for first- and second-year students.

January 31, Tuesday—*Registration for all other students.
Instruction resumed for first- and second-year students, with the first scheduled period.

February 1, Wednesday—Instruction resumed for third- and fourth-year students, with the first scheduled period.

February 4, Saturday—Delayed registration, with fine included, until noon this day.

February 22, Wednesday—Washington's Birthday. Holiday.

April 13, Thursday—Easter recess begins after the last scheduled period.

April 18, Tuesday—Instruction resumed with the first scheduled period.

June 3, Saturday—Commencement. (Four o'clock in the afternoon.)

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* A STUDENT WHO NEGLECTS OR FAILS TO REGISTER PRIOR TO OR WITHIN THE DAY OR DAYS SPECIFIED FOR HIS OR HER SCHOOL, WILL BE CALLED UPON TO PAY A FINE OF $5.00. THE LAST DAY OF REGISTRATION WITH FINE ADDED TO REGULAR FEES IS SATURDAY AT NOON OF THE WEEK IN WHICH INSTRUCTION BEGINS, FOLLOWING THE SPECIFIED REGISTRATION PERIOD. (THIS RULE MAY BE WAIVED ONLY ON THE WRITTEN RECOMMENDATION OF THE DEAN.)

* The offices of the Registrar and Comptroller are open during the registration periods from 8:30 A. M. to 6:00 P. M. Advance registration encouraged.

THE UNIVERSITY OF MARYLAND

Control of the University of Maryland is vested in a Board of nine Regents, appointed by the Governor and confirmed by the Senate for terms of nine years each. The general administration of the University is vested in the President. The University Council is an advisory body, composed of the President, the Assistant to the President, the Director of the Agricultural Experiment Station, the Director of the Extension Service, and the Deans. The University Council acts upon all matters having relation to the University as a whole or to cooperative work between the constituent groups. Each school has its own Faculty Council, composed of the Dean and members of its Faculty; each Faculty Council controls the internal affairs of the group it represents.

The University has the following educational organization:

The College of Agriculture,
The College of Engineering,
The College of Arts and Sciences,
The School of Medicine,
The School of Law,
The School of Dentistry,
The School of Pharmacy,
The College of Education,
The College of Home Economics,
The Graduate School,
The Summer School,
The Department of Physical Education and Recreation.

The Schools of Medicine, Law, Dentistry and Pharmacy are located in Baltimore; the others in College Park, Maryland.

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MEYER MILLER, M.D., Assistant in Gastro-Enterology.
SAMUEL MORRISON, M.D., Assistant in Gastro-Enterology.
J. J. LEYKO, M.D., Assistant in Surgery.
HARRY A. RUTLEDGE, M.D., Assistant in Pediatrics.
KENDIG WALLACE, M.D., Assistant in Pediatrics.
ELIZABETH SHERMAN, M.D., Assistant in Pediatrics.
MORRIS FINE, M.D., Assistant in Pediatrics.
WILLIAM G. QUEEN, M.D., Assistant in Pediatrics.
CONRAD B. ACTON, M.D., Assistant in Pathology.
E. P. H. HARRISON, A.B., M.D., Assistant in Obstetrics.
FRANK K. MORRIS, A.B., M.D., Assistant in Anatomy and Surgery.

University of Maryland School of Medicine

AND

College of Physicians and Surgeons

As a result of the merger accomplished in 1915 the combined schools offer the student the abundant resources of both institutions, and, in addition, by earlier combination with the Baltimore Medical College, the entire equipment of three large medical colleges.

The School of Medicine of the University of Maryland is one of the oldest foundations for medical education in America, ranking fifth in point of age among the medical colleges of the United States. It was organized in 1807, and chartered in 1808, under the name of the College of Medicine of Maryland, and its first class was graduated in 1810. In 1812 the College was empowered by the Legislature to annex three other colleges or faculties: Divinity, Law, and Arts and Sciences; and the four colleges thus united were "constituted an University by the name and under the title of the University of Maryland."

Established thus for more than a century, the School of Medicine of the University of Maryland has always been a leading medical college, especially prominent in the South and widely known and highly honored throughout the country.

The beautiful college building at Lombard and Greene Streets, erected in 1812, is the oldest structure in America devoted to medical teaching. Here was founded one of the first medical libraries and the first medical college library in the United States.

Here for the first time in America dissecting was made a compulsory part of the curriculum; here instruction in Dentistry was first given (1837) and here were first installed independent chairs for the teaching of Diseases of Women and Children (1867), and of Eye and Ear Diseases (1873).

The School of Medicine was one of the first to provide for adequate clinical instruction by the erection in 1823 of its own hos-

pital, and in this hospital intramural residency for the senior student was first established.

In 1913, juncture was brought about with the Baltimore Medical College, an institution of thirty-two years' growth. By this association the facilities of the School of Medicine were enlarged in faculty, equipment and hospital connection.

The College of Physicians and Surgeons was incorporated in 1872, and established on Hanover Street in a building afterwards known as the Maternite, the first obstetrical hospital in Maryland. In 1878 union was affected with the Washington University School of Medicine, in existence since 1827, and the college was removed to its present location at Calvert and Saratoga streets. By this arrangement medical control of the City Hospital, now the Mercy Hospital, was obtained, and on this foundation in 1899 the present admirable college building was erected.

ORGANIZATION OF THE SCHOOL OF MEDICINE

LABORATORY AND CLINICAL FACILITIES

The Laboratories

The laboratories are located at two centers, the group of buildings at Greene and Lombard Streets, and at 32 and 34 South Paca Street. The schedule is so adjusted that the laboratory periods are placed with a view of obviating unnecessary movement on the part of the classes. The building known as Gray Laboratory, at Greene and Lombard Streets, houses three departments. The Anatomical Laboratory is placed upon the top floor, where skylights and an auxiliary modern system of electric lighting give adequate illumination of the subjects. The Department of Pharmacology occupies the second floor. There is a large room for the general student laboratory, which is thoroughly equipped with apparatus of recent acquisition, and in addition contains many instruments of unique and original design. With office and stockroom adjoining, this laboratory is complete for student experimentation. On the first floor of Gray

Laboratory is the Department of Physiology. In addition to the large student laboratory, which is constructed for groups of fifty-eight students there are rooms for the departmental office, preparation of material, and storage of apparatus. An additional room is devoted exclusively to mammalian experiments. In this building there is maintained an animal room where is kept an abundance of material for experimental purposes. The embalming and storage plant for the Department of Anatomy is in physical connection with the building and its special departments. The laboratories of physiology and pharmacology are completely equipped with apparatus lockers, so that, in accord with the best ideas of instruction, the students work in groups of two each, and each group has sufficient apparatus, so that the experimental work can be carried on without delay or recourse to a general stockroom.

The laboratories of Pathology, Bacteriology, Biochemistry and Clinical Pathology are located in the Medical laboratory building on Greene Street north of Lombard.

The Departments of Pathology, Bacteriology and Clinical Pathology use, conjointly, the large modernly equipped student laboratory on the second floor. The capacity is one hundred students. On the second floor also there are students' preparation rooms for the making and sterilization of media, cold storage and incubating rooms and research laboratories for the departments of Bacteriology and Clinical Pathology.

On the main floor of this building are the offices, library, research and technical rooms of the Departments of Pathology and Bacteriology. The Department of Art also occupies quarters on this floor. The basement is given over to teaching museums, store rooms, students' locker room and lavatories.

The Department of Biological Chemistry is housed on the top floor of this building. The space allotted to teaching includes a large student laboratory equipped with one hundred and thirty-two commodious locker units, supplied with gas, hot and cold water, vacuum and direct current service, a special apparatus room, a warm room, a colorimeter room, a balance room, a first-aid room and a stockroom. These rooms are appointed with modern laboratory furniture and apparatus, a constant temperature

and ventilating system, and equipped and arranged for economic use of the students' time.

Adjoining the students' space are private offices and laboratories of the staff, a departmental library, a shop and a preparation room.

In the Main Building is the Museum of Anatomy, where are arranged for student reference, specimens which represent the careful selection of material over a period of many years. In the University Hospital is the Student Laboratory for the analytical studies by those students who are serving as clinical clerks on the wards. A similar laboratory is maintained in the building at the northwest corner of Saratoga and Calvert Streets, for the student work on the wards of the Mercy Hospital.

At 32 and 34 South Paca Street are the Laboratories of Histology and Embryology. These laboratories accommodate one hundred and twenty-five students, or the full class, and are equipped with necessary lockers for microscopes and apparatus. The department housed in this building is provided with individual offices, preparation and stockrooms.

Clinical Facilities

UNIVERSITY HOSPITAL

The University Hospital, which is the property of the University of Maryland, is the oldest institution for the care of the sick in the State of Maryland. It was opened in September, 1823, under the name of the Baltimore Infirmary, and at that time consisted of but four wards, one of which was reserved for eye patients.

The present hospital has a capacity of two hundred and fifty beds, devoted to general medicine, surgery, obstetrics and the various medical and surgical specialties. It is equipped with a thoroughly modern X-ray department and clinical laboratory, and a post-mortem building which is constructed with special reference to the instruction of students in pathological anatomy.

The hospital is situated opposite the medical school buildings, so that the students lose no time in passing from the lecture halls and laboratories to the clinical amphitheater, dispensary and wards.

Owing to its situation, being adjacent to the largest manufacturing district of the city and the shipping district, large numbers of accident patients are received. These, combined with a large number of sick seamen and with patients from our own city, furnish a large amount of clinical material. Accommodations for twenty-five obstetrical patients are provided in the hospital for the purpose of furnishing actual obstetrical experience to each member of the graduating class.

In connection with the University Hospital an outdoor obstetrical clinic is conducted, in which every patient is given careful prenatal supervision, is attended during labor by a senior student, supervised by a hospital physician and assisted by a graduate nurse, and is visited during the puerperium by the attending student and graduate nurse. Careful prenatal, labor and puerperal records are kept, making this work of extreme value to the medical student, not only from the obstetrical standpoint, but also helping him to appreciate the value of social service and public health work.

During the year ending December 31, 1931, 398 cases were delivered in the hospital and 1,150 cases in the outdoor department. Students in the graduating class delivered or observed an average of fourteen cases, each student being required to deliver twelve cases.

The dispensaries associated with the University Hospital and the Mercy Hospital are organized upon a uniform plan in order that the teaching may be the same in each. Each dispensary has the following departments: Medicine, Surgery, Obstetrics, Pediatrics, Eye and Ear, Genito-Urinary, Gynecology, Gastro-Enterology, Neurology, Orthopaedics, Proctology, Dermatology, Throat and Nose, Tuberculosis and Psychiatry.

All students in their junior year work in the departments of Medicine and Surgery each day in one of the dispensaries.

All students in their senior year work in the special departments one hour each day.

HOSPITAL COUNCIL

RAYMOND A. PEARSON, M.S., D.Agr., LL.D., *President.*
SAMUEL M. SHOEMAKER, ESQ., *President of the Board of Regents.*
J. M. H. ROWLAND, M.D., *Dean of the School of Medicine.*
M. C. PINCOFFS, S.B., M.D., *Head of the Department of Medicine.*
A. M. SHIPLEY, M.D., Sc.D., *Head of the Department of Surgery.*
A. J. LOMAS, M.D., C.M., D.P.H., *Superintendent of the Hospital.*
MISS ANNIE CRIGHTON, R.N., *Superintendent of Nurses.*
J. ALLISON MUIR, ESQ.
G. M. SHRIVER, ESQ.
W. B. BROOKS, ESQ.
MISS FLORENCE SADTLER, *Representing Woman's Auxiliary Board.*

Representing Hospital Staff

PAGE EDMUNDS, M.D. C. REID EDWARDS, M.D.

Representing Medical Alumni

CHARLES BAGLEY, M.D. CHARLES C. HABLISTON, M.D.

UNIVERSITY HOSPITAL STAFF

Superintendent of the Hospital, A. J. LOMAS, M.D., C.M., D.P.H.

Physicians

GORDON WILSON, M.D.
HARRY M. STEIN, M.D.
WALTER A. BAETJER, M.D.
C. C. HABLISTON, M.D.
L. A. M. KRAUSE, M.D.
MAURICE C. PINCOFFS, B.S., M.D.
G. CARROLL LOCKARD, M.D.
JOSEPH E. GICHNER, M.D.
WILLIAM H. SMITH, M.D.
WILLIAM S. LOVE, JR., M.D.

Gastro-Enterologist

JULIUS FRIEDENWALD, A.M., M.D.
J. HARRY ULLRICH, M.D. THEODORE H. MORRISON, M.D.

Neurologist

IRVING J. SPEAR, M.D.

Psychiatrist

R. M. CHAPMAN, M.D.

Pediatrician

C. LORING JOSLIN, M.D.

Pathologists

HUGH R. SPENCER, M.D. S. LLOYD JOHNSON, M.D.

Surgeons

RANDOLPH WINSLOW, A.M., M.D., LL.D. ARTHUR M. SHIPLEY, M.D., Sc.D.
NATHAN WINSLOW, M.D. PAGE EDMUNDS, M.D.
CHARLES REID EDWARDS, M.D. FRANK S. LYNN, M.D.

Laryngologists

EDWARD A. LOOPER, M.D. FRANKLIN B. ANDERSON, M.D.

Proctologists

G. MILTON LINTHICUM, A.M., M.D. J. DAWSON REEDER, M.D.
MONTE EDWARDS, M.D.

Orthopaedic Surgeons

ALLEN FISKE VOSHELL, A.B., M.D., COMPTON RIELY, M.D.
MOSES GELLMAN, B.S., M.D.

Genito-Urinary Surgeons

W. H. TOULSON, A.B., M.Sc., M.D. LYLE J. MILLAN, M.D.

Roentgenologists

HENRY J. WALTON, M.D. EUGENE L. FLIPPIN, M.D.

Dermatologists

MELVIN S. ROSENTHAL, M.D. HARRY M. ROBINSON, M.D.

Bronchoscopist

EDWARD A. LOOPER, M.D.

Anaesthetists

S. GRIFFITH DAVIS, M.D. GEORGE H. YEAGER, B.S., M.D.
MARY J. O'BRIEN, R.N.

Obstetricians

J. M. H. ROWLAND, M.D. L. H. DOUGLASS, M.D.
M. A. NOVEY, A.B., M.D. J. G. M. REESE, M.D.
ISADOR A. SIEGEL, A.B., M.D. E. P. H. HARRISON, JR., A.B., M.D.

Ophthalmologists

CLYDE A. CLAPP, M.D. WILLIAM TARUN, M.D.

Otologist

J. W. DOWNEY, JR., M.D.

Gynecologists

W. S. GARDNER, M.D. HUGH BRENT, M.D.
R. G. WILLSE, M.D.

UNIVERSITY HOSPITAL RESIDENT AND INTERN STAFF

RESIDENT STAFF, 1932-1933

Resident in Surgery.....PAUL S. HILL, M.D.
Assistant Resident in Surgery.....EMIL J. C. HILDENBRAND, M.D.
Assistant Resident in Surgery.....HARRY C. SHELLEY, M.D.
Assistant Resident in Surgery.....MILFORD H. SPRECHER, M.D.
Resident in Medicine.....MAURICE J. ABRAMS, M.D.
Assistant Resident in Medicine.....W. M. SEABOLD, M.D.
Assistant Resident in Medicine.....DAVID N. ANDREW, M.D.
Resident in Obstetrics.....W. A. HART, M.D.
Assistant Resident in Obstetrics.....E. W. WARREN, M.D.
Resident in Gynecology.....ZACK DOXEY OWENS, M.D.

INTERN STAFF, 1932-1933

C. RICHARD AHROON, JR., M.D.
WILLIAM E. BROWN, M.D.
DWIGHT MCIVER CURRIE, M.D.
S. DEMARCO, JR., M.D.
JOHN C. DUMLER, M.D.
ANDREW M. FRANCE, M.D.
HARRY C. HULL, JR., M.D.
R. RICHARD LOUFT, M.D.
WILLIAM OWEN MCMILLAN, M.D.
J. DUER MOORES, M.D.
THOMAS SEWELL SAUNDERS, M.D.
JOHN EDWARD SAVAGE, M.D.
JOHN FREDERICK SIMMONS, M.D.
FRANK WILSON, JR., M.D.

UNIVERSITY HOSPITAL DISPENSARY STAFF

Medicine

L. A. M. KRAUSE, M.D., *Chief of Clinic*

S. C. FELDMAN, M.D.
M. A. FINE, M.D.
H. S. RUBENSTEIN, M.D.
W. H. TRIPLETT, M.D.
Z. V. HOOPER, M.D.

Diseases of the Stomach and Intestines

J. H. ULLRICH, Ph.G., M.D., *Chief of Clinic*

JOSEPH SINDLER, M.D.
Z. MORGAN, M.D.
C. VICTOR RICHARDS, M.D.
M. S. KOPPELMAN, M.D.
C. VANCE HOOPER, M.D.
SAMUEL MORRISON, M.D.

Neurology

IRVING J. SPEAR, M.D., *Professor of Neurology*
G. M. SETTLE, M.D., *Associate Professor of Neurology*
LEON FREEDOM, M.D., *Chief of Clinic*

Mental Hygiene

RALPH P. TRUITT, M.D., *Director*
ELMER KLEIN, M.D.

Diseases of the Lungs

C. C. HABLISTON, M.D., *Chief of Clinic*
H. C. SMITH, M.D.

Diseases of Metabolism

H. M. Stein, M.D., *Chief of Clinic*
L. P. Gundry, M.D.

Cardiovascular Diseases

William S. Love, Jr., M.D., *Chief of Clinic*
Samuel J. Harkin, M.D. Frank J. Geraghty, M.D.

Allergy Clinic

H. M. Bubert, M.D., *Chief of Clinic*

Pediatrics

C. Loring Joslin, M.D., *Professor of Clinical Pediatrics*
John H. Traband, M.D., *Chief of Clinic*
Clarence E. Macke, M.D., *Chief of Clinic*

Albert Jaffe, M.D.
William J. Todd, M.D.
F. Stratner Orem, M.D.
William G. Geyer, M.D.
R. M. Hening, M.D.
Marie Kovner, M.D.
Clewell Howell, M.D.
Samuel Glick, M.D.
Elizabeth S. Sherman, M.D.
A. H. Finkelstein, M.D.
M. Paul Byerly, M.D.
Morris A. Fine, M.D.
William G. Queen, M.D.
Harry A. Rutledge, M.D.
S. Kendig Wallace, M.D.
Joseph Rosenblatt, M.D.

Surgery

Charles Reid Edwards, M.D., *Chief of Clinic*

J. Willis Guyton, M.D.
Thomas B. Aycock, M.D.
E. S. Johnson, M.D.
W. R. Johnson, M.D.
Hugh A. Bailey, A.B., M.D.
C. F. Karns, M.D.
A. C. Monninger, M.D.
W. W. Walker, M.D.
A. V. Buchness, M.D.
W. N. McFaul, Jr., M.D.
A. N. Owens, M.D.

Orthopaedic Surgery

Allen Fiske Voshell, A.B., M.D., *Professor of Orthopaedic Surgery*

Moses Gellman, B.S., M.D.
J. G. Benesunes, M.D.
I. H. Maseritz, M.D.
H. A. Bailey, A.B., M.D.

Genito-Urinary

W. H. Toulson, M.D., *Chief of Clinic*

Harris Goldman, M.D.
Samuel J. Helms, M.D.
Milton C. Lang, M.D.
L. K. Fargo, M.D.
Lyle J. Millan, M.D.

Roentgenology

HENRY J. WALTON, M.D., *Chief of Clinic*
EUGENE L. FLIPPIN, M.D.

Dermatology

H. M. ROBINSON, M.D., *Chief of Clinic*

M. H. GOODMAN, M.D.
HARRY WASSERMAN, M.D.
FRANCIS ELLIS, M.D.
A. C. MONNINGER, M.D.

Nose and Throat

EDWARD A. LOOPER, M.D., *Clinical Professor of Diseases of the Nose and Throat.*

FRANKLIN B. ANDERSON, M.D., *Chief of Clinic*

F. A. HOLDEN, M.D.
CHARLES H. CAHN, M.D.
THOMAS O'ROURKE, M.D.
EDWARD TALBOTT, M.D.
JOSEPH NURKIN, M.D.

Colon and Rectum

MONTE EDWARDS, M.D., *Chief of Clinic*

Gynecology

J. M. HUNDLEY, JR., M.D.
WILLIAM J. FULTON, M.D.
JOHN T. HIBBITTS, M.D.
JOSEPH V. CASTAGNA, M.D.
JAMES J. MARSTON, M.D.
LEO BRADY, M.D.
KENNETH BOYD, M.D.
E. EUGENE COVINGTON, M.D.
THOMAS S. BOYER, M.D.

Obstetrics

L. H. DOUGLAS, M.D., *Chief of Clinic*

J. G. M. REESE, M.D.
MAXWELL MAZER, M.D.
MARGARET B. BALLARD, M.D.
M. ALEXANDER NOVEY, M.D.
ISADORE A. SIEGEL, A.B., M.D.
S. K. WALLACE, M.D.
E. P. H. HARRISON, A.B., M.D.

Eye and Ear

CLYDE A. CLAPP, M.D., *Professor of Ophthalmology*

J. W. DOWNEY, M.D., *Professor of Otology*

JOHN G. RUNKEL, M.D.
H. F. GRAFF, A.B., M.D.
FRANK A. PACIENZA, M.D.

Social Service

MISS GRACE PEARSON, *Directress*

Dispensary Report From October 1st, 1930, To September 30th, 1931

"TOTAL"

DEPARTMENTS	NEW CASES	OLD CASES	TOTAL
Pediatrics	3,316	19,777	23,093
Dermatology	6,647	14,805	21,452
Surgery	3,672	12,678	16,350
Medicine	1,906	7,930	9,836
Obstetrics	1,878	7,241	9,119
Orthopedic	892	6,898	7,790
Genito-Urinary	1,159	5,705	6,864
Gynecology	1,329	2,346	3,675
Eye	1,098	2,345	3,443
Nose and Throat	1,292	1,070	2,362
Gastro-Intestinal	298	1,127	1,425
Ear	455	567	1,022
Neurology	276	557	833
Tuberculosis	260	357	617
Oncology	94	454	548
Proctology	198	322	520
Cardiology	147	370	517
Cystoscopy	63	230	293
Mental Hygiene	664	1,652	2,316
Total	25,644	86,431	112,075

MERCY HOSPITAL

The Sisters of Mercy first assumed charge of the Hospital at the corner of Calvert and Saratoga Streets, then owned by the Washington University, in 1874. By the merger of 1878 the Hospital came under the control of the College of Physicians and Surgeons, but the Sisters continued their work of administering to the patients.

In a very few years it became apparent that the City Hospital, as it was then called, was much too small to accommodate the rapidly growing demands upon it. However, it was not until 1888 that the Sisters of Mercy, with the assistance of the Faculty of the College of Physicians and Surgeons, were able to lay the cornerstone of the present Hospital. This building was completed and occupied late in 1889. Since then the growing demands for more space have compelled the erection of additions, until now there are accommodations for 275 patients.

In 1909 the name was changed from The Baltimore City Hospital to Mercy Hospital.

The clinical material in the free wards is under the exclusive control of the Faculty of the University of Maryland School of Medicine and College of Physicians and Surgeons.

The Hospital adjoins the College building, and all surgical patients from the public wards are operated upon in the College operating rooms. This union of the Hospital and College buildings greatly facilitates the clinical teaching.

Mercy Hospital is the hospital of the United Railways and Electric Company of Baltimore City, and receives patients from the Baltimore and Ohio Railroad Company and from the Pennsylvania Railroad Company and its branches.

BOARD OF GOVERNORS

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SISTER M. HELEN
SISTER M. HILDEGARDE
SISTER M. VINCENT
SISTER M. CORNELIA
DR. ALEXIUS MCGLANNAN
DR. WALTER D. WISE
DR. THOMAS K. GALVIN
DR. WAITMAN F. ZINN
DR. STANDISH MCCLEARY

MERCY HOSPITAL STAFF

SURGICAL DIVISION

ALEXIUS MCGLANNAN, M.D.
W. D. WISE, M.D.
C. F. BLAKE, M.D.
ELLIOTT HUTCHINS, M.D.
A. M. EVANS, M.D.
F. L. JENNINGS, M.D.

Associate Surgeons

R. H. LOCHER, M.D.
T. R. CHAMBERS, M.D.
I. O. RIDGLEY, M.D.
N. C. MARVEL, M.D.
D. J. PESSAGNO, M.D.

Assistant Surgeons

CHARLES MAXSON, M.D.
A. B. MCELWAIN, M.D.
T. J. TOUHEY, M.D.
DWIGHT MOHR, M.D.
H. F. BONGARDT, M.D.
J. W. NELSON, M.D.
JOHN A. O'CONNOR, M.D.

Ophthalmologist and Otologist

HARRY FRIEDENWALD, M.D.

Associates

H. K. FLECK, M.D.
J. W. DOWNEY, M.D.

Rhinologists and Laryngologists

FRANK D. SANGER, M.D.
W. F. ZINN, M.D.
GEORGE W. MITCHELL, M.D.
RAYMOND MCKENZIE, M.D.

Associates

F. A. PACIENZA, M.D.
BIRCKHEAD MCGOWAN, M.D.
F. A. KAYSER, M.D.

Proctologist

CHARLES F. BLAKE, M.D.

Orthopaedic Surgeon

ALBERTUS COTTON, M.D.

Associate

H. L. ROGERS, M.D.

Urologist
ALEXANDER J. GILLIS

Associate
KENNETH B. LEGGE, M.D.

Dentist
J. D. FUSCO, D.D.S.

MEDICAL DIVISION

Physicians

MAURICE C. PINCOFFS, M.D.
STANDISH MCCLEARY, M.D.
CARY B. GAMBLE, M.D.
HARVEY G. BECK, M.D.

Associates

HUBERT C. KNAPP, M.D.
C. C. W. JUDD, M.D.
H. R. PETERS, M.D.
BARTUS T. BAGGOTT, M.D.
GEORGE MCLEAN, M.D.
A. A. SUSSMAN, M.D.
L. A. M. KRAUSE, M.D.
JOHN E. LEGGE, M.D.
J. S. EASTLAND, M.D.

Assistant Physicians

WETHERBEE FORT, M.D.
J. M. MILLER, M.D.
S. A. TUMMINELLO, M.D.

Gastro-Enterologist
JULIUS FRIEDENWALD, M.D.

Associates

T. FREDERICK LEITZ, M.D.
THEODORE MORRISON, M.D.

Assistants

MAURICE FELDMAN, M.D.
JOSEPH SINDLER, M.D.

Pediatricians

JOHN RUHRAH, M.D.
EDGAR B. FRIEDENWALD, M.D.

Associate Pediatrician
F. B. SMITH, M.D.

Assistant Pediatricians

W. J. SCHMITZ, M.D.
G. B. MANSDORFER, M.D.

Neurologist and Psychiatrist
ANDREW C. GILLIS, M.D.

Associates
MILFORD LEVY, M.D.

Dermatologist
MELVIN ROSENTHAL, M.D.

OBSTETRICAL DIVISION

CHARLES E. BRACK, M.D.
A. SAMUELS, M.D.
W. S. GARDNER, M.D.
G. A. STRAUSS, M.D.
E. P. SMITH, M.D.
J. J. ERWIN, M.D.
T. K. GALVIN, M.D.
E. S. EDLAVITCH, M.D.
F. K. MORRIS, M.D.

GYNECOLOGICAL DIVISION

Gynecologists

WILLIAM S. GARDNER, M.D.
GEORGE A. STRAUSS, M.D.
ABRAM SAMUELS, M.D.
E. P. SMITH, M.D.
T. K. GALVIN, M.D.

Associate

J. J. ERWIN, M.D.

Assistants

E. S. EDLAVITCH, M.D.
FRANK K. MORRIS, M.D.

PATHOLOGICAL DIVISION

STANDISH MCCLEARY, M.D.
HUGH R. SPENCER, M.D.

Clinical Pathologists

H. T. COLLENBERG, M.D.
H. R. PETERS, M.D.
EMIL G. SCHMIDT, Ph.D.

Technicians

SISTER M. JOAN, Ph.G., R.N.
ELEANOR BEHR, R.N.
FRANCES DONOVAN, R.N.

X-RAY DEPARTMENT

Radiographers

ALBERTUS COTTON, M.D.
HARRY L. ROGERS, M.D.
WILLIAM GREENFIELD, M.D.

Technician

SISTER M. ANTONIA, R.N.

MERCY HOSPITAL RESIDENT STAFF

Resident Surgeon

SIMON BRAGER, M.D.

Assistant Resident Surgeons

JULIUS GOODMAN, M.D.

JOS. J. SMITH, M.D.

W. MERLE WARMAN, M.D.

Resident, Nose and Throat

HORACE G. STRICKLAND, M.D.

Resident Physician

HOWARD BURNS, M.D.

Assistant Resident Physician

JOSEPH SMITH, M.D.

Resident Gynecologist

RAYMOND F. HELFRICH, M.D.

Interne Staff 1931-32

E. I. BAUMGARTNER, M.D.
I. K. GROSSMAN, M.D.
MYER HANTMAN, M.D.
R. F. HELFRICH, M.D.
EMMITT MARKWOOD, M.D.
A. G. SIWINSKI, M.D.
SOLOMON SMITH, M.D.
HARRY WIGDERSON, M.D.

DISPENSARY STAFF OF MERCY HOSPITAL

Surgery

Supervisor JULIUS J. LEYKO, M.D.

Attending Surgeons

D. H. MOHR, M.D.
I. O. RIDGLEY, M.D.
JOHN O'CONNOR, M.D.
H. F. BONGARDT, M.D.
T. J. TOUHEY, M.D.
J. W. NELSON, M.D.

Genito-Urinary Surgery

A. J. GILLIS, M.D.
K. B. LEGGE, M.D.

Orthopaedic Surgery

ALBERTUS COTTON, M.D.
HARRY L. ROGERS, M.D.
I. H. MASERITZ, M.D.

Medicine

Supervisor M. C. PINCOFFS, M.D.

Attending Physicians

HENRY SHEPPARD, M.D.
R. HOOPER SMITH, M.D. } *Chiefs of Clinic*
J. M. MILLER, M.D.
S. SNYDER, M.D.
S. A. TUMMINELLO, M.D.

Cardiovascular Diseases

T. C. WOLFF, M.D., *Chief of Clinic*

Diseases of the Lungs

S. SNYDER, M.D., *Chief of Clinic*

Diseases of Metabolism

J. S. EASTLAND, M.D., *Chief of Clinic*

Allergic Diseases

H. M. BUBERT, M.D., *Chief of Clinic*
S. SNYDER, M.D.

Diseases of Stomach

Supervisor, JULIUS FRIEDENWALD, M.D.

Attending Physicians

T. FREDERICK LEITZ, M.D.
M. FELDMAN, M.D.
THEODORE H. MORRISON, M.D.
JOSEPH SINDLER, M.D.
I. I. LEVY, M.D.

Esophagoscopist

W. F. ZINN, M.D.

Nervous Diseases

Supervisor, A. C. GILLIS, M.D.

Attending Physicians

MILFORD LEVY, M.D.
MIRIAM F. DUNN, M.D.

Pediatrics

Supervisor, EDGAR B. FRIEDENWALD, M.D.
Attending Physician, W. J. SCHMITZ, M.D.

Gynecology

Supervisors

W. S. GARDNER, M.D.
A. SAMUELS, M.D.

Attending Surgeons

GEORGE A. STRAUSS, M.D.
J. J. ERWIN, M.D.
F. K. MORRIS, M.D.
C. F. J. COUGHLIN, M.D.
E. EDLAVITCH, M.D.
F. W. GILLIS, M.D.

Diseases of Nose and Throat

W. F. ZINN, M.D.
F. A. PACIENZA, M.D.
R. F. MCKENZIE, M.D.
LOUISE SMALL, M.D.
B. MCGOWAN, M.D.

Diseases of Eye and Ear

H. F. FLECK, M.D.
J. I. KEMLER, M.D.
M. RASKIN, M.D.
F. A. PACIENZA, M.D.

Dermatology

MELVIN ROSENTHAL, M.D.
LLEWELLYN LORD, M.D.

Social Service Department

SISTER M. HELEN, R.N.
VIRGINIA JUDGE

MERCY HOSPITAL DISPENSARY

(1931)

	Old	New	Total
Surgical	2,141	1,054	3,195
Medical	1,253	1,120	2,373
Gynecological	566	282	847
Eye and Ear	476	308	784
Nose and Throat	766	545	1,311
Neurological	232	73	305
Pediatrics	165	249	414
Gastro-Intestinal	371	79	450
Dental	66	134	200
Rectal	69	55	124
Orthopaedic	1,062	312	1,374
Skin	575	319	894
Genito-Urinary	2,258	652	2,910
Cardiac	120	86	206
Totals	10,120	5,268	15,387

OTHER CLINICAL FACILITIES

THE BALTIMORE CITY HOSPITALS

The clinical advantages of the University have been largely increased by the liberal decision of the Board of Supervisors of City Charities to allow the immense material of these hospitals to be used for the purpose of medical education. There are daily visits and clinics in medicine and surgery by the Staff of the Hospitals. The autopsy material is unsurpassed in this country in amount, thoroughness of study, and the use made of it in medical teaching.

The Baltimore City Hospitals consist of the following separate hospitals:

The General Hospital, 209 beds.
The Hospital for Chronic Cases, 427 beds.
The Hospital for Tuberculosis, 172 beds.
The Psychopathic Hospital, 325 beds.
Infirmary (Home for Aged), 911 beds.

STAFF OF THE BALTIMORE CITY HOSPITALS

R. E. LONGAN, BRIG. GEN., *Superintendent*

VISITING STAFF

THOMAS R. BOGGS, S.B., M.D., *Physician-in-Chief.*
ARTHUR M. SHIPLEY, Sc.D., M.D., *Surgeon-in-Chief.*
C. C. HABLISTON, M.D., *Physician-in-Chief to the Tuberculosis Hospital.*
HARRY GOLDSMITH, M.D., *Physician-in-Chief, Psychopathic Hospital.*
S. S. BLACKMAN, A.B., M.D., *Visiting Pathologist.*
CONRAD B. ACTION, M.D., *Resident Pathologist.*

CONSULTING STAFF

Gynecologists

R. G. WILLSE, M.D.
J. MASON HUNDLEY, JR., M.A., M.D.

Urologist

W. H. TOULSON, A.B., M.D.

Laryngologists

H. R. SLACK, M.D.
E. A. LOOPER, M.D.
W. F. ZINN, M.D.
FRANKLIN B. ANDERSON, M.D.

Pediatrician

LAWSON WILKINS, M.D.

Neurological Surgeon

CHARLES BAGLEY, M.D.

Psychiatrist

ESTHER L. RICHARDS, M.D.

Orthopaedist

ALLEN FISKE VOSHELL, A.B., M.D.
H. S. WHEELER, M.D.

Proctologist

MONTE EDWARDS, M.D.

Assisting Visiting Physician

CHARLES R. AUSTRIAN, M.D.

Assisting Visiting Surgeons

FRANK S. LYNN, M.D.
C. A. REIFSCHNEIDER, M.D.
E. M. HANRAHAN, A.B., M.D.
T. B. AYCOCK, M.D.

Assistant Neurologist

O. R. LANGWORTHY, M.D.

Assistant Physician—Tuberculosis

HENRY C. SMITH, M.D.

Ophthalmologist

CECIL BAGLEY, M.D.

Obstetrician

LOUIS H. DOUGLASS, M.D.

Dermatologist

ISAAC R. PELS, M.D.

Roentgenologist

JOHN W. PIERSON, M.D.

THE JAMES LAWRENCE KERNAN HOSPITAL AND INDUSTRIAL SCHOOL OF MARYLAND FOR CRIPPLED CHILDREN

This institution is situated on an estate of 75 acres at Hillsdale. The site is just within the northwestern city limits and of easy access from the city proper.

The location is ideal for the treatment of children, in that it affords all the advantages of sunshine and country air.

A complete hospital unit, new in every respect, offers all modern facilities for the care of any orthopaedic condition in children.

The hospital is equipped with 82 beds—endowed, and city and state supported.

The Children's Orthopaedic Dispensary at University Hospital is maintained in closest affiliation and cares for the cases discharged from the Kernan Hospital. The physiotherapy department is very well equipped with modern apparatus and trained personnel.

STAFF

Surgeon-in-Chief and Medical Director
ALLEN FISKE VOSHELL, A.B., M.D.

Attending Orthopaedic Surgeon
ALBERTUS COTTON, A.M., M. D.

Associate Orthopaedic Surgeons
MOSES GELLMAN, B.S., M.D. HARRY L. ROGERS, M.D.

Resident Orthopaedic Surgeon
HUGH A. BAILEY, A.B., M.D.

Consulting Surgeons
J. M. T. FINNEY, A.B., M.D., D.S.M., F.R.C.S. (Eng, Ire.) Hon.
ARTHUR M. SHIPLEY, Sc.D., M.D.

Consulting Plastic Surgeon
JOHN STAIGE DAVIS, B.Sc., M.D.

Consulting Neurological Surgeon
CHARLES BAGLEY, JR., A.B., M.D.

Consulting Oculist
HARRY FRIEDENWALD, M.D.

Oculist
F. A. Pacienza, M.D.

Consulting Aurist and Laryngologist
Edward A. Looper, M.D.

Aurist and Laryngologist
F. B. Anderson, M.D.

Consulting Dentist
Harry B. McCarthy, D.D.S.

Dentist
M. E. Coberth, D.D.S.

Consulting Physicians
Thomas B. Futcher, A.B., M.D. Thomas R. Brown, A.B., M.D.
Lewellys F. Barker, A.B., M.D. William S. Thayer, A.B., M.D.

Pediatrist
Benjamin Tappan, A.B., M.D.

Dermatologists
Harry M. Robinson, M.D. Leon Ginsberg, M.D.

Consulting Pathologist
Sydney M. Cone, A.B., M.D.

Pathologist
Hugh R. Spencer, M.D.

Consulting Neurologist
Irving T. Spear, M.D.

Neurologist
R. V. Seliger, M.D.

Anesthetists
J. A. Tompkins, M.D. J. D. Holly, M.D.

Roentgenologist
Albertus Cotton, A.M., M.D.

Superintendent
Miss C. Gertrude Forrester, R.N.

Dispensary and Social Service Nurse
Miss Mabel S. Brown, R.N.

Physiotherapist and X-Ray Technician
Mrs. Georgiana Wisong

Instructors in Grammar School
Miss Mary H. Lee, *Principal* Miss Laura Hampson, *Assistant*

ST. VINCENT'S INFANT ASYLUM

The facilities of this institution, containing 150 infants and children, have been kindly extended to the University of Maryland by the Sisters of Charity. This large clinic enables this school to present to its students liberal opportunities for the study of diseases of infants and children.

STAFF

Obstetricians

L. H. Douglass, M.D.

M. B. Ballard, M.D.

Pediatricians

W. C. Bacon, M.D.

C. L. Joslin, M.D.

Clewell Howell, M.D.

Chas. R. Goldsborough, M.D.

Surgeon

N. Winslow, M.D.

Dermatologist

J. A. Buchness, M.D.

Oculists

C. A. Clapp, M.D.

F. B. Anderson, M.D.

Orthopaedic Surgeon

H. L. Wheeler, M.D.

Physician

C. P. Clautice, M.D.

Epidemiologist

M. B. Ballard, M.D.

LIBRARIES

The University Library, founded in 1813 by the purchase of the collection of Dr. John Crawford, now contains 17,453 volumes, a file of 150 current medical journals, and several thousand pamphlets and reprints. It is well stocked with recent literature, including books and periodicals of general interest. The home of the library is Davidge Hall, a comfortable and commodious building in close proximity to the classrooms and the laboratories of the Medical Department. The Library is open daily during the year for use of members of the Faculty, the students, and the profession generally.

The Library of the Medical and Chirurgical Faculty of Maryland, containing 44,000 volumes, are open to the students of the school. The leading medical publications of the world are received by the library, and complete sets of many journals are available. Other libraries of Baltimore are the Peabody (250,000 volumes), the Enoch Pratt Free Library (684,919 volumes), and the Welch Library.

All these libraries are open to the students of the school without charge.

ORGANIZATION OF THE CURRICULUM

The following curriculum is the result of a thorough revision of teaching in this school in order to meet modern requirements. The multiplication of specialties in medicine and surgery necessitates a very crowded course and the introduction of electives will very soon be depended on to solve some of the difficulties.

The curriculum is organized under eleven departments.

1. Anatomy (including Histology and Embryology).
2. Physiology.
3. Bacteriology and Immunology.
4. Biological Chemistry.
5. Pharmacology and Materia Medica.
6. Pathology.
7. Medicine (including Medical Specialties).
8. Surgery (including Surgical Specialties).
9. Obstetrics.
10. Gynecology.
11. Ophthalmology and Otology.

The instruction is given in four years of graded work.

Several courses of study extend through two years or more, but in no case are the students of different years thrown together in the same course of teaching.

The first and second years are devoted largely to the study of the structures and functions of the normal body. Laboratory work occupies most of the student's time during these two years.

Some introductory instruction in Medicine and Surgery is given in the second year. The third and fourth years are almost entirely clinical.

A special feature of instruction in the school is the attempt to bring together teacher and student in close personal relationship. In many courses of instruction the classes are divided into small groups and a large number of instructors insures attention to the needs of each student.

In most courses the final examination as the sole test of proficiency has disappeared and the student's final grade is determined largely by partial examinations, recitations and assigned work carried on throughout the course.

DEPARTMENT OF ANATOMY, INCLUDING HISTOLOGY AND EMBRYOLOGY

C. L. Davis, M.D. ..... Professor of Anatomy
Eduard Uhlenhuth, Ph.D. ..... Professor of Gross Anatomy
Thomas B. Aycock, S.B., M.D. ..... Assistant Professor of Anatomy
John F. Lutz, M.D. ..... Associate in Histology
Monte Edwards, M.D. ..... Associate in Anatomy
Frank H. Figge, B.S. ..... Instructor in Anatomy
Joseph Pokorny, M.D. ..... Instructor in Histology
J. Hulla, M.D. ..... Instructor in Histology
H. S. Rubinstein, Ph.G., M.D. ..... Instructor in Histology
Frank Morris ..... Instructor in Anatomy

Gross Anatomy. *First Year.* Total number of hours 508. Five conferences and 18 laboratory hours per week during February and first half of March. Five conferences and 36 laboratory hours per week to the end of the academic year.

The entire course centers around the dissection of the human body. Each student is given opportunity to dissect an entire half (left or right) of the body. The dissection is supplemented by lecture and informal discussions. (One lecture a week for five weeks.)

Anatomy is taught as an independent science, emphasis being laid on the human species as contrasted with animal morphology. An attempt is made to familiarize the student with the elements of anthropometry, with systematic and regional anatomy, with the principles of topographical anatomy and with osteology.

The actual dissection is preceded by a general examination of the body surface and superficial organs. Opportunity is provided for taking representative measurements of the head, face, trunk and limbs, and of acquiring a knowledge of using anthropometric instruments. Throughout the dissection the student is encouraged to take measurements and weights of all the major organs, including the brain and the endocrines, and to obtain a knowledge of the proportions of each organ to the body as a whole as well as to the variability of these proportions.

The dissection is undertaken in relation to topographical regions of the body, but systematic relations are continuously emphasized and, wherever possible, brought out by actual dissection.

Osteology is taught in conjunction with the dissection of the muscles and the study of the functional mechanism of the skeleto-muscular apparatus. Each student is provided with a set of bones to aid him in his homework. Fifty complete and perfect skeletons of the whole body and about as many of the limbs are available for reference and special advanced work.

Second, Third and Fourth Years. Opportunity is provided for advanced special dissections and for research work in every branch of anatomy. Dr. Uhlenhuth.

Histology and Embryology

First Year. This course has three subdivisions: First, general histology; second, organology, and third, the central nervous system, the last being distinguished as neuro-anatomy. The first semester is divided equally between the study of the fundamental tissues and that of organs. Neuro-anatomy is taught during the first five weeks of the second semester. Throughout the entire course the embryology of the part being studied precedes the study of the fully developed tissue. Thus embryology becomes a correlated part of the whole subject of microscopic anatomy and not an independent subject.

A brief course in histological technic precedes the study of histological tissues, thus familiarizing the student with the principals involved in the preparation of material for microscopic study. For the remainder of the course, students are furnished slides of the required tissues, previously prepared in our own laboratory, thus insuring a uniform and satisfactory quality of material for study and permitting the time of the student to be expended in the study of material rather than in the technic of its preparation.

Neuro-anatomy embraces a study of the fundamental structure of the central nervous system as applied to its function. An abundance of material permits of individual dissection of the human brain. A series of appropriately stained sections of the human brain stem is furnished each student for the microscopic study of the internal structure of the nervous system. In addition, each student is required to construct a model of the princi-

pal tracts, comprising the central nervous system. Dr. Davis, Dr. Lutz, Dr. Rubinstein.

Total assigned hours, Microscopic Anatomy 245.

Graduate Courses

Anat. 101 *s.* (*Minor*). Human Gross Anatomy (10)—Total number of hours 508. Five lecture periods and 18 laboratory hours per week during February and second half of March. Five lecture periods and 36 laboratory hours per week to the end of the academic year. A complete dissection of the human body (exclusive of the central nervous system). Dr. Uhlenhuth and Dr. Edwards.

Anat. 102 *f.* (*Minor*). Mammalian Histology (6)—Two lectures, 10 laboratory periods.

A general survey of the histological structure of the organs of mammals and man. Opportunity is offered for examining and studying a complete collection of microscopical sections. Dr. Davis and Dr. Lutz.

Anat. 103 *s.* (*Minor*). Human Neurology (4)—Three lectures, 9 laboratory hours for the first five weeks of the second semester.

This course provides a general survey of the structure of the human central nervous system, being mainly directed toward the fiber tracts and nuclei contained therein. It includes a brief study of the special senses. The laboratory work is based on a dissection of the human brain, together with the study of prepared microscopic sections of the brain stem. Anat. 102 f., or its equivalent, required to enter this course. Dr. Davis, Dr. Rubinstein.

Anat. 202 *f. and s.* (*Major*). For work leading to a Ph. D. in Anatomy. A study of neurological problems based on 103 s. Only students who have had the preceding course in neurology are eligible for this work. Dr. Davis.

Anat. 204 *f. and s.* (*Major*). Advanced Endocrinology. (Credit and time dependent upon the student's qualifications.)

A study of the morphological equivalent of function. By means of proper experimentation the morphological responses of

the endocrines to extrinsic and intrinsic factors are examined. This course will lead the student toward work for the Ph. D. in Anatomy. Dr. Uhlenhuth.

DEPARTMENT OF PHYSIOLOGY

FERD A. RIES, M.D.,
Associate Professor of Physiology and Acting Head of the Department
CHARLES C. CONSER, M.D. ..... Associate Professor of Physiology
O. G. HARNE, A. B. ..... Assistant Professor of Physiology
ELIZABETH E. PAINTER, A.B. ..... Assistant in Physiology
NATHAN BREWER, B.S. ..... Weaver Fellow in Physiology

Second Year. Lectures, laboratory, and conferences are given in the physiology of muscle-nerve, central nervous system and special senses, followed by work on blood, circulation, respiration, internal secretions, metabolism and nutrition.

Lectures and conferences	96 hours
Laboratory	144 hours
Total	240 hours

For a description of the graduate courses offered, consult the catalog of the Graduate School.

DEPARTMENT OF BACTERIOLOGY AND IMMUNOLOGY

FRANK W. HACHTEL, M.D. ..... Professor of Bacteriology
J. A. F. PFEIFFER, M.D. ..... Instructor in Bacteriology
HENRY F. BUETTNER, M.D. ..... Instructor in Bacteriology
H. E. LEVIN, M.D. ..... Assistant in Bacteriology
H. M. BUBERT, M.D. ..... Assistant in Bacteriology

Instruction in bacteriology is given in the laboratory to the students of the second year during the first semester. This includes the various methods of preparation and sterilization of culture media, the study of pathogenic bacteria and the bacteriological examination of water and milk. The bacteriological diagnosis of the communicable diseases is also included in this course. Animal inoculations are made in connection with the bacteria studied. The most important protozoa are also studied in the laboratory. The principles of general bacteriology are taught by quiz, conference and lecture.

The principles of immunology are presented by means of quizzes, conferences and lectures to the second-year class throughout the second semester, and practical experiments are carried out by the class in laboratory sessions.

	Bacteriology	Immunology
Lectures and recitations	16 hours	16 hours
Laboratory	128 hours	96 hours
Total	144 hours	112 hours

DEPARTMENT OF BIOLOGICAL CHEMISTRY

H. Boyd Wylie, M.D. ..... Professor of Biological Chemistry
Frank N. Ogden, M.D. ..... Associate in Biological Chemistry
Emil G. Schmidt, Ph.D. ..... Associate in Biological Chemistry
Ruth C. Vanden Bosche, B.S. ..... Assistant in Biological Chemistry

This course is designed to present the fundamental concepts of Biological Chemistry. The principal constituents and the phenomena of living matter are discussed in the lectures and conferences and studied in the laboratory. Training is afforded in routine biochemical methods of investigation.

Lectures and Conferences	96 hours
Laboratory	96 hours
Total	192 hours

PHARMACOLOGY AND MATERIA MEDICA

William Henry Schultz, Ph.B., Ph.D. ..... Professor of Pharmacology
Ruth Musser, B.A., M.S. ..... Instructor in Pharmacology
William Ellsworth Evans, B.A., M.A. ..... Assistant in Pharmacology
William Glenn Harne ..... Demonstrator in Pharmacology
Charles E. Abramavich, Jr. ..... Isaac E. Emerson Fellow in Pharmacology

1. Materia Medica and Pharmacology. The prerequisites to this and the following courses in pharmacology are college chemistry, pharmaceutical and biological chemistry. Special courses in physical and colloidal chemistry are highly recommended.

2. Systematic Pharmacology. Second year. In teaching medical students the aim is to attain a mean between that which has a purely scientific bearing and that dominantly practical, so that both a critical attitude toward drugs and an understanding of the principles of dosage may be acquired. This is accomplished by lectures, quizzes, conferences and the following course of laboratory exercises.

3. Pharmacodynamics. Second Year. This laboratory course runs parallel with Pharmacology 2.

In the first part of the course the experiments are upon normal animals (anaesthetised). Special emphasis is laid upon technic and upon the student's ability to record and properly analyze the results.

The second half of the course partakes more of the character of experimental medicine. Pathological animals are treated with chemotherapeutic agents and the toxicity of the drug for the host and for the parasite are studied. Students who by this time have demonstrated ability and initiative are encouraged to do intensive work along lines of special interest.

4. Pharmacology of General and Local Anaesthetics and Soporifics. Four weeks; three lectures, three laboratory periods a week. This is a special course designed to meet the needs of physician and graduate nurse who wish to acquire a knowledge of the more recent developments in the pharmacology of depressant and sleep-producing drugs. The course is so arranged that those properly qualified may continue the work under expert anaesthetists in the wards of the hospitals connected with the university. Dr. Schultz.

Properly qualified students may be admitted, at the discretion of the head of the department, to work outlined under graduate courses.

Materia Medica and Prescription Writing	
Lectures	20 hours
Conferences	10 hours
Laboratory	30 hours
Pharmacology	
Lectures	40 hours
Conferences	25 hours
Laboratory	102 hours

Graduate Courses

All students majoring in Pharmacology with a view to securing the degree of Master of Arts or Doctor of Philosophy should secure special training in Mammalian Physiology, Organic Chemistry 202 y, and Physical Chemistry 10 y or preferably 102 f.

Pharmacology 108 *f. and s.* (*Minor*). General Pharmacology (7), 3 lectures, 7 laboratory (January to May inclusive).

This course consists of 50 lectures and 40 laboratory periods of three hours each; offered each year, January to May inclusive, at the Medical School. The fundamental principles of pharmacologic technic are taught in this course, hence it is a prerequisite for all other advanced courses in this subject. Dr. Schultz.

Pharmacology 209 *f* (*Major*). The Pharmacology of Biologic Products.

This course involves problems of modern therapy that can be studied from the experimental physiological point of view, which includes such subjects as anaphylaxis, allergic reactions, anaphylactoid phenomena, non-specific protein therapy, toxins, antitoxins, and glandular products.

The seminars, lectures, and demonstrations will be somewhat broad in scope, but the research will be intensive along some one chosen subject.

Offered in alternate years beginning with 1930. Credit dependent upon quality of work. Dr. Schultz.

Pharmacology 210 *f.* (*Major*). The pharmacology of industrial poisons, including insecticides and parasite remedies. The nature of the subject matter of this course will vary from year to year. Credit will depend upon the amount and quality of the work accomplished.

Offered in alternate years beginning in 1931. Dr. Schultz.

Pharmacology 211 *f* (*Major*). Chemotherapy.

The action of new synthetic compounds from a pharmacodynamic point of view. Credit will depend upon the amount and quality of the work accomplished. Dr. Schultz.

Pharmacology 212 *f. and s.* (*Major*). Pharmacology Seminar —One report period each week.

DEPARTMENT OF PATHOLOGY

Hugh R. Spencer, M.D.	Professor of Pathology
Standish McCleary, M.D.	Professor of Pathology
Sydney M. Cone, M.D.	Associate Professor of Pathology
Robert B. Wright, M.D.	Assistant Professor of Pathology
Albert E. Goldstein, M.D.	Associate in Pathology
Walter C. Merkel, M.D.	Associate in Pathology
C. Gardner Warner, M.D.	Associate in Pathology
M. Alexander Novey, M.D.	Instructor in Pathology
Wm. S. Love, Jr., M.D.	Instructor in Pathology
Leon Freedom, M.D.	Instructor in Pathology
Maurice Goodman, M.D.	Instructor in Pathology
Benjamin Abeshouse, M.D.	Instructor in Pathology
Christopher C. Shaw, M.D.	Instructor in Pathology
W. R. Johnson, M.D.	Instructor in Pathology
Frank J. Geraghty, M.D.	Instructor in Pathology
Maurice J. Abrams, M.D.	Assistant in Pathology
R. W. Johnson, M.D.	Assistant in Pathology
Conrad B. Acton, M.D.	Assistant in Pathology

Courses of instruction in pathology are given during the second and third years. These courses are based on previous study of normal structure and function and aim to outline the natural history of disease. Instruction is made as practical as possible that the student may become familiar with the appearance of tissues in disease and may be able to correlate anatomical lesions with clinical symptoms and signs.

1. General Pathology. (*Second Year.*) This course includes the study and demonstration of disturbances of the body fluids, disturbances of structure, nutrition and metabolism of cells, disturbances of fat, carbohydrate and protein metabolism, disturbances in pigment metabolism, inflammation and tumors.

2. Applied Pathology. Including Gross Morbid Anatomy and Morbid Physiology. (*Third Year.*) In this course the special relation of lesions to clinical symptoms and signs is emphasized.

In the laboratory the class is divided into groups for the study of classified autopsy material.

3. Autopsies. (*Third Year.*) Small groups of students attend autopsies at the morgues of the University Hospital and

Baltimore City Hospital. They are required to assist at autopsies and to prepare protocols.

4. CLINICAL PATHOLOGICAL CONFERENCE. (*Fourth Year*). In collaboration with the Department of Medicine. Material from autopsies is studied with reference to the correlation of the clinical aspects with the pathological findings.

5. ADVANCED WORK IN PATHOLOGY. Properly qualified students will be permitted to carry out advanced or research work along the lines of experimental pathology.

SUMMARY

Second Year	
Lectures	60 hours
Laboratory	150 hours
Total	210 hours
Third Year	
Lectures	60 hours
Laboratory	120 hours
Total	180 hours
Fourth Year	
Clinical Pathological Conference	30 hours

DEPARTMENT OF MEDICINE

MAURICE C. PINCOFFS, B.S., M.D. ..... Professor of Medicine
GORDON WILSON, M.D. ..... Professor of Medicine
STANDISH MCCLEARY, M.D. ..... Professor of Pathology and Clinical Medicine
JOS. E. GICHNER, M.D., Prof. of Clinical Medicine and Physical Therapeutics
G. CARROLL LOCKARD, M.D. ..... Professor of Clinical Medicine
HARVEY G. BECK, Sc.D., M.D. ..... Professor of Clinical Medicine
HARRY M. STEIN, M.D. ..... Professor of Clinical Medicine
PAUL W. CLOUGH, B.S., M.D. ..... Associate Professor of Medicine
C. C. W. JUDD, A.B., M.D. ..... Associate Professor of Medicine
SYDNEY R. MILLER, M.D. ..... Associate Professor of Medicine
WALTER A. BAETJER, A.B., M.D. ..... Associate Professor of Medicine
WM. H. SMITH, M.D. ..... Associate Professor of Clinical Medicine
H. J. MALDEIS, M.D. ..... Associate Professor of Medical Jurisprudence
C. C. HABLISTON, M.D. ..... Associate Professor of Medicine
S. LLOYD JOHNSON, M.D. ..... Assistant Professor of Medicine
JOHN G. HUCK, M.D. ..... Assistant Professor of Medicine
GEORGE MCLEAN, M.D. ..... Assistant Professor of Medicine
L. A. M. KRAUSE, M.D. ..... Assistant Professor of Medicine
H. R. PETERS, M.D. ..... Assistant Professor of Medicine
H. M. BUBERT, M.D. ..... Associate in Medicine
W. S. LOVE, JR., A.B., M.D. ..... Associate in Medicine
J. S. EASTLAND, M.D. ..... Associate in Medicine
THOMAS C. WOLFE, M.D. ..... Associate in Medicine
WILLIAM MICHEL, M.D. ..... Instructor in Medicine
M. G. GICHNER, M.D. ..... Instructor in Medicine
WILLIAM A. STRAUSS, M.D. ..... Instructor in Medicine
HENRY SHEPPARD, M.D. ..... Instructor in Medicine
WETHERBEE FORT, M.D. ..... Instructor in Medicine
R. HOOPER SMITH, M.D. ..... Instructor in Medicine
T. NELSON CAREY, M.D. ..... Instructor in Medicine
HENRY C. SMITH, M.D. ..... Assistant in Medicine
NATHANIEL BECK, M.D. ..... Assistant in Medicine
CARL BENSON, M.D. ..... Assistant in Medicine
F. S. WAESCHE, M.D. ..... Assistant in Medicine
A. SCAGNETTI, M.D. ..... Assistant in Medicine
SAMUEL T. HELMS, M.D. ..... Assistant in Medicine
BERNARD COHEN, M.D. ..... Assistant in Medicine
L. P. GUNDRY, M.D. ..... Assistant in Medicine

GENERAL OUTLINE

Second Year

Introduction to clinical medicine.

(a) Introductory physical diagnosis.
(3 hours a week, first semester.)

(b) Medical clinics.
(1 hour a week, second semester.)

Third Year

I. The methods of examination (13 hours a week).
   (a) History taking.
   (b) Physical diagnosis.
   (c) Clinical pathology.
   These subjects are taught and practiced in the out-patient department and in the clinical laboratory.

II. The principles of medicine (7 hours a week).
   (a) Lectures, clinics and demonstrations in general medicine, neurology, pediatrics and preventive medicine.

III. The principles of therapeutics (2 hours a week).
   Lectures and demonstrations in general therapeutics, physical therapeutics and materia medica.

Fourth Year

The practice of medicine.

I. Clinical clerkship on the medical wards.
   (26 hours a week for ten weeks.)
   (a) Responsibility, under supervision, for the history, physical examination, laboratory examination and progress notes of assigned cases.
   (b) Ward classes in general medicine, the medical specialties, and therapeutics.

II. Clinics in genuine medicine and the medical specialties.
   (6 hours a week.)

III. Dispensary work in the medical specialties.

IV. Clinical pathological conferences (1 hour a week.)

Medical Dispensary Work

The medical dispensaries of both the Mercy and the University Hospitals are utilized for teaching in the third year. Each student spends two periods a week of two hours each in dispensary

work. The work is done in groups of four to six students under an instructor. Systematic history-taking is especially stressed. Physical findings are demonstrated. The student becomes familiar with the commoner acute and chronic disease processes.

Physical Diagnosis

Second Year. Didactic lectures and practical demonstrations in topographical anatomy and normal physical signs.

Third Year. The class is divided into small groups, and each section receives instruction for four hours a week for the entire session in the medical dispensaries of the hospitals. The large clinical material of the dispensaries and hospitals is utilized to give each student the opportunity to familiarize himself with the common types of bodily structure, with the normal variations in physical signs and with the physical signs of the chief pulmonary, circulatory and abdominal diseases.

A course of lectures (1 hour a week) on physical diagnosis supplements the practical work in this subject.

Therapeutics

Third Year. General therapeutics and materia medica are taken up and an effort is made to familiarize the student with the practical treatment of disease. The special therapy of the chief diseases is then reviewed. One hour a week. Dr. Lockard.

Fourth Year. Special consideration is given to the practical application of therapeutic principles in bedside teaching and the chief therapeutic methods are demonstrated.

Students attend therapeutic ward rounds once a week throughout their medical trimester.

Tuberculosis

During the third year in connection with the instruction in physical diagnosis a practical course is given weekly to sections of the class at the Municipal Tuberculosis Hospital. Stress is laid upon the recognition of the physical signs of the disease, as well as upon its symptomatology and gross pathology.

Syphilis

Third Year. During the third year the subject of syphilis is dealt with in the lecture course.

Fourth Year. An elective course in the therapeutic management of syphilis is offered in the dispensary.

CLINICAL PATHOLOGY

JOHN G. HUCK, M.D. ..... Assistant Professor of Medicine
Head of Department of Clinical Pathology
H. J. MALDEIS, M.D. ..... Associate Professor of Medical Jurisprudence
WILLIAM A. STRAUSS, M.D. ..... Instructor in Medicine
SAMUEL T. HELMS, M.D. ..... Assistant in Medicine

During the third year the student is thoroughly drilled in the technic of the usual clinical laboratory work, so that he is able to perform all routine examinations which may be called for during his fourth year, in connection with the work in the wards and dispensary.

The practical work is supplemented by a series of didactic lectures and demonstrations in which the entire teaching staff of the department takes an active part. The microscopical and chemical study of blood, exudates and transudates, gastric juice, spinal fluid, feces and urine are successively taken up, and special attention directed to the clinical significance of the findings.

Clinical parasitology from the standpoint of the infecting agent and the carrier is given careful consideration.

The entire course is thoroughly practical. Each student has his own microscope and is provided with blood counters and hemoglobinometer for his exclusive use, and every two students are equipped with a special laboratory outfit for all routine purposes.

During the fourth year the student applies what he has learned during the preceding year in the laboratories of the various affiliated hospitals. He is also supplied with a laboratory outfit which is sufficiently complete to enable him to work independently of the general equipment. Special instructors are available during certain hours to give necessary assistance and advice.

Lectures	32 hours
Laboratory	96 hours
Total	128 hours

GASTRO-ENTEROLOGY

JULIUS FRIEDENWALD, A.M., M.D. ..... Professor of Gastro-Enterology
T. FRED LEITZ, M.D. ..... Clinical Professor of Gastro-Enterology
J. HARRY ULLRICH, M.D. ..... Associate Professor of Gastro-Enterology
THEODORE H. MORRISON, M.D. ..... Associate Professor of Gastro-Enterology
MAURICE FELDMAN, M.D. ..... Assistant Professor of Gastro-Enterology
ZACHARIAH MORGAN, M.D. ..... Associate in Gastro-Enterology
JOSEPH SINDLER, M.D. ..... Associate in Gastro-Enterology
SAMUEL MORRISON, M.D. ..... Assistant in Gastro-Enterology
M. S. KOPPELMAN, M.D. ..... Instructor in Gastro-Enterology
C. VANCE HOOPER, M.D. ..... Assistant in Gastro-Enterology
MEYER MILLER, M.D. ..... Assistant in Gastro-Enterology

Fourth Year. Clinics and demonstrations to the class for one hour a week throughout the session. Dispensary instruction to small groups throughout the entire session. Practical instruction is given in the use of modern methods of study of the diseases of the gastro-intestinal tract.

PSYCHIATRY

R. M. CHAPMAN, M.D. ..... Professor of Phychiatry
RALPH TRUITT, M.D. ..... Assistant Professor of Psychiatry
LEWIS B. HILL, M.D. ..... Associate in Psychiatry
HARRY GOLDSMITH, M.D. ..... Instructor in Psychiatry

Third Year. In the third year the student attends fifteen clinical lectures and five clinics which are designed to be introductory to the more intensive work in psychiatry in the fourth year.

Fourth Year. The class is divided into sections for clinical conferences on selected groups of cases. Each student may work for a short period as assistant in the Mental Hygiene Clinic, and thus gain practical experience of the problems of history-taking, examination, and the care of psychiatric patients.

PEDIATRICS

Edgar B. Friedenwald, M.D.	Professor of Clinical Pediatrics
C. Loring Joslin, M.D.	Professor of Clinical Pediatrics
John H. Traband, M.D.	Assistant Professor of Pediatrics
Clarence E. Macke, M.D.	Assistant Professor of Pediatrics
Albert Jaffe, M.D.	Assistant Professor of Pediatrics
William J. Todd, M.D.	Associate in Pediatrics
William G. Geyer, M.D.	Associate in Pediatrics
Clewell Howell, M.D.	Associate in Pediatrics
Samuel S. Glick, M.D.	Associate in Pediatrics
Frederick B. Dart, M.D.	Associate in Pediatrics
A. H. Finkelstein, M.D.	Associate in Pediatrics
F. Stratner Orem, M.D.	Instructor in Pediatrics
Frederick Smith, M.D.	Instructor in Pediatrics
R. M. Hening, M.D.	Instructor in Pediatrics
Marie Kovner, M.D.	Instructor in Pediatrics
W. J. Schmitz, M.D.	Assistant in Pediatrics
M. Paul Byerly, M.D.	Assistant in Pediatrics
Harry A. Rutledge, M.D.	Assistant in Pediatrics
Kendig Wallace, M.D.	Assistant in Pediatrics
Elizabeth Sherman, M.D.	Assistant in Pediatrics
Morris Fine, M.D.	Assistant in Pediatrics
William G. Queen, M.D.	Assistant in Pediatrics

Third Year. Instruction during the third year consists of a weekly lecture. The more important diseases of infancy and childhood are reviewed. The principles of infant feeding are presented in brief form.

Fourth Year. Weekly clinical lectures are given at which patients are shown to demonstrate the chief features of the diseases discussed. The students attend a weekly ward round on the pediatric service throughout their medical trimester. A special course on physical diagnosis in children is given. Sections of the class work daily in the Babies' and Children's Clinic.

NEUROLOGY

IRVING J. SPEAR, M.D. ..... Professor of Neurology
ANDREW C. GILLIS, A.M., M.D., LL.D. ..... Professor of Neurology
G. M. SETTLE, A.B., M.D.,
Associate Professor of Neurology and Clinical Medicine
MILFORD LEVY, M.D. ..... Assistant Professor of Neurology
LEON FREEDOM, M.D. ..... Associate in Neurology

Third Year. Lectures and recitations one hour each week to the entire class. Instruction in clinical neurology two hours a week at the City Hospital to small groups. By means of didactic lectures and clinical conferences, there are considered the commoner types of diseases of the nervous system, the methods of neurological examination, and the relationship of signs and symptoms to pathological conditions. The material at the University and Mercy Hospitals is available.

Fourth Year. Clinical conference one hour each week to the entire class. This subject is taught at the University and Mercy Hospitals. All patients presented at these clinics are carefully examined; complete written records are made by the students who demonstrate the patients before the class. The patients are usually assigned one or two weeks before they are presented, and each student in the class must prepare one or more cases during the year.

Ward Class Instruction. In small sections at the University and Mercy Hospitals. In these classes the students come in close personal contact with the patients in the wards under the supervision of the instructor.

Dispensary Instruction. Small sections are instructed in the dispensaries of the University and Mercy Hospitals four afternoons each week. In this way students are brought into contact with nervous diseases in their early and late manifestations.

HYGIENE AND PREVENTIVE MEDICINE

.....Professor of Hygiene and Public Health
V. L. Ellicott, M.D.....Instructor in Hygiene and Public Health
M. G. Tull, M.D.....Instructor in Hygiene and Public Health

Third Year. Two lectures a week throughout the session. The lectures will encompass the fundamental subjects: air, water, soil, food, disposal of wastes, communicable diseases, state and federal public health laws, and industrial diseases. Small groups visit the Sydenham Hospital weekly and are given practical instruction in the diagnosis, treatment, and isolation of the contagious diseases.

Fourth Year. Demonstrations and discussion of Health Department work with emphasis on those phases which concern the practicing physician. The class is divided into small groups, each group making five visits to the Health Department of one and a half hours each.

MEDICAL JURISPRUDENCE

H. J. Maldeis, M.D.....Associate Professor of Medical Jurisprudence
Baltimore City Post Mortem Physician

Fourth Year. One hour each week for one semester. (16 lecture hours.)

Inasmuch as medical jurisprudence teaches the application of every branch of medical knowledge to the needs of the law, civil or criminal, this course embraces the following: Proceedings in criminal and civil prosecution; medical evidence and testimony; identity and its general relations; sexual abnormalities; personal identity; impotence and sterility; rape; criminal abortions; signs of death; wounds in their medico-legal relations, death, natural and homicidal; malpractice; insanity; and medico-legal autopsies.

DEPARTMENT OF SURGERY

Arthur M. Shipley, Sc.D., M.D.	Professor of Surgery
Alexius McGlannan, A.M., M.D.	Professor of Surgery
Nathan Winslow, A.M., M.D.	Professor of Clinical Surgery
Page Edmunds, M.D.	Professor of Clinical and Industrial Surgery
Walter D. Wise, M.D.	Professor of Clinical Surgery
Frank S. Lynn, M.D.	Professor of Clinical Surgery
Elliott H. Hutchins, A.M., M.D.	Professor of Clinical Surgery
Charles Reid Edwards, M.D.	Professor of Clinical Surgery
Charles Bagley, Jr., A.B., M.D.	Professor of Neuro Surgery
Thomas R. Chambers, A.M., M.D.	Associate Professor of Surgery
R. W. Locher, M.D.	Associate Professor of Clinical Surgery
A. M. Evans, M.D.	Associate Professor of Surgery
F. L. Jennings, M.D.	Associate Professor of Surgery
E. S. Johnson, M.D.	Associate Professor of Surgery
E. H. Hayward, M.D.	Associate in Surgery
C. A. Reifschneider, M.D.	Associate in Surgery
D. J. Pessagno, M.D.	Associate in Surgery
C. F. Horine, M.D.	Associate in Surgery
I. O. Ridgley, M.D.	Associate in Surgery
H. F. Bongardt, M.D.	Associate in Surgery
Thomas B. Aycock, A.B., M.D.	Associate in Surgery
Monte Edwards, M.D.	Associate in Surgery
Richard G. Coblentz, M.D.	Associate in Neuro Surgery
W. R. Johnson, M.D.	Instructor in Surgery
E. M. Hanrahan, A.B., M.D.	Instructor in Surgery
S. Demarco, M.D.	Instructor in Surgery
Clyde Marvel, M.D.	Instructor in Surgery
Karl J. Steinmueller, A.B., M.D.	Instructor in Surgery
W. W. Walker, M.D.	Assistant in Surgery
Dwight Mohr, M.D.	Assistant in Surgery
William R. Geraghty, B.S., M.D.	Assistant in Surgery
H. M. McElwain, M.D.	Assistant in Surgery
J. G. Onnen, M.D.	Assistant in Surgery
A. V. Buchness, M.D.	Assistant in Surgery
T. J. Touhey, M.D.	Assistant in Surgery
Clyde F. Karns, M.D.	Assistant in Surgery
Paul Schenker, M.D.	Assistant in Surgery
J. J. Leyko, M.D.	Assistant in Surgery
Robt. W. Johnson, M.D.	Assistant in Surgery
Frank K. Morris, A.B., M.D.	Assistant in Surgery

The teaching is done in the anatomical laboratory, the dispensaries, wards, clinical laboratories and operating rooms of the University and Mercy Hospitals, and in the wards and operating rooms of the Baltimore City Hospitals.

Instruction is given by means of lectures, recitations, dispensary work, bedside instruction, ward classes, and clinics. The work begins in the second year, and continues throughout the third and fourth years.

Second Year

TOPOGRAPHIC AND SURGICAL ANATOMY. The course is designed to bridge the gap between anatomy in the abstract, and clinical anatomy as applied to the study and practice of medicine and surgery.

The teaching is done in the anatomical laboratory, and students are required to demonstrate all points, outlines, and regions on the cadaver. Underlying regions are dissected when necessary to bring out outlines and relations of structures.

DIDACTIC LECTURES. Two hours a week for one semester, augmented by demonstrations with specimens, charts, and cross sections. Dr. Monte Edwards.

LABORATORY. Five hours a week for 16 weeks. Dr. Monte Edwards assisted by Drs. Bailey, Ward and Morris.

PRINCIPLES OF SURGERY. This course includes history-taking, records of physical examinations and of operations and progress notes; the preparation of surgical dressings, suture materials and solutions. It includes inflammation, infections, ulcers, gangrene, fistulae and sinuses, hemorrhage, shock and tumors; the use of splints, bed frames, bone plates, bone grafts, etc., local anaesthesia and the preparation of patients for operation. Lectures and conferences, two hours per week for one semester, to the entire class. Dr. C. R. Edwards.

Third Year

GENERAL AND REGIONAL SURGERY. Principles of surgery and general surgery, three hours a week throughout the year to the entire class, lectures, recitations and clinics. Drs. Shipley and Wise.

The class is divided into groups and receives instruction in history-taking, gross pathology, and surgical diagnosis—at the bedside and in the dead-house of the Baltimore City Hospitals. Drs. Shipley, Lynn, Reifschneider and Hanrahan.

OPERATIVE SURGERY. Instruction is given in operative surgery upon the cadaver and on dogs. The class is divided into sections, and each section is given practical and individual work under the supervision of the instructors. Dr. Lynn, assisted by Drs. Winslow, Hayward, E. S. Johnson, Aycock, Geraghty, Demarco, Horine, Pessagno, Onnen, W. R. Johnson, Steinmueller and R. W. Johnson.

FRACTURES AND DISLOCATIONS. This course consists of instruction in the various forms of fractures, dislocations and their treatment. There is a regular schedule of didactic lectures, which is supplemented by practical demonstrations in diagnosis and treatment. This practical work is given at the Mercy, University and Baltimore City Hospitals. Drs. Lynn and Jennings.

SURGICAL DISPENSARY. Under supervision, the student takes the history, makes the physical examinations, attempts the diagnosis, and, as far as possible, carries out the treatment of the ambulatory surgical patients in the University and in the Mercy Hospitals. Mercy Hospital—Drs. Dwight Mohr, Ridgely, Touhey, Bongardt and McElwain. University Hospital—Drs. Lynn, Winslow, Edwards and E. S. Johnson.

Fourth Year

CLINICS. A weekly clinic is given at the Mercy and at the University Hospitals to one-half the class throughout the year. As far as possible this is a diagnostic clinic. Mercy Hospital—Dr. McGlannan. University Hospital—Dr. Shipley.

SURGICAL PATHOLOGY. A weekly exercise of one hour at Mercy Hospital for one semester, at which specimens from the operating room and museum are studied in the gross and microscopically, in relation to the case history. Dr. McGlannan.

INDUSTRIAL SURGERY. Operative and post-operative treatment of accident cases, with instructions as to the relationship between the state, the employee, the employer, and the physician's duty to each. One hour a week to sections of the class throughout the year. Dr. Edmunds.

CLINICAL CLERKSHIP. The personal study of assigned hospital patients, under supervision of the staffs of the University and Mercy Hospitals, history-taking, and physical examination of

patients, laboratory examinations, attendance at operations and observation of post-operative treatment.

WARD CLASSES. Ward class instruction in small groups will consist of ward rounds; surgical diagnosis, treatment and the after-care of operative cases. Mercy Hospital—Drs. McGlannan, Wise, Elliot Hutchins, Evans and Jennings. University Hospital—Drs. Shipley, Edmunds, Lynn and Edwards.

ANAESTHESIA

S. GRIFFITH DAVIS, A.B., M.D. ..... Professor of Anaesthesia
GEORGE H. YEAGER, B.S., M.D. ..... Instructor in Anaesthesia
MARY J. O'BRIEN, R.N. ..... Anaesthetist

Third Year

Lectures on the general physiology of anaesthesia, with consideration of special physiology of each anaesthetic agent. Methods of induction and administration of anaesthesia. Factors influencing the selection of the anaesthetic and types of anaesthetic agents. Preparation and care of the anaesthetized patient.

The lectures are correlated with practical demonstrations during operative clinics at the City Hospitals.

Fourth Year

During operative clinics in both surgery and gynecology each student will be given practical instruction in the administration of anaesthetics and will be required to record such changes as take place in blood pressure, pulse and respiration.

DERMATOLOGY

MELVIN ROSENTHAL, M.D. ..... Professor of Dermatology
HARRY M. ROBINSON, M.D. ..... Professor of Clinical Dermatology
JOHN R. ABERCROMBIE, A.B., M.D. ..... Associate in Dermatology
FRANCIS ELLIS, A.B., M.D. ..... Instructor in Dermatology
A. C. MONNINGER, M.D. ..... Instructor in Dermatology
HARRY WASSERMAN, M.D. ..... Instructor in Dermatology
M. H. GOODMAN, A.B., M.D. ..... Instructor in Dermatology

Clinical conferences one hour each week to the entire class. This course will consist of demonstrations of the common diseases of the skin, in addition to a number of lectures on the general principles of Dermatology.

Dispensary instruction, University Hospital daily, in the diagnosis and treatment of skin lesions, Drs. Robinson, Ellis, Goodman, Monninger. Mercy Hospital, Mondays, Wednesdays and Saturdays, Dr. Rosenthal.

ORTHOPAEDIC SURGERY

ALLEN FISKE VOSHELL, A.B., M.D.....Professor of Orthopaedic Surgery
ALBERTUS COTTON, A.M., M.D.....Professor of Orthopaedic Surgery
COMPTON RIELY, M.D.....Clinical Professor of Orthopaedic Surgery
MOSES GELLMAN, B.S., M.D.....Associate Professor of Orthopaedic Surgery
HARRY L. ROGERS, M.D.....Associate Professor of Orthopaedic Surgery
I. H. MASERITZ, M.D.....Assistant in Orthopaedic Surgery
J. G. BENESUNES, M.D.....Assistant in Orthopaedic Surgery

In this course didactic, clinical, bedside and out-patient instruction is given. This instruction is provided in the University Hospital Amphitheatre, Mercy Hospital and Dispensary, Kernan Hospital and Industrial School for Crippled Children at "Radnor Park" and in the Dispensary of the University Hospital.

Lectures or clinics are held once a week at each of the hospitals named in town. In addition, a weekly bedside clinic is held for small sections of the class at "Radnor Park" and Mercy Hospital. Daily teaching in the Dispensary is stressed.

The course covers instruction in the special methods of examination, pathology, diagnosis and treatment in this specialty.

Brief outlines and demonstrations are also given of the apparatus employed in Physiotherapy, Muscle Training and Corrective Gymnastics.

ROENTGENOLOGY

HENRY J. WALTON, M.D.....Professor of Roentgenology
ALBERTUS COTTON, M.D.....Professor of Roentgenology
EUGENE L. FLIPPIN, M.D.....Associate in Roentgenology

During the academic year small groups of the fourth year class are given weekly demonstrations in the diagnostic and therapeutic uses of the Roentgen Rays. An effort is made to familiarize the student with the appearance of normal Roentgenograms, after which instruction is given in the interpretation of the more common pathological lesions seen on the Roentgen films and fluoroscopic screen. The history, physics and practical ap-

plication of the Roentgen Rays are alluded to, but not stressed. Two conferences are held each week with the medical and pathological Departments, which are also open to members of the fourth year class.

DISEASES OF THE NOSE AND THROAT

EDWARD A. LOOPER, M.D.....Professor of Diseases of the Nose and Throat
W. F. ZINN, M.D.....Clinical Professor of Diseases of the Nose and Throat
F. A. HOLDEN, M.D.....Associate in Diseases of the Nose and Throat
FRANKLIN B. ANDERSON, M.D.,
Associate in Diseases of the Nose and Throat
R. F. MCKENZIE, M.D.....Instructor in Diseases of the Nose and Throat
THOMAS O'ROURK, M.D.....Assistant in Diseases of the Nose and Throat
BIRCKHEAD MCGOWAN, M.D.....Assistant in Diseases of the Nose and Throat

Third Year. Instruction to entire class is given in the common diseases of the nose and throat, attention being especially directed to infections of the accessory sinuses, the importance of focal infections in the etiology of general diseases and modern methods of diagnosis. Lectures illustrated by lantern slides are given one hour weekly throughout the second semester by Dr. Looper.

Fourth Year. Dispensary instruction one and one-half hours daily, to small sections at the University and the Mercy Hospitals. The student is given opportunity to study, diagnose and treat patients under supervision. Ward classes and clinical demonstrations are given in periods of one and one-half hours weekly throughout the session in the University and the Mercy Hospitals.

The Looper Clinic, recently established in the University Hospital for bronchoscopy and esophagoscopy, affords unusual opportunities for students to study diseases of the larynx, bronchi and esophagus. The clinic is open to students daily from 2 to 4 P. M., under direction of Dr. Looper.

The Mercy Hospital Clinic for bronchoscopy and esophagoscopy is under the direction of Dr. Zinn. In these two clinics the etiology, symtomatology, diagnosis and treatment of foreign bodies in the air and food passages, as well as bronchoscopy, are taught to students, as an aid in the diagnosis and treatment of diseases of the lungs.

GENITO-URINARY SURGERY

W. H. Toulson, A.B., M.Sc., M.D.....Professor of Genito-Urinary Surgery
A. J. Gillis, M.D.....Clinical Professor of Genito-Urinary Surgery
Harris Goldman, M.D.....Associate in Genito-Urinary Surgery
Austin H. Wood, M.D.....Associate in Genito-Urinary Surgery
L. J. Millan, M.D.....Instructor in Genito-Urinary Surgery
L. K. Fargo, M.D.....Instructor in Genito-Urinary Surgery
K. D. Legge, M.D.....Instructor in Genito-Urinary Surgery

Third Year. Eight hours to the entire class. This is a didactic course in the principles of Genito-Urinary Surgery. Dr. Toulson.

Fourth Year. The course includes urethroscopy, cystoscopy, ureter catheterization, renal function tests, urography, urine cultures, etc. The teaching consists of clinics in the amphitheater, ward rounds, and attendance by members of the senior class upon out-patients in the dispensary. The dispensary classes are carried on both at the Mercy and the University Hospital dispensaries. Every variety of venereal disease is here encountered and this rich wealth of material is available for teaching purposes. In addition to this, a cystoscopic clinic is conducted in another part of the dispensary, where the students are given practical instruction in the modern diagnostic methods.

DISEASES OF THE RECTUM AND COLON

G. Milton Linthicum, A.M., M.D.
Professor of Diseases of Rectum and Colon
Charles F. Blake, M.D.....Professor of Diseases of Rectum and Colon
J. Dawson Reeder, M.D.
Clinical Professor of Diseases of Rectum and Colon
Monte Edwards, M.D.....Associate in Diseases of Rectum and Colon

Third Year. Six hours to the entire class. This course is for instruction in the diseases of the colon, sigmoid flexure, rectum and anus, and will cover the essential features of the anatomy and physiology of the large intestine as well as the various diseases to which it is subject. Dr. Linthicum.

The class is divided into sections for clinical instruction in the Baltimore City Hospitals. Dr. Linthicum.

Fourth Year. Ward and dispensary instruction is given in the University and Mercy Hospitals, where different phases of the various diseases are taught by direct observation and examination. The use of the proctoscope and sigmoidoscope in the examination of the rectum and sigmoid is made familiar to each student. Mercy Hospital—Dr. Blake. University Hospital—Drs. Linthicum, Reeder and Monte Edwards.

OTOLOGY

J. W. Downey, M.D. ..... Professor of Otology
Franklin B. Anderson, M.D. ..... Associate in Otology
F. A. Holden, M.D. ..... Instructor in Otology

The course in otology is planned to give a practical knowledge of the anatomy and physiology of the ear, and its proximity and relationship to the brain and other vital structures. The inflammatory diseases, their etiology, diagnosis, treatment and complications are particularly stressed, with emphasis upon their relationship to the diseases of children, head-surgery and neurology.

Third Year. The entire class is given instruction by means of talks, anatomical specimens and lantern slides.

Fourth Year. Small sections of the class receive instruction and make personal examinations of patients under the direction of an instructor. The student is urged to make a routine examination of the ear in his ward work in general medicine and surgery.

NEUROLOGICAL SURGERY

Charles Bagley, Jr., A.B., M.D. ..... Professor of Neurological Surgery
Richard G. Coblentz, M.D. ..... Associate in Neurological Surgery
William R. Geraghty, B.S., M.D., ... Assistant in Neurological Surgery
James G. Arnold, Jr., A.B., M.D. ..... Fellow in Neurological Surgery

Third Year. The course covers instruction in diagnosis and treatment of surgical conditions of the brain, spinal cord, and the peripheral nerves. Eight lectures are given to the entire class and conferences are held from time to time. Dr. Bagley.

Fourth Year. Weekly ward rounds and conferences are given at the University Hospital. Drs. Bagley and Coblentz.

ONCOLOGY

J. Mason Hundley, Jr., A.B., M.A., M.D. ..... Associate in Gynaecology
Grant E. Ward, A.B., M.D. ..... Instructor in Surgery

Every facility for the diagnosis and treatment of neoplastic diseases is available; this includes electro-surgery, radium therapy and deep X-ray therapy. Instruction for one hour a week to small groups of students is given in the history, physics and practical application of radium. Dr. Ward.

An out-patient clinic is held twice weekly which affords an opportunity for instruction to a limited number of students. The care of the general surgical conditions is under the supervision of Dr. Ward. Dr. Hundley, has supervision of the gynecological problems.

DEPARTMENT OF OBSTETRICS

J. M. H. Rowland, M.D. ..... Professor of Obstetrics
L. H. Douglass, M.D. ..... Professor of Clinical Obstetrics
Charles E. Brack, M.D. ..... Clinical Professor of Obstetrics
J. McF. Bergland, M.D. ..... Associate Professor of Obstetrics
Emil Novak, M.D. ..... Associate Professor of Obstetrics
E. P. Smith, M.D. ..... Associate in Obstetrics
J. G. M. Reese, M.D. ..... Associate in Obstetrics
M. A. Novey, A.B., M.D. ..... Associate in Obstetrics
J. G. Murray, Jr., A.B., M.D. ..... Associate in Obstetrics
Isadore A. Siegel, A.B., M.D. ..... Associate in Obstetrics
Margaret B. Ballard, M.D. ..... Assistant in Obstetrics
E. P. H. Harrison, A.B., M.D. ..... Assistant in Obstetrics
E. S. Edlavitch, M.D. ..... Assistant in Obstetrics

Third Year. Three lectures and recitations each week by Drs. Bergland, Novak, Murray, Douglass and Rowland to entire class.

Manikin Work. Drs. Brack, Smith and Edlavitch to sections of class at Mercy Hospital, and Drs. Douglass, Siegal, Harrison and Rowland at University Hospital.

Fourth Year. Clinical Conference. One hour each week. Drs. Rowland, Douglass and Murray.

Ward Classes. Six hours per week for five weeks to sections of class at University Hospital. Drs. Douglass, Reese and Novey.

Each member of the Senior class is required to deliver ten women in their homes under supervision of the teaching and resident staff.

DEPARTMENT OF GYNECOLOGY

WILLIAM S. GARDNER, M.D. ..... Professor of Gynecology
HUGH BRENT, M.D. ..... Professor of Clinical Gynecology
ABRAM SAMUELS, M.D. ..... Associate Professor of Gynecology
GEORGE A. STRAUSS, M.D. ..... Associate in Gynecology
R. G. WILLSE, M.D. ..... Associate in Gynecology
T. K. GALVIN, M.D. ..... Associate in Gynecology
J. M. HUNDLEY, JR., M.D. ..... Associate in Gynecology
LEO BRADY, M.D. ..... Associate in Gynecology
E. E. EDLAVITCH, M.D. ..... Assistant in Gynecology

Third Year. DIADACTIC WORK. A course of thirty lectures and recitations.

Fourth Year. CLINICAL WORK. Six hours weekly for one trimester. In this course the student writes the clinical history of each patient in the ward and makes a general physical examination, including the blood and urine, before the patient is brought before the class. A pelvic examination is made by six students, and any operation required is then done before a section of the class small enough to see clearly what is being done and how it is done. On a subsequent day the whole group examines, microscopically, sections prepared from material removed from patients that have been before them.

DEPARTMENT OF OPHTHALMOLOGY

CLYDE A. CLAPP, M.D. ..... Professor of Ophthalmology
M. RANDOLPH KAHN, M.D. ..... Clinical Professor of Ophthalmology
H. K. FLECK, M.D. ..... Associate Professor of Ophthalmology
R. D. WEST, M.D. ..... Associate in Ophthalmology
JONAS FRIEDENWALD, A.B., M.D. ..... Lecturer in Ophthalmic Pathology
JOSEPH I. KEMLER, M.D. ..... Associate in Ophthalmolgy
F. A. HOLDEN, M.D. ..... Instructor in Ophthalmology
HENRY F. GRAFF, A.B., M.D. ..... Instructor in Ophthalmology
FRANK A. PACIENZA ..... Instructor in Refraction
JOHN G. RUNKLE, M.D. ..... Assistant in Ophthalmology
THOMAS O'ROURK, M.D. ..... Assistant in Ophthalmology

Third Year. Second semester, Course in Diseases of the Eye by Dr. M. Randolph Kahn, consisting of lectures and demonstrations upon the commoner diseases of the eye and its appendages, with demonstration of refractive errors. Section work weekly demonstrating the use of the ophthalmoscope upon both the schematic eye and patients.

Fourth Year. CLINICS AND DEMONSTRATIONS IN DISEASES OF THE EYE, weekly, for one year. Dr. Clapp.

Course consist of demonstrations by means of both patients and lantern slides, of the more common diseases of the eye and their relationship to general disease.

Weekly ward classes at the University and the Baltimore Eye, Ear and Throat and City Hospitals during which the eye grounds in the various medical and surgical conditions are demonstrated by Drs. Fleck, West, Kemler and Graff.

Also daily demonstrations in the taking of histories and the diagnosis and treatment of the various conditions as seen in the dispensary.

Third Year	
Lectures	20 hours
Laboratory	10 hours
Total	30 hours
Fourth Year	
Lectures and demonstrations	26 hours
Clinical work	20 hours
Total	46 hours

HISTORY OF MEDICINE

JOHN RATHBONE OLIVER, A.B., M.D., Ph.D.
Professor of the History of Medicine

During the past academic year the lectures were devoted to Modern Medicine. Ten lectures were given. Five of these gave a general outline of the development of modern medicine, while the remaining five were devoted to outstanding personalities in the same period of medical history. A special emphasis was laid on America's contribution to medicine in connection with the lives of men like Beaumont, Walter Reed, Trudeau and Osler. The lectures were illustrated with a large number of lantern slides especially selected by Col. Fielding Garrison, then of the General Surgeon's Library, and prepared by the official photographer in Washington. During the past four years this course of lectures has covered in a general way the entire field of medical history so that any medical student who has attended the lectures during his four years' course has been given at least an outline of the history of his profession.

Beginning with the lectures of 1932-33 the four years' cycle will be repeated with a general introduction followed by lectures on primitive medicine; the Medicine of Egypt, of Assyrio-Babylonia, of India, of Greece and of Rome.

FIRST YEAR SCHEDULE

FIRST SEMESTER, SEPTEMBER 26, 1932, TO JANUARY 28, 1933

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9.00—11.00		Laboratory Biological Chemistry Section A	Laboratory Biological Chemistry Section B	Laboratory Biological Chemistry Section A	Laboratory Biological Chemistry Section B	
11.00—12.00	Biological Chemistry C. H.					
12.00 to 12.50	Lunch	Lunch	Lunch	Lunch	Lunch	
12.50 to 1.50	Biological Chemistry C. H.	Biological Chemistry C. H.	Biological Chemistry C. H.	Biological Chemistry C. H.	Biological Chemistry Adm.	
2.00 to 5.00	Laboratory Histology and Embryology	Laboratory Histology and Embryology		Laboratory Histology and Embryology	Laboratory Histology and Embryology	

SECOND SEMESTER, JANUARY 30 TO MAY 27, 1933

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9.00 to 12.00	Laboratory *Anatomy	Laboratory Anatomy	Laboratory Anatomy	Laboratory Anatomy	Laboratory Anatomy	Laboratory Anatomy
12.00 to 1.00	Lunch	Lunch	Lunch	Lunch	Lunch	
1.00 to 2.00	Anatomy Adm. & A. H.	Anatomy C. H. & A. H.	Anatomy C. H. & A. H.	Anatomy C. H. & Adm.	Anatomy C. H. & A. H.	
2.00 to 5.00	Laboratory Anatomy	Laboratory Anatomy	Laboratory Anatomy	Laboratory Anatomy	Laboratory Anatomy	

* Anatomy includes both Gross and Neural Anatomy.

LOCATIONS OF LECTURE HALLS AND LABORATORIES:

Adm.—Lower Hall, Administration Building, N. E. Cor. Lombard and Greene Streets.
A. H.—Anatomical Hall—Upper Hall, N. E. Cor. Lombard and Greene Streets.
C. H.—Chemical Hall, Lower Hall, N. E. Cor. Lombard and Greene Streets.
Anatomy Laboratory—Third Floor, Gray Laboratory, Lombard and Greene Streets.
Biological Chemistry Laboratory—Third Floor, 31 S. Greene Street.
Histology and Embryology Laboratory—32-34 S. Paca Street, Sixth Floor.
Neural Anatomy Laboratory, 32-34 S. Paca Street, Sixth Floor.

Mid-Year Examinations—January 23 to January 28, 1933.
Final Examinations—May 22 to May 27, 1933.

SECOND YEAR SCHEDULE

FIRST SEMESTER, SEPTEMBER 26, 1932, TO JANUARY 28, 1933

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9.00 to 10.00	Physiology **Adm.**	Physiology **Adm.**	Physiology **Adm.**	Laboratory Physiology	Laboratory Physiology	Surgical Anatomy **Adm.**
10.00 to 11.00	Pharmacology **A. H.**	Pharmacology **A. H.**	Pharmacology **A. H.**			Physiology **Adm.**
11.00 to 12.00	Pathology **A. H.**	Pathology **A. H.**	Bacteriology **A. H.**	**Section A**	**Section B**	
12.00 to 12.30	Lunch	Lunch	Lunch	Lunch	(12-1) Lunch	
12.30 to 2.30	Laboratory Bacteriology	Laboratory Bacteriology	Laboratory Bacteriology	Laboratory Bacteriology	(1-2) Medicine **C. H.** (2-4) Physical Diagnosis **Univ. Hosp. Disp.**	
2.30 to 3.30	Laboratory Physiology **Section A**	Laboratory Physiology **Section B**	Laboratory	Surgical Anatomy **C. H.**		
3.30 to 5.30	Pharmacology **Section B**	Pharmacology **Section A**	Surgical Anatomy	Laboratory Surgical Anatomy		

SECOND YEAR SCHEDULE

SECOND SEMESTER, JANUARY 30 TO MAY 27, 1933

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8.30 to 9.30	Surgery **A. H.**	Surgery **A. H.**	*Physiology **Adm.**	Laboratory	Laboratory	
9.30 to 10.30	Pharmacology **A. H.**	Pharmacology **A. H.**	Pharmacology **A. H.**	Physiology **Section A**	Physiology **Section B**	
10.30 to 11.30	Pathology **A. H.**	Pathology **A. H.**	Physiology **Adm.**	Pharmacology **Section B**	Pharmacology **Section A**	
11.30 to 12.00	Lunch	Lunch	Lunch	Lunch	Lunch	(11-12) Physiology **Adm.**
12.00 to 2.00	Laboratory Pathology	Laboratory Pathology	Laboratory Pathology	Laboratory Pathology	Laboratory Pathology	(12-1) Medical Clinic **Amp.**
2.00 to 3.00	Immunology **Adm.**			Laboratory	Laboratory	
3.00 to 4.00	Physiology **Adm.**	Laboratory Immunology	Laboratory Immunology	Physiology **Section B**	Physiology **Section A**	
4.00 to 5.00				Pharmacology **Section A**	Pharmacology **Section B**	

LOCATIONS OF LECTURE HALLS AND LABORATORIES:

Adm.—Lower Hall. Administration Building, N. E. Cor. Lombard and Greene Streets.
A. H.—Anatomical Hall—Upper Hall, N. E. Cor. Lombard and Greene Streets.
C. H.—Chemical Hall, Lower Hall, N. E. Cor. Lombard and Greene Streets.
Amp.—Amphitheatre, University Hospital, Lombard and Greene Streets.

Laboratories:
Bacteriology—Second Floor, 31 S. Greene Street.
Immunology—Second Floor, 31 S. Greene Street.
Pathology—Second Floor, 31 S. Greene Street.
Pharmacology—Second Floor, Gray Laboratory, Lombard and Greene Streets.
Physiology—First Floor, Gray Laboratory, Lombard and Greene Streets.
Surgical Anatomy—Third Floor, Gray Laboratory, Lombard and Greene Streets.
Univ. Hospital Disp.—Dispensary, University Hospital, Lombard and Greene Streets.

* Physiology Course Terminates March 31, 1933.

Mid-Year Examinations—January 23 to January 28, 1933.
Final Examinations—May 22 to May 27, 1933.

THIRD YEAR SCHEDULE

SEPTEMBER 26, 1932 TO MAY 27, 1933

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8.30 to 9.30	Therapeutics C. H.	Pathology C. H.	Medicine C. H.	Medicine C. H.	Pathology C. H.	Medicine C. H.
9.30 to 10.30	Obstetrics C. H.	Surgery C. H.	Obstetrics C. H.	Surgery C. H.	Medicine C. H.	Surgery C. H.
10.30 to 1.00	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch and Transfer	Physical Diagnosis Operative Surgery Dispensary Lunch
1.00 to 2.00	Surgical Clinic Amp. **Nose-Throat C. H.	Medical Clinic Amp.	Neurology P. & S. 34	(12.45-1.45) Gynecology 29 S. Greene	Obstetrics A. H.	Transfer
2.15 to 3.15	Pathology Laboratory	Pathology Laboratory	(2.30-4.30) Section A Clinical Medicine Surgery Gross Pathology at Baltimore City Hospitals	(2-3) Clinical Pathology 29 S. Greene	2.15 to 5.15 Clinical Pathology Laboratory	(2-4) Section B Clinical Medicine Surgery Gross Pathology at Baltimore City Hospitals
3.15 to 4.15				*(3-4) Eye and Ear 29 S. Greene		
4.15 to 5.15	Preventive Medicine C. H.	Pediatrics C. H.	(2.15-4.15) Section B Group Work Ophthalmoscopy B. E. H. Practical Obstetrics Univ. Hosp.	(4-5) Preventive Medicine Legal Medicine Mental Hygiene 29 S. Greene		

From 10.30 A. M. to 1.00 P. M. the class is divided into two sections, one section reporting at Calvert and Saratoga Streets, the other at Lombard and Greene Streets.
C. H.—Chemical Hall—N. E. Cor. Lombard and Greene Streets.
A. H.—Anatomical Hall—N. E. Cor. Lombard and Greene Streets.
Amp.—Amphitheatre—University Hospital, S. W. Cor. Lombard and Greene Streets.
P. & S.—N. W. Cor. Calvert and Saratoga Streets. Rooms indicated on Second Floor.
B. E. H.—Baltimore Eye, Ear and Throat Hospital, 1214 Eutaw Place.

At the beginning of the second semester Section "A" at Baltimore City Hospital on Saturdays, 2-4 P. M., and University Hospital on Wednesdays, 2.15-4.15 P. M.; Section "B" at Baltimore City Hospital on Wednesdays, 2.30-4.30 P. M.

Mid-Year Examinations—Jan. 23 to Jan. 28, 1933.
Final Examinations—May 15 to May 27, 1933.

* Ear—First semester.
* Eye—Second semester.
** Nose-Throat—Second semester.

FOURTH YEAR SCHEDULE

SEPTEMBER 26, 1932 TO MAY 27, 1933

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9.00 to 11.00	Ward Classes Medicine Surgery Obstetrics	Ward Classes Medicine Surgery Gynecology	Ward Classes Medicine Surgery Obstetrics	Ward Classes Medicine Surgery Gynecology	Ward Classes Medicine Surgery Obstetrics	Ward Classes Medicine Surgery Gynecology
11.00 to 12.00	Orthopaedic Surgery Univ.Sec.Amp. P. & S. Sec. 51	Medical Clinic Univ.Sec.Amp. Surgical Pathology P. & S. Sec. 40	Clinical Pathological Conference Univ.Sec.C.H. P. & S. Sec. 34	Surgical Clinic Univ.Sec.Amp. P. & S. Sec. 51	Medical Clinic Univ.Sec.Amp. P. & S. Sec. 34	Pediatric Clinic Univ.Sec.Amp. P. & S. 34
12.00 to 2.00	Dispensary Lunch and Transfer	Dispensary and Lunch	Dispensary Lunch and Transfer	Dispensary and Lunch	Dispensary Lunch and Transfer	Dispensary
2.15 to 3.15	Dermatology Clinic (Full Class at Univ. Hosp.) Amp.	Neurology Clinic Univ.Sec.Amp. P. & S. Sec. 34	Eye and Ear Clinic (Full Class at Univ. Hosp.) Amp. & C. H.	Obstetrical Clinic (Full Class at Univ. Hosp.) Amp.	Gastro-Enterology Clinic (Full Class at Univ. Hosp.) Amp.	Genito-Urinary Clinic P. & S. Sec. 51
3.30 to 5.00	P. & S. Sec. Ward Classes Medicine Urology Eye and Ear	Ward Classes Therapeutics Proctology Radiotherapy	P. & S. Sec. Ward Classes Medicine Roentgenology Preventive Medicine	Ward Classes Medicine Nose & Throat Physical Therapeutics	Ward Classes Neurology Psychiatry U. H. Orthopaedic Surgery Kernan Hospital	
3.30 to 5.00	Univ. Sec. Ward Classes Medicine Urology		Univ. Sec. Ward Classes Medicine Roentgenology Eye and Ear	(5 to 6 P.M.) March, April and May History of Medicine C. H.		

The Senior Class is divided into two sections, which report, one at Lombard and Greene Streets, the other at Calvert and Saratoga Streets, for one semester each, then rotate.

Each section of the class is divided into three groups—Medical, Surgical, and Special. These groups will rotate on the following dates:

FIRST SEMESTER		SECOND SEMESTER	
1st period	Sept. 26-Oct. 29	1st period	Jan. 30-Mch. 4
2nd period	Oct. 31-Dec. 3	2nd period	Mch. 6-Apr. 8
3rd period	Dec. 5-Jan. 21	3rd period	Apr. 10-May 13

C. H.—Chemical Hall—N. E. Cor. Lombard and Greene Streets.
Amp.—Amphitheatre—University Hospital.
P. & S., 34—Second Floor, Calvert and Saratoga Streets.
P. & S., 40, 51—Fourth Floor, Calvert and Saratoga Streets.

For sub-sections of P. & S. ward classes, 3.30 to 5.00 P. M., see supplementary schedule at Mercy Hospital. For sub-sections of U. H. ward classes, 3.30 to 5.00 P. M., see Medical School bulletin board.

Mid-Year Examinations—Jan. 23-28, 1933.
Final Examinations—May 15-20, 1933.

REQUIREMENTS FOR MATRICULATION

Admission to the course in medicine is by a completed Medical Student Certificate issued by the Registrar of the University of Maryland. This certificate is obtained from the Registrar on the basis of satisfactory educational credentials, and is essential for admission to any class.

The minimum requirements for the issuance of the Medical Student Certificate are:

(a) The completion of a standard four-year secondary school course, or the equivalent in entrance examinations, and at least

(b) Two years or sixty semester hours of college credits (exclusive of military science and physical education), including chemistry, physics, biology, English, and a modern foreign language. (See details below.)

Women are admitted to the School of Medicine of this University.

(A) SECONDARY SCHOOL REQUIREMENTS

Graduation from an accredited secondary school, after pursuing a four-year course (based upon an approved elementary school course), or the equivalent as demonstrated by entrance examinations.

Total entrance units required, 15; prescribed, 9; elective, 6.

Prescribed (9 units); English (I, II, III, IV), 3 units; algebra to quadratics, 1 unit; plane geometry, 1 unit; foreign language, 2 units of one language; history, 1 unit; and science, 1 unit.

Elective (6 units), of which not more than 4 units in vocational subjects, (agriculture, commercial, home economics, shop, and drawing) will be accepted: Agriculture, astronomy, biology, botany, chemistry, civics, commercial, drawing, economics, general science, geology, history, home economics, languages, mathematics, physical geography, physics, zoology, or any other subject offered in a standard secondary school for which graduation credit is granted toward college or university entrance.

(B) DETAILS OF THE COLLEGE REQUIREMENT

a. The preliminary college course shall extend through two college sessions of at least thirty-two weeks each, exclusive of holidays.

b. In excellence of teaching and in content, the work of this preliminary college course shall be equal to the work done in the freshman and sophomore years in standard colleges and universities.

c. This preliminary college course shall include courses in chemistry, physics, biology, English, and a modern foreign language, each course to embrace at least the credit shown in the schedule following:

SCHEDULE OF SUBJECTS OF THE TWO-YEAR PREMEDICAL COLLEGE COURSE

Sixty Semester Hours Required

REQUIRED COURSES:	*Semester Hours*
Chemistry (a)	12
Physics (b)	8
Biology (c)	8
English Composition and Literature (d)	6
Modern Foreign Language (e)	6
Other Non-Science Subjects	6

COURSES STRONGLY URGED:

Additional English.
Additional Foreign Language.
Comparative Vertebrate Anatomy.
Quantitative Analysis or other Advanced Chemistry.
Advanced Mathematics, including Algebra and Trigonometry.
Psychology, Logic, Social Science, Economics, History, Political Science.

A semester hour is the credit value of sixteen weeks' work consisting of one lecture or recitation period per week, each period to be of not less than fifty minutes' duration net, at least two hours of laboratory work to be considered as the equivalent of one lecture or recitation period.

(a) CHEMISTRY. Twelve semester hours required of which at least eight semester hours must be in general inorganic chemistry, including four semester hours of laboratory work, and four semester hours in organic chemistry, including two semester hours of laboratory work. In the interpretation of this rule, work in qualitative analysis may be counted as general inorganic chemistry.

(b) PHYSICS. Eight semester hours required, of which at least two must be laboratory work. This course presupposes a knowledge of plane trigonometry.

(c) BIOLOGY. Eight semester hours required, of which four must be laboratory work. This requirement may be satisfied by a course of eight semester hours in either general biology or zoology, or by courses of four semester hours each in zoology and botany, but not by botany alone.

(d) ENGLISH COMPOSITION AND LITERATURE. The usual introductory college course of six semester hours, or its equivalent, is required.

(e) FOREIGN LANGUAGE. Six semester hours minimum requirement. A reading knowledge of a modern foreign language is very strongly urged. French and German have the closest bearing upon modern medical literature.

COMBINED COURSE IN ARTS AND SCIENCES, AND MEDICINE

A combined seven years' curriculum is offered leading to the degrees of Bachelor of Arts or Bachelor of Science and Doctor of Medicine. The first three years are taken in residence in the College of Arts and Sciences at College Park, and the last four years in the School of Medicine in Baltimore. (See University catalogue for details of quantitative and qualitative premedical course requirements.)

Upon the successful completion of the first year in the School of Medicine, and upon the recommendation of the Dean, the degree of Bachelor of Arts or Bachelor of Science may be conferred by the College of Arts and Sciences.

Students are urged to consider carefully the advantages this combination course offers over the minimum requirements of two years. By completing three years the training may be gradually broadened by a wider latitude in the election of courses in the arts subjects.

POST-GRADUATE STUDENTS

Graduates in medicine desiring to take the work of the senior year without being candidates for the degree, and, therefore, without examination, may receive a certificate of attendance on completing the full course satisfactorily.

The requirements for graduates in medicine admitted to the fourth-year class as candidates for the degree of Doctor of Medicine are the same as those enforced against undergraduates admitted to advanced standing.

Summer Post-Graduate Courses—In a later number of the Bulletin detailed announcement will be made of the Post-Graduate Summer Courses.

RULES

1. All students are required to take the spring examinations unless excused by the Dean. No student will be permitted to advance from a lower to a higher class with conditions.

2. Should a student be required to repeat any year in the course, he must pay regular fees.

3. A student failing in final examinations for graduation at the end of the fourth year will be required to repeat the entire course of the fourth year and to take examination in such other branches as may be required should he again be permitted to enter the school as a candidate for graduation.

4. The general fitness of a candidate for graduation as well as the results of his examinations will be taken into consideration by the Faculty.

5. All students entering the School of Medicine of the University of Maryland are required to provide themselves with microscopes of a satisfactory type.

A standard microscope of either Bausch & Lomb, Leitz, Spencer Lens or Zeiss make, fitted with the following attachments, will fill the requirements:

Triple nose piece	10 x and 5 x Oculars
Wide aperture stage	16mm. and 4mm. Objectives
Quick Screw condenser (Abbe)	1.9mm. 125 N.A. Oil Immersion Lens

STUDENTS MUST BE PREPARED TO PURCHASE MICROSCOPES AT THE BEGINNING OF THE FIRST YEAR

All the above rules, as well as the fees stated below, relate to the year ending June 3rd, 1933, only. The right is reserved to make changes in the curriculum, the requirements for graduation, the fees and in any of the regulations whenever the Faculty deems it expedient.

FEES

Matriculation fee (paid once)	$10.00
Tuition fee (each year) for residents of Maryland	350.00
Tuition fee (each year) for non-residents	500.00
Laboratory fee (each year)	25.00
Special and re-examination fee	5.00
Graduation fee	15.00

No fees are returnable.

The above fees apply to all students who matriculate in the School of Medicine in any class for the session beginning September 26th, 1932.

All students, after proper certification, are required to register at the Office of the Registrar. (See calendar in front part of

this bulletin for dates for the payments of fees, and the note regarding late registration fee.)

The matriculation fee is payable at the time the applicant is offered acceptance as a student.

The laboratory fee and one-half of the tuition fee for the year shall be paid at the time of the first semester registration, and one-half of the tuition fee shall be paid at the second semester registration date.

Failure to meet these conditions will automatically debar the student from attendance on classes and other privileges of the University.

When offering checks in payment of tuition and other fees, students are requested to have them drawn in the exact amount of such fees. Personal checks whose face value is in excess of the fees due will be accepted for collection.

DEFINITION OF RESIDENCE AND NON-RESIDENCE*

Students who are minors are considered to be resident students if, at the time of their registration, their parents* have been residents of this State for at least one year.

Adult students are considered to be resident students if, at the time of their registration, they have been residents of this State for at least one year.

The status of the residence of a student is determined at the time of his first registration in the University and may not thereafter be changed by him unless, in the case of a minor, his parents* move to and become legal residents of this State by maintaining such residence for at least one full calendar year. However, the right of the student (minor) to change from a non-resident to a resident status must be established by him prior to registration for a semester in any academic year.

* The term "parents" includes persons who, by reason of death or other unusual circumstances, have been legally constituted the guardians of or stand in *loco parentis* to such minor students.

STATE MEDICAL STUDENT QUALIFYING CERTIFICATES

Candidates for admission who live in or expect to practice medicine in Pennsylvania, New Jersey or New York, and who are accepted as students by the University of Maryland, must apply immediately thereafter to their respective state board of education for a medical student qualifying certificate (Pennsylvania and New Jersey), or an approval of application for a medical student qualifying certificate (New York).

These certificates are to be on file in the Office of the Registrar, University of Maryland, during the period of attendance in the School of Medicine.

MEDICAL CARE OF STUDENTS

The Medical Council has made provision for the systematic care of students in the Medical School, according to the following plan:

1. *Preliminary Examination*—All new students will be examined during the first week of the semester. Notice of the date, time, and place of the examination will be announced to the classes on the bulletin board. The passing of this physical examination is necessary before final acceptance of any student.

2. *Medical Attention*—Students in need of medical attention will be seen by the School Physician, Dr. T. N. Carey, in his office at the Medical School, between 4 and 5 P. M., daily, except Saturday and Sunday. In cases of necessity, students will be seen at their homes.

3. *Hospitalization*—If it becomes necessary for any student to enter the hospital during the school year, the Medical Council has arranged for the payment of part or all of his hospital expenses, depending on the length of his stay and special expenses incurred. This applies only to students admitted through the School Physician's Office.

4. Prospective students are advised to have any known physical defects corrected before entering school in order to prevent loss of time which later correction might incur. As minor visual defects are frequently unrecognized until detected by an ophthalmologist, it is especially urged that all new students have their eyes examined and any error of refraction corrected before beginning the course.

PRIZES AND SCHOLARSHIPS*

FACULTY PRIZE

To stimulate study among the candidates for graduation, the Faculty offers a Gold Medal to the candidate who secures the highest average during the four years of his course. Certificates of Honor are awarded to the five candidates standing next highest.

DR. A. BRADLEY GAITHER MEMORIAL PRIZE

A prize of $25.00 is given each year by Mrs. A. Bradley Gaither as a memorial to the late Dr. A. Bradley Gaither, to the student in the senior class doing the best work in Genito-Urinary Surgery.

SCHOLARSHIPS

The Dr. Samuel Leon Frank Scholarship

(Value $125.00)

This scholarship was established by Mrs. Bertha Rayner Frank as a memorial to the late Dr. Samuel Leon Frank, an alumnus of this University.

It is awarded by the Trustees of the Endowment Fund of the University each year upon nomination by the Medical Council "to a medical student of the University of Maryland, who in the judgment of said Council, is of good character and in need of pecuniary assistance to continue his medical course."

This scholarship is awarded to a second, third or fourth year student who has successfully completed one year's work in this school. No student may hold such scholarship for more than two years.

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* Note: Scholarships, unless specifically renewed on consideration of application, are for one year only.

The Charles M. Hitchcock Scholarships

(Value $125.00 each)

Two scholarships were established from a bequest to the School of Medicine by the late Charles M. Hitchcock, M.D., an alumnus of the University.

These scholarships are awarded annually by the Trustees of the Endowment Fund of the University upon nomination by the Medical Council to students who have meritoriously completed the work of at least the first year of the course in medicine, and who present to the Council satisfactory evidence of a good moral character and of inability to continue the course without pecuniary assistance.

The Randolph Winslow Scholarship

(Value $125.00)

This scholarship was established by Prof. Randolph Winslow, M.D., LL.D.

It is awarded annually by the Trustees of the Endowment Fund of the University, upon nomination by the Medical Council, to a "needy student of the Senior, Junior, or Sophomore Class of the Medical School."

"He must have maintained an average grade of 85% in all his work up to the time of awarding the scholarship."

"He must be a person of good character and must satisfy the Medical Council that he is worthy of and in need of assistance."

The Dr. Leo Karlinsky Scholarship

(Value $200.00)

This scholarship was established by Mrs. Ray Mintz Karlinsky as a memorial to her husband, the late Dr. Leo Karlinsky, an alumnus of this University.

The scholarship is awarded to a second-year student who at the end of the first year has passed the best examinations in Anatomy, Histology, Embryology, and Biological Chemistry.

The University Scholarships

Two scholarships are awarded by the University: One to a student of the College of Arts and Sciences appointed by the President, to be held for only one year; the other, which entitles the holder to exemption from payment of the tuition fee of the year, is awarded annually by the Medical Council to a student of the senior class who presents to the Medical Council satisfactory evidence that he is of good moral character and is worthy of and in need of assistance to complete the course.

Frederica Gehrmann Scholarship

This scholarship was established by the bequest of the late Mrs. Frederica Gehrmann and entitles the holder to exemption from payment of tuition fees. The scholarship is awarded to a third-year student who at the end of the second year has passed the best practical examinations in Anatomy, Physiology, Biological Chemistry, Pharmacology, Pathology, Bacteriology, Immunology and Serology.

The Clarence and Genevra Warfield Scholarships

(Value $300.00 each)

There are five scholarships established by the Regents from the income of the fund bequeathed by the will of Dr. Clarence Warfield.

Terms and Conditions: These scholarships are available to students of any of the classes of the course in medicine. Preference is given to students from the counties of the State of Maryland which the Medical Council may from time to time determine to be most in need of medical practitioners.

Any student receiving one of these scholarships must agree, after graduation and a year's interneship, to undertake the practice of medicine, for a term of two years, in the county to which the student is accredited or in a county selected by the Council. In the event that a student is not able to comply with the condition requiring him to practice in the county to which he is accredited by the Council, the money advanced by the Regents shall be refunded.

Israel and Cecelia E. Cohen Scholarship
(Value $250.00)

This scholarship was established by Miss Eleanor S. Cohen in memory of her parents, Israel and Cecelia E. Cohen. Terms and conditions: This scholarship will be available to students of any one of the classes of the course in Medicine; preference is given to students of the counties of the State of Maryland which the Medical Council may from time to time determine to be most in need of medical practitioners. Any student receiving one of these scholarships must, after graduation and a year's internship, agree to undertake the practice of medicine for a term of two years in the county to which the student is accredited, or in a county selected by the Council. In the event that a student is not able to comply with the condition requiring him to practice in the county to which he is accredited by the Council, the money advanced by the Regents shall be refunded.

Daughters of Harmony Scholarship
(Value $100.00)

This scholarship is given each year by the Daughters of Harmony as part payment of the tuition of a needy student of good character. He must be a member of the senior class and a bona fide resident of Baltimore. He must be nominated by the Medical Council.

ANNUAL HOSPITAL APPOINTMENTS

On February 1st of each session the following annual appointments are made from among the graduates of the school:

TO THE UNIVERSITY HOSPITAL

Two Resident Surgeons
Two Resident Physicians
One Resident Gynecologist
Two Resident Obstetricians
Thirteen Junior Residents on a Rotating Service

A number of students are appointed each year, at the close of the session, as Clinical Assistants in the University Hospital for the summer months.

TO THE MERCY HOSPITAL

Chief Resident Physician
One Assistant Resident Physician
Chief Resident Surgeon
Five Assistant Resident Surgeons
One Resident Gynecologist
One Resident Obstetrician
Eight Junior Residents on a Rotating Service

NOTICE TO STUDENTS

The personal expenses of the students are at least as low in Baltimore as in any large city in the United States. The following estimates of a student's personal expenses for the academic year of eight months have been prepared by students, and are based upon actual experience. *In addition to these the student must bear in mind the expenditure for a microscope.*

Items	Low	Average	Liberal
Books	$50	$75	$100
College Incidentals	20	20	20
Board, eight months	200	250	275
Room rent	64	80	100
Clothing and laundry	50	80	150
All other expenses	25	50	75
Total	$409	$556	$720

Students will save time and expense upon their arrival in the city by going directly to the School of Medicine on the University grounds, N. E. Corner Lombard and Greene Streets. Here may be found a list of comfortable and convenient boarding houses suitable to their means and wishes.

For further information, apply to

J. M. H. ROWLAND, M.D., *Dean*,
Lombard and Greene Streets.

GRADUATES, UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND COLLEGE OF PHYSICIANS AND SURGEONS, JUNE 6, 1931

Adalman, Philip, Ph.G.....Maryland
Allen, Howard Stanley.....Pennsylvania
Andrew, David Holmes, A.B., Maryland
Arnett, Thomas Morrison, A.B., B.S., West Virginia
Bamberger, Beatrice, A.B.....Maryland
Barton, Paul Canfield, B.S.....Ohio
Baumgartner, Eugene Irving, A.B., Maryland
Berman, Henry Irving.....Maryland
Boggs, William Carroll, A.B., B.S., West Virginia
Brice, Arthur Talbott.....Maryland
Brill, Bernard, B.S.....New York
Brill, John Leonard, A.B., Pennsylvania
Cashwell, Roy Lee, B.S., North Carolina
Cloninger, Kenneth Lee, B.S., North Carolina
Contract, Eli, A.B.....Maryland
Davis, Melvin Booth, B. S.....Maryland
Dawson, William Maddren, B.S., New York
Donohue, Bernard Walker, A.B., Maryland
Drenga, Joseph Francis, A.B., Maryland
Eckstein, Harry, M.A.....New York
Edel, John Wesley, Jr., B.S., Maryland
Eisenberg, David Solomon, B.S., New York
Ernest, Roy Cooper, A.B.....Ohio
Feldman, Samuel, A.M.....Maryland
Feuer, Arthur, B.S.....New York
Foster, Ruth .....Massachusetts
Friedman, Joseph, B.S.....New York
Grossman, Isadore Karl, A.B., Maryland
Grove, Donald Birtner.....Maryland
Gundry, Rachel Krebs, A.B., Maryland
Hannum, Marvin Ray, B.S., West Virginia
Harris, Joseph William .....Utah
Helfrich, Raymond Frederick, A.B., Maryland
Hoffman, Reuben, A.B.....Maryland
Hollander, Mark Buckner, A.B., Maryland
Hornbrook, Kent Maidlow, West Virginia
Jacobson, Samuel Maurice, Ph.G., Maryland
Jaklitsch, Frank Henry, B.S., New York
Jensen, Carl Dana Fausbol, Washington
Jett, Page Covington, A.B.....Maryland
Jones, Arthur Ford.....Maryland
Karger, Abraham, B.S.....New York
Kaufman, Max, Ph.G.....New York
Keefe, Walter Joseph, A.B., Connecticut
Kermisch, Albert, Ph.G., B.S., Maryland
Kilgus, John Frank, Jr.....Pennsylvania
Kohn, Walter .....Maryland
Krieger, Jerome Leon, A.B.....Maryland
Krosnoff, Michael, B.S.....Pennsylvania
Lachman, Harry, B.S.....Maryland
Langeluttig, Harry Vernon, A.B., Maryland
Lanham, Alston Gordon, B.S., West Virginia
Lerner, Philip Frank, A.B.....Maryland
Leshine, Sidney Starr, B.S., Connecticut
Levine, David Robert, B.S.....New York
Lubin, Paul .....Maryland
Mahan, Edgar Wade, B.S., Pennsylvania
Mankovich, Desiderius George, Pennsylvania
Martin, Thomas Adrian, Ph.G., Maryland
Masterson, John Francis.....New Jersey
Meyer, Leo Martin, M.A.....New York
Morrison, Clarence Fisher, B.S., West Virginia
Moyers, Waldo Briggs, A.B., West Virginia
Murphy, Richard Lawrence, A.B., New Hampshire
Nocera, Francisco Paolo.....Porto Rico
Palitz, Leo Solomon, M.A.....New York
Rehmeyer, Walter Owen, B.S., Pennsylvania
Rhoads, John Peter.....Pennsylvania
Rodriguez, Manuel, B.S.....Porto Rico
Rohm, Robert Franklin.....Pennsylvania
Rosenberg, Benjamin, B.S.....New York
Rozum, John Charles.....New York
Seabold, William Merven, A.B., Maryland

Schimunek, Emmanuel Aloysius, A.B., Maryland
Seidman, Herman Harold, B.S., New York
Shaw, Christopher Campbell, Ph.B., Maryland
Shelley, Harry Sandberg, B.S., Maryland
Shochat, Albert Joshua, B.S., New York
Siwinski, Arthur George, A.B., Maryland
Skovron, Michael J., B.S., Pennsylvania
Slate, Marvin Longworth, A.B., North Carolina
Slavcoff, Alexander, B.S., Pennsylvania
Smith, Solomon, A.B. Maryland
Sprecher, Milford Harsh, B.S., Maryland
Sterling, Susanne Maryland
Stevens, Russell Alvin, A.B., Pennsylvania
Taylor, Robert Bruce Pennsylvania
Van Ormer, William Alfred, Pennsylvania
Warren, Edward William New York
Whims, Harold Carter, B.S., North Carolina
Wigderson, Henry, B.S. New York

Honors

University Prize Gold Medal Samuel Feldman

Certificates of Honor

David Robert Levine
Rachel Krebs Gundry
Leo Martin Meyer
Walter Kohn
Richard Lawrence Murphy

Prizes

The Dr. Jose L. Hirsch memorial prize of $50.00 for the best work in Pathology during the second and third years Samuel Feldman

The Dr. Leo Karlinsky memorial scholarship for the highest standing in the Freshman Class Max Needleman

The Dr. A. Bradley Gaither memorial prize of $25.00 for the best work in Genito-Urinary Surgery during the senior year
Christopher Campbell Shaw

INTERNESHIPS—CLASS 1931

Graduates of the Class of 1931 are serving internships as follows:

Adalman, Philip.....Union Memorial Hospital, Baltimore, Maryland
Allen, Howard Stanley.....York Hospital, York, Pennsylvania
Andrew, David Holmes.....U. S. Marine Hospital, Baltimore, Maryland
Arnett, Thomas Morrison.....U. S. Naval Hospital, U. S. Navy
Bamberger, Beatrice.....Sydenham Hospital, Baltimore, Maryland
Barton, Paul Canfield.....St. Alexis Hospital, Cleveland, Ohio
Baumgartner, Eugene Irving.....Mercy Hospital, Baltimore, Maryland
Berman, Henry Irving.....C. & O. Hospital, Huntington, West Virginia
Boggs, William Carroll.....Ohio Valley General Hospital, Wheeling, W. Va.
Brice, Arthur Talbot.....University Hospital, Baltimore, Md.
Brill, Bernard.....Baltimore City Hospitals, Baltimore, Maryland
Brill, John Leonard.....St. Joseph's Hospital, Philadelphia, Pennsylvania
Cashwell, Roy Lee.....Greenville City Hospital, Greenville, South Carolina
Cloninger, Kenneth Lee.....University Hospital, Baltimore, Maryland
Contract, Eli.....St. Joseph's Hospital, Baltimore, Maryland
Davis, Melvin Booth.....University Hospital, Baltimore, Maryland
Dawson, William Maddren.....King's County Hospital, Brooklyn, New York
Donohue, Bernard Walker.....University Hospital, Baltimore, Maryland
Drenga, Joseph Francis.....University Hospital, Baltimore, Maryland
Eckstein, Harry.....St. Mary's Hospital, Passaic, New Jersey
Edel, John Wesley, Jr.....St. Joseph's Hospital, Baltimore, Maryland
Eisenberg, David Solomon.....Governeur Hospital, New York, New York
Ernest, Roy Cooper.....Charity Hospital, Cleveland, Ohio
Feldman, Samuel.....Mt. Sinai Hospital, New York, New York
Feuer, Arthur.....Metropolitan Hospital, Welfare Island, New York, New York
Foster, Ruth.....Baltimore City Hospitals, Baltimore, Maryland
Friedman, Joseph.....Sinai Hospital, Baltimore, Maryland
Grossman, Isadore Karl.....Mercy Hospital, Baltimore, Maryland
Grove, Donald Birtner.....University Hospital, Baltimore, Maryland
Gundry, Rachel Krebs.....Baltimore City Hospitals, Baltimore, Maryland
Hannum, Marvin Ray.....St. Vincent's Hospital, Jacksonville, Florida
Harris, Joseph William,
W. H. Groves L. D. S. Hospital, Salt Lake City, Utah
Helfrich, Raymond Frederick.....Mercy Hospital, Baltimore, Maryland
Hoffman, Reuben.....West Baltimore General Hospital, Baltimore, Maryland
Hollander, Mark Buckner.....Baltimore City Hospitals, Baltimore, Maryland
Hornbrook, Kent Maidlow.....Conemaugh Hospital, Johnstown, Pennsylvania
Jacobson, Samuel Maurice.....Sinai Hospital, Baltimore, Maryland
Jaklitsch, Frank Henry.....Englewood Hospital, Englewood, New Jersey
Jensen, Carl Dana Fausbol
Maryland General Hospital, Baltimore, Maryland
Jett, Page Covington.....St. Joseph's Hospital, Baltimore, Maryland
Jones, Arthur Ford.....University Hospital, Baltimore, Maryland

Karger, Abraham.....Beth David Hospital, New York, New York
Kaufman, Max.....Englewood Hospital, Englewood, New Jersey
Keefe, Walter Joseph.....St. Mary's Hospital, Waterbury, Connecticut
Kermisch, Albert.....Baltimore City Hospitals, Baltimore, Maryland
Kilgus, John Frank, Jr.....Waterbury Hospital, Waterbury, Connecticut
Kohn, Walter.....Sinai Hospital, Baltimore, Maryland
Krieger, Jerome Leon.....Sinai Hospital, Baltimore, Maryland
Krosnoff, Michael.....Washington Hospital, Washington, Pennsylvania
Lachman, Harry.....West Baltimore General Hospital, Baltimore, Maryland
Langeluttig, Harry Vernon.....St. Joseph's Hospital, Baltimore, Maryland
Lanham, Alston Gordon.....University Hospital, Baltimore, Maryland
Lerner, Philip Frank
West Baltimore General Hospital, Baltimore, Maryland
Leshine, Sidney Starr.....Norwalk General Hospital, Norwalk, Connecticut
Levine, David Robert.....Mt. Sinai Hospital, New York, New York
Lubin, Paul.....South Baltimore General Hospital, Baltimore, Maryland
Mahan, Edgar Wade.....Washington Hospital, Washington, Pennsylvania
Mankovich, Desiderius George.....St. Vincent's Hospital, Erie, Pennsylvania
Martin, Thomas Adrian.....York Hospital, York, Pennsylvania
Masterson, John Francis.....St. Michael's Hospital, Newark, New Jersey
Meyer, Leo Martin.....Governeur Hospital, New York, New York
Morrison, Clarence Fisher.....Naval Hospital, Washington, D. C.
Moyers, Waldo Briggs.....University Hospital, Baltimore, Maryland
Murphy, Richard Lawrence.....St. Vincent's Hospital, Erie, Pennsylvania
Nocera, Francisco Paolo
Palitz, Leo Solomon.....Sinai Hospital, Baltimore, Maryland
Rehmeyer, Walter Owen.....York Hospital, York, Pennsylvania
Rhoads, John Peter.....Reading Hospital, Reading, Pa.
Rodriguez, Manuel R.
Rohm, Robert Franklin.....Mercy Hospital, Pittsburgh, Pennsylvania
Rosenberg, Benjamin.....Cumberland Hospital, Brooklyn, New York
Rozum, John Charles,
West Baltimore General Hospital, Baltimore, Maryland
Seabold, William Merven.....University Hospital, Baltimore, Maryland
Schimunek, Emmanuel Aloysius,
South Baltimore General Hospital, Baltimore, Maryland
Seidman, Herman Harold.....Sinai Hospital, Baltimore, Maryland
Shaw, Christopher Campbell.....University Hospital, Baltimore, Maryland
Shelley, Harry Sandberg.....University Hospital, Baltimore, Maryland
Shochat, Albert Joshua.....University Hospital, New York, New York
Siwinski, Arthur George.....Mercy Hospital, Baltimore, Maryland
Skovron, Michael J.....St. Vincent's Hospital, Erie, Pennsylvania
Slate, Marvin Longworth.....Maryland General Hospital, Baltimore, Maryland
Slavcoff, Alexander.....Youngstown Hospital, Youngstown, Ohio
Smith, Solomon.....Mercy Hospital, Baltimore, Maryland
Sprecher, Milford Harsh.....University Hospital, Baltimore, Maryland

Taylor, Robert Bruce.....Union Memorial Hospital, Baltimore, Maryland
Van Ormer, William Alfred.....St. Agnes Hospital, Baltimore, Maryland
Warren, Edward William,
Maryland General Hospital, Baltimore, Maryland
Whims, Harold Carter.....Baltimore City Hospitals, Baltimore, Maryland
Wigderson, Henry.....Mercy Hospital, Baltimore, Maryland
Sterling, Susanne.....Hospital for Women of Maryland, Baltimore, Maryland
Stevens, Russell Alvin
Wilkes-Barre General Hospital, Wilkes-Barre, Pennsylvania

MATRICULATES, UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND COLLEGE OF PHYSICIANS AND SURGEONS, 1931-1932

FOURTH YEAR CLASS

Abrashkin, Mortimer Dick, B.S., Connecticut
Ahroon, Carl Richard, A.B., Maryland
Ashman, Leon, B.S. ..... Maryland
Bell, Charles Raymond, B.S., Pennsylvania
Bell, James Russell ..... Pennsylvania
Bercovitz, Nathan ..... New York
Berger, Herbert, B.S. ..... New York
Blum, Samuel Daniel, B.S. New York
Bogorad, Daniel Emil ..... Maryland
Brown, William Edward ..... California
Byer, Jacob, M.A. ..... New York
Cannon, Martin ..... Ohio
Chimacoff, Hyman ..... New Jersey
Clayman, David Stanford ..... Maryland
Crecca, Anthony Daniel ..... New Jersey
Currie, Dwight McIver, A.B. North Carolina
Davis, Carroll Kalman ..... New York
Demarco, Salvatore Joseph, A.B., Maryland
Diamond, Joseph George, B.S., New Jersey
Dumler, John Charles, B.S., Maryland
Eichert, Herbert ..... Maryland
Eisenbrandt, William Henry, A.B., Maryland
Fein, Jack, B.S. ..... New York
Fishbein, Elliot, M.S. ..... New Jersey
Flom, Charles ..... Maryland
France, Andrew Menaris, B.S., Maryland
Ganz, Samuel Evans, M.A., New York
Geller, Samuel, B.S. ..... New Jersey
Gershenson, David Abraham, A.B., Maryland
Gittleman, Solomon Ellman, B.S., New York
Glass, Albert Julius ..... Maryland
Gluckman, Albert Gerson, B.S., Delaware
Gorenberg, Harold, A.B., New Jersey
Grosh, Joseph Walter, B.S., Pennsylvania
Hall, Joseph Edwin, B.S., West Virginia
Halperin, David, B.S. ..... New Jersey
Hammell, Frank Mull ..... New Jersey
Hantman, Irvin ..... Maryland
Harris, Jacob, A.B. ..... New York
Hecht, Manes Scheuer, A.B., Maryland
Hendler, Hyman Bernard ..... Maryland
Hull, Harry Clay ..... Maryland
Jacobson, Meyer William, A.B., Maryland
Kaplan, Abraham Nathan, M.S., New York
Karfgin, Arthur, B.S. ..... Maryland
Katz, Abraham, B.S. ..... New York
Katz, Leonard ..... Maryland
Katzenstein, Lawrence, B.S., Maryland
Keiser, Sylvan ..... New York
Klein, Henrietta Estelle, Ph.B., Maryland
Klimes, Louis Frank ..... Maryland
Korostoff, Bernard, B.S. ..... New York
Kress, Milton Bernard ..... Maryland
Krieger, Alexander Allan, Pennsylvania
Lechner, Sidney Israel, M.A., New York
Leffert, Jacob, B.S. ..... New York
Legum, Samuel, A.B. ..... Maryland
Lerner, George, M.A. ..... New York
Lieberman, Samuel, M.S. ..... New York
Louft, Reuben Richard, A.B., Maryland
Markman, Harry David, B.S., New York
McGovern, William Joseph, B.S., Pennsylvania
McMillan, William Owen, West Virginia
Mebane, William Carter, North Carolina
Mickley, John Hoke, B.S., Pennsylvania
Miller, Myron Joseph, M.A., New York
Moores, John Duer, B.S. ..... Maryland
Nachlas, Arthur, A.B. ..... Maryland
Newnam, Alpheus Carlton ..... Maryland
Panebianco, Richard Robert, B.S., New York
Pear, Henry Robert ..... Maryland
Philip, Arthur Jay, B.S. ..... New York
Pink, Solomon Harris, B.S., New Jersey
Prigal, Samuel Jeremiah, B.S., New York

FOURTH YEAR CLASS—Continued

Proctor, Samuel Edward, A.B., Maryland
Reckson, Morris Murray.....New York
Roberts, Marion Butler, A.B., North Carolina
Rohm, Jack Zeth.....Pennsylvania
Rosenthal, Stephen Isaiah, A.B., Pennsylvania
Rubenstein, Robert, B.S., New Jersey
*Sager, Harold, B.S.....New Jersey
Sanchez, Robert Luis, A.B.....Mexico
Saunders, Thomas Sewell.....Maryland
Savage, John Edward, B.S., District of Columbia
Schwartz, David Israel.....Maryland
Shack, Max Herman.....New Jersey
Shaw, John Jacob, A.B.....New Jersey
Siegel, Sidney Leon, B.S., New Jersey
Silverstein, George, A.B.....Connecticut
Simmons, John Frederick.....Maryland
Snyder, Jerome.....Maryland
Sollod, Aaron Charles.....Maryland
Statman, Arthur James, B.S., New Jersey
Stein, Charles, A.B.....Maryland
Stephenson, Frank Richard..Maryland
Taylor, Francis Nicholson, A.B., Virginia
Thompson, Harry Goff.....Illinois
Tomlinson, Thomas H., North Carolina
Whicker, Max Evans.....North Carolina
Wilson, Frank, B.S.....North Carolina
Wirts, Carl Alexander, B.S., Pennsylvania
Zupnik, Howard Lester, B.S., Pennsylvania
Zuravin, Meyer Harry, B.S., New Jersey

THIRD YEAR CLASS

Aaron, Harold Henry, B.S., New York
Baker, George Stansbury, M.A., Maryland
Barnhardt, Albert Earl, A.B., North Carolina
Beanstock, Sam, B.S.....New York
Becker, Martin, M.S.....New Jersey
Bellin, David Elias, M.A.....New York
Bernstein, Joseph Cecil.....Maryland
Blitzman, Louis, B.S.....New York
Bowman, Harry Daniel, B.S., Maryland
Cohen, Marvin Meyer, B.S., New Jersey
Comegys, Richard Williamson, A.B., Maryland
Diehl, Harold Clayton, B.S....Maryland
DiStasio, Frank, B.S.....Connecticut
Drucker, Victor, B.S.....New York
Emanuel, Meyer, B.S.....New York
Espinosa, Manuel, B.S.....Porto Rico
Etkind, Meyer George, B.S., Connecticut
Fineman, Jerome.....Maryland
Fox, Haskell Wright, B.S., North Carolina
Franklin, Frank Anthony, B.S., New Jersey
Garrison, Ralph Bernard, B.S., North Carolina
Goldman, Abram.....Maryland
Goldman, Alexander Blodnick, B.S., New York
Goldman, Meyer Leo, A.B., New York
Gorrell, James Stanley, A.B., Maryland
Griggs, William Lemuel, Jr., B.S., North Carolina
Harris, Earle Harold.....New York
Hedgpeth, Louten Rhodes, B.S., North Carolina
Hemminger, Earl Wentworth, B.S., Pennsylvania
Highstein, Gustav.....Maryland
Himelfarb, Albert Joseph, A.B., Maryland
Hoover, William Alonzo, B.S., North Carolina
Hurwitz, George Hillel, A.B., Connecticut
Hyman, Joseph Jay, B.S., New York
Hyman, Morris, A.B.....Connecticut
Kenler, Myron Lewis, A.B., Maryland
Kent, Ann Patrick, A.B., District of Columbia
Keown, Lauriston Livingston, A.B., Maryland
Kimmel, Charles, B.S.....New Jersey
Kline, Albert Adolph, B.S.....Wisconsin
Kochman, Leon Arthur.....Maryland

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* Did not complete the year.

THIRD YEAR CLASS—Continued

Konigsberg, Wilfred Kane, A.B., New Jersey
Lentz, George Ellard, B.S., Pennsylvania
Lifland, Bernard Daniel, B.S., New Jersey
Lowman, Milton Edward, A.B., Maryland
Malinoski, Wallace Henry....Maryland
Matheke, George Adolph, B.S., New Jersey
Miller, Benjamin, B.S....New York
Miller, Meyer George, B.S., New York
Moore, James Irving, A.B., Maryland
Novenstein, Sidney, A.B., Connecticut
Osserman, Kermit Edward, A.B., New York
Peer, George Foster....West Virginia
Pico, Jose Teodoro, B.S....Porto Rico
Racusin, Nathan....Maryland
Ray, William Turner, North Carolina
Robinson, Daniel Robert, B.S., New York
Rosenberg, Arthur, B.S....New York
Rosenfeld, David Herman....Maryland
Rubin, Samuel S....Maryland
Rutland, Hedley Ethelbert, B.S., Pennsylvania
Sasscer, James Ghiselin, B.S., Maryland
Scarborough, Asa Mark, South Carolina
Schiff, Hyman, A.B....Maryland
Schiff, Joseph, A.B....Maryland
Schindler, Blanc Markwood, Maryland
*Schlachman, Milton....Maryland
Schneiman, Maurice Harris, A.B., Pennsylvania
Schochet, George....Maryland
Schwartz, Alec Robert, B.S., Pennsylvania
Schwartz, Paul M....Maryland
Shea, Cornelius Joseph....Connecticut
Shinn, George Clyde....North Carolina
Smith, Ashby Wade....Virginia
Soltis, Michael Joseph Wieciech, A.B., Maryland
Stackhouse, Howard....New Jersey
Stern, Maurice Lee, A.B....New York
Szule, Stephen, Ph.M....New Jersey
Taylor, Clifford Morrison....Maryland
Thumin, Mark, B.S....New York
Turano, Leonard Francis, B.S., New York
VanMetre, John Lee, A.B., West Virginia
Way, Samuel Eason, A.B., North Carolina
Weisman, Samuel....Maryland
Wolbert, Frank Olaf....Maryland
Woodard, Barney Lelon, B.S., North Carolina
Woodford, Thomas Larry, B.S., West Virginia
Zager, Saul, B.S....New Jersey

SECOND YEAR CLASS

Abramovitz, Leonard Jerome, A.B., Maryland
Adams, Thurston Ray, North Carolina
Austraw, Henry Harrison....Maryland
Bayer, Ira Eugene....Maryland
Bayley, George Schwing, Pennsylvania
Berenstein, Stanley Harry, Maryland
Blum, Louis Vardee, A.B., Delaware
Brodey, David Franklin, A.B., New York
Burgtorf, George Edward, Maryland
Campbell, Edgar Thrall, A.B., Maryland
Caples, Delmas....Maryland
Carliner, Paul Elliott....Maryland
Cassidy, William Adrian, A.B., Maine
Coates, Stephen Paul, A.B., New York
Cohen, Lawrence Jack....Maryland
Cooper, Jules....New Jersey
Deitz, Joseph Robert, A.B., New Jersey
Diener, Samuel....Maryland
Dorman, George Edward, B.S., Pennsylvania
Downey, Regis Fallon, B.S., Pennsylvania
Dreher, Robert Hering, B.S., Pennsylvania
Dunbar, John Charles....Pennsylvania
Echols, John Edward....West Virginia
Elterich, Charles Frederick, B.S., Pennsylvania
Farr, Robert Wilbur, B.S., Maryland
Fearing, William Lumsden, North Carolina
Feldman, Leon Henry....Maryland
Finegold, Joseph, B.S., Pennsylvania

* Did not complete year.

SECOND YEAR CLASS—Continued

Gaskel, Jason Howard, A.B., Maryland
Gelb, Jerome, B.S. New Jersey
Gelman, Sidney New Jersey
Goldstone, Herbert Maryland
Goodhand, Charles Luther, A.B., Maryland
Goodman, Howard Maryland
Gordon, Joseph Maryland
Gutman, Isaac Maryland
Hanigsberg, Murray Joseph, B.S., New York
Healy, Robert Fairbank, B.S., Maryland
Hoffman, Edward Sayer, A.B., New York
Horan, William Henry, A.B., Pennsylvania
Howard, William Lawrence, B.S., Maryland
Hummel, Leonard Malcolm, Maryland
Hunt, Josiah Arnold Maryland
Hurwitz, Abraham Maryland
Insley, Philip Asbury, B.S., Maryland
Janousky, Nathan Bonny Maryland
Jerardi, Joseph Victor, B.S., Maryland
Johnson, Thorwald California
Kallins, Edward Selig Maryland
Katz, Simon, A.B. New York
Ketz, Wesley John Pennsylvania
Knoll, William, B.S. New York
Kurz, Theodore George, B.S., Connecticut
Lane, Edwin Charles, A.B., New Jersey
Lawler, Thomas Gorman, A.B., California
Leass, Reuben, B.S. New York
Leavitt, Abraham Charles, B.S., Massachusetts
Levin, Manuel, A.B. Maryland
Levin, Milton Maryland
Levine, Matthew, B.S. New York
Maginnis, Helen Irene, A.B., Maryland
Mains, Marshall Paul, A.B., Wisconsin
Mancuso, Joseph, A.B. Ohio
Marlett, Neumann Clyde, Mus. B., New Jersey
McNally, Hugh Bernard Maryland
Means, Milton Charles Pennsylvania
Millett, Joseph Pennsylvania
Mirow, Richard Raymond New York
Moore, Alfred Charles, A.B., Maryland
Moulton, Olin Cates, A.B. Maine
Mund, Maxwell Herschel Maryland
Neal, Roland Abbott Pennsylvania
Needleman, Max, B.S. New York
O'Connor, Raymond Francis, Pennsylvania
Orans, Alfred Abraham, A.B., New York
Rabinowitz, Jacob Herbert, B.S., New Jersey
Reardon, William Thomas, A.B., Delaware
*Reier, Charles Henry Maryland
Riehl, Louis Milton Maryland
Roberson, Edward Leon, B.S., North Carolina
Rosen, Morris, A.B. Pennsylvania
Rosenthal, Charles Morton, B.S., New York
Rudo, Nathan Maryland
Sacks, Milton Samuel Maryland
Satulsky, Emanuel Milton, New Jersey
Schwartz, Daniel James Maryland
Schwartz, Theodore Allison, Maryland
Scoles, Peter Serafino New Jersey
Sedlacek, Joseph Arthur Maryland
Sekerak, Richard John Stephen, Connecticut
Siegel, Benjamin Israel Maryland
Siegel, Milton, B.S. New York
Sisserson, Barney, B.S. New York
Smith, William Benjamin Maryland
Snyder, John Newcomer, Pennsylvania
Sollod, Bernard Walter, A.B., Maryland
Soltz, William Boyer. B.S., New York
Spitznagle, Vernon Edward, Maryland
Sproul, Dorothy Gertrude, B.S., M.S.S., Massachusetts
Stein, Milton Robert Maryland
Stephens, Wilson Paschall, B.S., Virginia
Stutzman, Clyde Malverne, B.S., Pennsylvania
Sugar, Samuel Jacob Maryland
Sutton, Harold Lawrence, A.B., New Jersey

* Did not complete the year.

SECOND YEAR CLASS—Continued

Taylor, Andrew DuVal, North Carolina
Teitelbaum, Harry Allen, B.S., New York
Terman, Irving, A.B.....New York
Timberlake, Landon, A.B.....Virginia
Tuerk, Isadore.....Maryland
Udkow, Samuel, B.S.....New York
Wagner, Richard, A.B.....New Jersey
Warshawsky, Harry, B.S.....New York
Wilder, Earle Maurice.....Maryland
Wolfe, William David, A.B., Maryland
Zurawski, Charles, Ph.B., Rhode Island

FIRST YEAR CLASS

Adelman, Milton Harris, B.S., New York
Albrittain, John Warren.....Maryland
Alessi, Edward James.....Maryland
Alonso, Miguel.....Porto Rico
Aungst, Melvin Rauch.....Pennsylvania
Battaglia, Dominic Thomas, B.S., Maryland
Bierer, Dan George, B.S., Pennsylvania
Bock, Charles Aloysius, B.S., Pennsylvania
Booth, Harold Thomas, A.B., New York
Brouillet, George Hector, Massachusetts
Burns, Harold Hubert.....Pennsylvania
Carney, William Howard, Pennsylvania
Cohen, Philip.....New Jersey
Connolly, John Calhoun, North Carolina
Cooney, Robert Francis, Pennsylvania
Coplin, George Joseph.....New Jersey
Cornbrooks, Ernest Ivon, Jr., A.B., New Jersey
Cotter, Edward Francis.....Maryland
Cranage, Bidwell Chapman, A.B., Michigan
Davidson, Nachman, A.B., Maryland
Dickey, Francis George.....Maryland
Diehl, Earl Henry, Ph.G.....Maryland
Dittmar, Stuart Watt.....Pennsylvania
Dodge, Douglas Rude.....Michigan
Doerner, Alexander Andrew, A.B., New York
Drake, Francis James, B.S., New Jersey
DuBois, Robert Lionel.....Connecticut
Dunnigan, William Charles, A.B., Maryland
Einhorn, Samuel Edward, B.S., New Jersey
Ewald, August Ludwig, B.S., Maryland
Fader, Ferdinand, A.B., New Jersey
Fichtner, Albon Russell, Pennsylvania
Fox, Lester Mitchell.....Maryland
Freeman, Irving.....Maryland
Fruchtbaum, Robert Pearson, B.S., New Jersey
Galitz, Philip Jacob, A.M., New York
Gerwig, Walter Henry, Jr., West Virginia
Ginsberg, Benjamin.....Maryland
Glenn, Charles Arthur, A.B., North Carolina
Godbey, John Randolph, West Virginia
Grenzer, William Howard, A.B., Maryland
Gross, Joseph Bernard.....Maryland
Hammill, Gerard Paul, B.S., Pennsylvania
Harris, Aaron.....Maryland
Hartman, Ira Frank, B.S., West Virginia
Heghinian, Jeannette Rosaline E., Maryland
Helfrich, William Goldsborough, B.S., Maryland
Herald, James Kennedy.....Ohio
Herrold, Lewis Charles, B.S., Pennsylvania
Hollander, Arthur, B.S.....New York
Hugg, John Henry, B.S., Pennsylvania
Kaminsky, Aaron Louis, B.S., New Jersey
Kane, Harry Francis, A.B., Maryland
Keller, Michael Lawrence, New Jersey
Klein, Harold Henry.....Pennsylvania
Klompus, Irving, A.B.....New Jersey
Knowles, Frederick Edwin, Jr., New Jersey

FIRST YEAR CLASS—Continued

Laino, Frank Armento, B.S., Maryland
Layton, Caleb Rodney.....New York
Levy, Abraham Maurice.....Maryland
Lewis, Archie Clifton.....Maryland
Lichtenberg, Walter, B.S., A.M., New York
Lieb, Saul, A.B.....New Jersey
Llewelyn, Louis Grandin, A.B., Maryland
MacLaughlin, Donald Clay, A.B., Maryland
Marek, Charles Bernard.....Maryland
Mays, Howard Brooks.....Maryland
McDonough, Oscar Tracy, Jr. Pennsylvania
McGregor, Alpine Watson.....Utah
McGregor, Lorenzo Watson.....Utah
McHenry, DeArmond John, B.S., Pennsylvania
Mech, Karl Frederick.....Maryland
Milan, Joseph Simon.....Maryland
Montgomery, Bruce .....Pennsylvania
Noon, Milton A.....Maryland
*Park, Clermont Dixon, B.S., West Virginia
Pepe, Anthony James, B.S., Connecticut
Pugatsky, David .....Maryland
Raffel, William .....Maryland
Reagle, Charles Donald, A.B., Maryland
Robinson, Harry Maximilian, Jr., Maryland
Robinson, Milton Irving.....New York
Rogers, Leo David.....Maryland
Rosen, Israel, A.B.....Maryland
Rosen, Sol Hyman.....New Jersey
Rosenberg, Harold William, B.S., New York
Russell, John Carroll.....Maryland
Rutherford, Miriam Hook, A.B., California
Schmitt, George Fredrick, Jr., Maryland
*Schmulovitz, Maurice Jacob, A.B., Maryland
Schonfeld, Paul .....Maryland
Shapiro, Joseph, A.B.....New York
Shapiro, Sydney Harold.....New Jersey
Shaul, John Melvin, A.B.....New York
Shub, Morris .....Maryland
Siscovick, Milton .....Maryland
Stein, Benjamin Maxwell.....New York
Teitel, Louis .....New York
*Tetter, William Howard, A.B., New Jersey
Tuby, Joseph, B.S.....New York
Vozel, Luther F.....Maryland
Waghelstein, Julius Meyer...Maryland
Warren, John McCullen, A.B., North Carolina
Wehs, Edward Peter, B.S., Pennsylvania
Williams, Jesse Frank, B.S., West Virginia
Williams, Richard Jones, A.B., Maryland
Williamson, Charles Vernon, Maryland
Wilson, John Jacob.....Maryland
Wilson, Norman James.....Maryland
Wode, Alvin Eugene William, Maryland
Wood, Everet Hardenbergh, A.B., New Jersey
Woodward, Lewis Klair, Jr., A.B., Maryland
Wright, Captain Short.....Kentucky
Zimmerman, Fred, B.S.....New York

*Did not complete the year.

SUMMARY OF STUDENT ENROLLMENT AS OF MARCH 15, 1932

	College Park	*Baltimore*	*Totals*
Resident Collegiate Courses.—Academic Year.			
College of Agriculture	183	.....	183
College of Arts and Sciences	770	.....	770
School of Dentistry	.....	424	424
College of Education	180	.....	180
College of Engineering	388	.....	388
Graduate School	247	.....	247
College of Home Economics	96	.....	96
School of Law	.....	177	177
School of Medicine	.....	421	421
School of Nursing	.....	121	121
School of Pharmacy	.....	367	367
Total	1,864	1,510	3,374
Summer School, 1931	927	.....	927
Extension Courses:			
Industrial Education (College Credit)	177	.....	177
Mining (Sub-Collegiate Credit)	168	.....	168
Total	3,136	1,510	4,646
Less Duplications	.....	.....	218
	.....	.....	4,428

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The names listed above are officers for the term beginning July 1, 1931, and ending June 30, 1932.

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This Board is incorporated by act of the Legislature of the State, its legal title being "The Trustees of the Endowment Fund of the University of Maryland," and is independent and self-perpetuating. Its powers are limited *to the expenditure of the interest derived from the various funds*, which is applied as directed by donors for the benefit of the University. Contributions, donations and bequests are solicited from Alumni and friends. They may be made to the general or University Fund, to the Medical Fund or to any other department of the University. If intended for the School of Medicine, they may be given to the general medical fund or to some special object, as building, research, library, pathology, hospital, publication, laboratories, gymnasium, scholarship, medal, prize, etc., in which case the wishes of the donor will be strictly regarded. Attention is invited to the "Charles Frick Research Fund," already established in memory of that distinguished investigator. Checks should be made payable to Endowment Fund of the University of Maryland, J. M. H. Rowland, Treasurer, Lombard and Greene Streets, Baltimore, Md.

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To School of Medicine

I give, devise and bequeath to the Regents of the University of Maryland, a corporation incorporated under the laws of the State of Maryland, for the benefit of the Faculty of Physic.....

(Here state amount or describe property)

To Endowment Fund

I give, devise and bequeath to the Trustees of the Endowment Fund of the University of Maryland, a corporation incorporated under the laws of the State of Maryland, for the benefit of the Faculty of Physic.....

(Here state amount or describe property)

THE UNIVERSITY OF MARYLAND SCHOOL OF NURSING

FACULTY AND INSTRUCTORS

Superintendent of Nurses and Director of School of Nursing
ANNIE CRIGHTON, R.N.

Assistant Superintendent of Nurses
FRANCES M. BRANLEY, R.N.

Instructor in Nursing
LILLIE R. HOKE, R.N.

Instructor in Nursing and Supervisor of Wards
HELEN WRIGHT, R.N.

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MIRIAM CONNELLY

Instructor in Massage
EDITH WALTON

Instructor in Social Service
GRACE PEARSON, R.N.

Assistant Instructor in Nursing and Supervisor of Wards
BERTHA HOFFMAN, R.N.

VESTA SWARTZ, R.N. ..... Night Supervisor
JANE MOFFATT, R.N. ..... Supervisor—Dispensary
BEATRICE KRAUSE, R.N. ..... Head Nurse—Obstetrical Ward
ESTELLE BALDWIN, R.N. ..... Head Nurse—Children's Ward
GRACE DICK, R.N. ..... Head Nurse—Men's Medical Ward
ELIZABETH CANNON, R.N. ..... Head Nurse—Men's Surgical Ward
GRACE DUTTERER, R.N. ..... Head Nurse—Men's Surgical Ward
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LUCY BRUDE, R.N. ..... Head Nurse—Private Hall
MARGARET CURRENS, R.N. ..... Head Nurse—Private Hall
GLADYS ADKINS, R.N. ..... Assistant Head Nurse—Operating Room
CARRIE MILLER, R.N. ..... Assistant Head Nurse—Operating Room
ELIZABETH TRICE, R.N. ..... Head Nurse—Surgical Supply Room
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BERTHA TARUN, R.N. ..... Assistant Outside Obstetrics
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EVELYN ZAPF, R.N. ..... Assistant Post-partum Clinic
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EVA LAIGNEIL, R.N. ..... Assistant Air Conditioning System
MONE COV, R.N. ..... Assistant Nigh Supervisor

GENERAL INFORMATION

The University of Maryland School for Nurses was established in the year 1889.

Since that time it has been an integral part of the University of Maryland, coming under the same government.

The school is non-sectarian, the only religious services being morning prayers.

The University Hospital is a general hospital containing about 250 beds. It is equipped to give young women a thorough course of instruction and practice in all phases of nursing.

PROGRAMS OFFERED: The program of study of the school is planned for two groups of students: (a) the three-year group and (b) the five-year group.

REQUIREMENTS FOR ADMISSION: A candidate for admission to the School of Nursing must be a graduate of an accredited high school or other recognized preparatory school, and must present record showing that she has completed satisfactorily the required amount of preparatory study. Preference will be given to students who rank in the upper third of the graduating class in their preparatory schools.

Candidates are required to present 15 units for entrance. Required (7), and Elective (8) units for entrance.

Required: English (I, II, III, IV), 3 units; algebra to quadratics, 1 unit; plane geometry, 1 unit; history, 1 unit; science, 1 unit. Total, 7 units.

Elective: Astronomy, biology, botany, chemistry, civics, drawing, economics, general science, geology, history, home economics, vocational subjects, languages, mathematics, physical geography, physics, zoology, or any other subject offered in a standard high school or preparatory school for which graduation credit is granted toward college or university entrance. Eight units must be submitted from this group, of which not more than four units can pertain to vocational subjects.

In addition to the above requirements, students must meet certain other definite requirements in regard to health, age and personal fitness for nursing work.

The preferable age for students registering for the three-year course is 20 to 35 years, although students may be accepted at the age of 18. Women of superior education and culture are given preference, provided they meet the requirements in other particulars. If possible, a personal interview with the Director of the School should be arranged on Tuesday or Friday from 11:00 A. M. to 12:00 M.

Blank certificates will be furnished upon application to the Director of the School of Nursing, University of Maryland Hospital, Baltimore, Maryland.

Registration With Maryland State Board of Examiners of Nurses: By regulation of the Maryland State Board of Examiners of Nurses, all students entering schools of nursing in Maryland must, at the beginning of their course, register with the Board in order to be eligible for examination and license on completion of this course. Blanks necessary for this purpose will be sent with application forms. A fee of $2 is charged for registration.

The fitness of the applicant for the work and the propriety of dismissing or retaining her at the end of her term of probation are left to the decision of the Director of the School. Misconduct, disobedience, insubordination, inefficiency, or neglect of duty are causes for dismissal at any time by the President of the University.

The requirements for admission to the five-year program of the School of Nursing are the same as for other colleges. (Special catalog will be sent upon request.) The three-year program is designed to meet the requirements for the diploma in Nursing and comprises the work of the first, second, and third hospital years.

Admission to the School: Students for the spring term are admitted in February and those for the fall term in September or October, and the five-year course in September.

Hours of Duty: During the preparatory period the students are engaged in class work for the first four months with no general duty in the hospital, and for the remainder of this period they are sent to the wards on eight-hour duty. During the first, second, and third years the students are on eight-hour day duty and nine-hour night duty, with six hours on holidays and Sun-

days. The night-duty periods are approximately two months each, with one day at the termination of each term for rest and recreation. The period of night duty is approximately five to six months during the three years.

The first four months of the preparatory period are devoted to theoretical instruction given entirely in the lecture and demonstration rooms of the training school, hospital and medical school laboratories. The average number of hours per week in formal instruction, divided into lecture and laboratory periods, is 30 hours, and includes courses in Anatomy, Physiology, Cookery and Nutrition, Dosage and Solution, Hygiene, Bacteriology, Chemistry, Materia Medica, Practical Nursing, Bandaging, Ethics, and History of Nursing. During the last two months of the probation period the students are placed on duty in the hospital wards for instruction in bedside nursing, and are expected to perform the duties assigned to them by the Director of the School. At the close of the first semester the students are required to pass satisfactorily both the written and practical tests. Failure to do so will be sufficient reason for terminating the course at this point.

SICKNESS: A physician is in attendance each day, and when ill all students are cared for gratuitously. The time lost through illness in excess of two weeks, during the three years, must be made up. Should the authorities of the school decide that through the time lost the theoretical work has not been sufficiently covered to permit the student to continue in that year, it will be necessary for her to continue her work with the next class.

VACATIONS: Vacations are given between June and September. A period of three weeks is allowed the student at the completion of the first year, and four weeks at the completion of the second year.

EXPENSES: A fee of $30.00, payable on entrance, is required from all students. This will not be returned. A student receives her board, lodging, and a reasonable amount of laundry from the date of entrance. During her period of probation she provides her own uniforms, obtained through the hospital at a nominal cost. After being accepted as a student nurse she wears the uniform supplied by the hospital. The student is also provided with text-books and shoes. Her personal expenses during the course of training and instruction will depend entirely upon her individual habits and tastes.

FIVE-YEAR PROGRAM

In addition to the regular three-year course of training, the University offers a combined Academic and Nursing program leading to the degree of Bachelor of Science and a Diploma in Nursing.

The first two years of the course (or pre-hospital period), consisting of 68 semester hours, are spent in the College of Arts and Sciences of the University, during which period the student has an introduction to the general cultural subjects which are considered fundamental in any college training. At least the latter of these two years must be spent in residence at College Park, in order that the student may have her share in the social and cultural activities of college life. The last three years are spent in the School of Nursing in Baltimore.

Degree and Diploma

The degree of Bachelor of Science and the Diploma in Nursing are awarded to students who complete successfully the prescribed combined academic and nursing program.

MERCY HOSPITAL SCHOOL OF NURSING

The Mercy Hospital School of Nursing was established in 1899 and incorporated under the laws of the State of Maryland in 1901. It has developed the art of the profession according to the high standard requisite to qualify for Registered Nurse.

Requirements for Admission.

A candidate desiring to enter the School of Nursing should apply to the Superintendent of Nurses by letter or in person at least six weeks before the entrance date. It is preferred that she apply in person accompanied by her mother or guardian. If a personal interview is not possible, a written application may be submitted.

Age.

Candidates should be between the ages of eighteen and thirty-five years.

Physique.

Applicants should be of average height and good physique. Teeth and eyes should be attended to before entering the School,

and tonsils removed if not in good condition. Every applicant is required to send in a certificate of health by her family physician. A physical examination is also made by the school physician during the preliminary period.

Education.

Applicants for admission should present at least high school certificate of graduation or its equivalent in educational values. The credits of preliminary education are fully accounted and the nurse who is the better qualified finds such a foundation more to her advantage as she progresses through the years of study.

Calendar.

Students are admitted September 1st and February 1st.

Length of Course.

The course of instruction covers three years. It is divided into a preliminary term of four months, a freshman term of eight months, a junior term of one year, and a senior term of one year

Conditions of Acceptance.

The Superintendent of Nurses decides as to the fitness for the work and the propriety of retaining or dismissing a student at the end of the term of probation or during its course. She may also, with the approval of the faculty, terminate the connection of a student with the School in any justifiable instance. At the end of the preliminary period, if the student's health, general education, and natural aptitude prove satisfactory to the Director of the School and the Sister Superior, she shall be appointed for enrollment as a student nurse.

Expenses.

An admission fee of fifty dollars is required from all students. This covers the cost of unforms and books required during the preliminary course.

Should the student for any reason leave the school before completing the course, this fee will not be returned, nor may she take with her any part of the equipment.

After four months' probation, candidates, if they possess the necessary qualifications, are admitted to the School of Nursing proper. They receive ten dollars per month to help defray incidental expenses. No other compensation is given, the education

received being considered sufficient return for service rendered. Board, laundry, etc., are furnished by the institution.

Four weeks before admission candidates should forward the fifty-dollar entrance fee, and measurements for uniforms and aprons, which will be in readiness upon their arrival. No orders will be considered until this fee is received.

THE FIVE-YEAR COURSE

Leading to B.S. Degree and Diploma of Graduate Nurse

The University of Maryland, in affiliation with the Mercy Hospital School of Nursing, offers a combined Academic and Nursing program.

The completion of this course entitles the student to the degree of Bachelor of Science from the University of Maryland, and to the diploma of the Mercy Hospital School of Nursing.

Graduate nurses who hold college degrees are greatly in demand, especially for positions in administration and teaching. This program consequently offers a distinct advantage.

Outline of Course.

Two years of this course (pre-nursing or post-nursing period) consisting of 70 semester hours are spent in the College of Arts and Sciences of the University, with the usual College vacations. At least the latter of these two years must be spent in residence at College Park in order that the student may have her share in the social and cultural activities of college life.

Requirements for Admission.

Students electing such a course must before entering the School of Nursing, satisfy the entrance requirements of the University of Maryland. Applicants must be personally adapted to professional nursing.

Fees and Other Expenses.

During the two years which the students spend at College Park they maintain themselves, and pay their own College fees. (See University of Maryland bulletin.)

Throughout the Nursing School Course the hospital provides without expense to the student maintenance and care during temporary illness.

BULLETIN
OF THE
SCHOOL OF MEDICINE
UNIVERSITY OF MARYLAND

Vol. XVI MAY, 1932 No. 5

WHERE WE STAND IN OUR KNOWLEDGE OF NUTRITION*

By E. V. McCollum, Ph.D., D.Sc.
Baltimore, Md.
Professor of Bio-chemistry, School of Hygiene and Public Health of The Johns Hopkins University.

Investigators in nutrition have for many years sought to define an adequate diet in terms of simple chemical elements and compounds. There remains much to be learned about foods and the effects of faulty diets. Thus, in a recent review of the chemistry of the amino-acids—the digestion products of proteins—Vickery and Schmidt list twenty-one of these digestion products of proteins, the principal structural material of the soft parts of the body. Recently, however, Dr. W. C. Rose of the University of Illinois has shown that there is still another one whose existence was hitherto unsuspected. Chemically these "building stones" of body proteins are relatively simple. Chemists can visualize their architecture in detail, and most of them have been artificially synthesized in the laboratory. It is known that several of these amino-acids cannot be manufactured by the body from other substances, hence they must be supplied by the food. Only two or perhaps three of the twenty-two simple digestion products of proteins have been clearly shown to be capable of synthesis in the body. The remaining ones are still to be investigated and eventually we shall know just which ones are indispensable and which need not be included in the food supply in order to support growth and maintain health.

* Delivered before University of Maryland Biological Society, January 31, 1932.

If we assume that all amino-acids which have not been demonstrated to be capable of synthesis by the body cannot so arise, we must postulate that nineteen digestion products of proteins must be provided in the diet. Rose has demonstrated that a diet containing nineteen of the known ones, and adequate in all other respects, did not suffice to maintain health in rats. I shall, therefore, assume that we must have nineteen in the food, and that one, at least of the list he gave his animals was not essential and that he had left out one which is still unidentified.

We must provide in the diet an adequate source of energy in the form of glucose, the sugar of the blood. It is established that an adequate diet must furnish at least eleven inorganic or mineral elements. These are: calcium, magnesium, sodium, potassium, chlorine, iodine, phosphorus, sulfur, iron, copper and manganese. This list is probably not complete. Interest now centers on the study of whether such elements as nickle, cobalt, fluorine, and zinc, and perhaps boron, play a physiological rôle and are indispensable elements in an adequate diet. There is no difference of opinion as to the existence of at least six vitamins. The evidence is all but convincing that there are four more, but I shall not take these questionable ones into account today. The list which I have enumerated sums up to thirty-six. Burr and Burr have demonstrated that a single fatty acid of high unsaturation, viz., linolenic acid, must be provided in the food to make it complete. At present, therefore, we may say that an adequate diet must provide at least thirty-seven relatively simple substances all well known to chemists.

If any one of these components of the diet be omitted from an otherwise complete food nutritive failure will supervene. The type of malnutrition which results from specific starvation for each of the thirty-seven nutrient principles is characteristic. There are, consequently, at least thirty-seven kinds of deficiency diseases, a number of which have not yet been adequately investigated. The best known of these I shall briefly describe, omitting all those due to amino-acid deficiency since these have been inadequately described.

If a diet is adequate except for lack of iron the blood soon becomes pale owing to a reduction of its content of hemoglobin, the oxygen carrying pigment. Hart and Steenbock have shown that if the diet contains abundant iron but lacks copper the iron cannot be assimilated and synthesized into blood pigment, but on including

copper the blood may be promptly enriched in hemoglobin. This is one of the most interesting and astonishing discoveries in recent years. In some primitive creatures such as mollusks, snails, crabs, lobsters and octopus the respiratory pigment of the blood contains copper instead or iron. In the higher animals iron is the principal inorganic element of the respiratory pigment, but it appears that these have never become able to dispense entirely with copper, although the amount of it which is required is very small.

If the diet is deficient in iodine, the thyroid gland suffers injury, especially if the deficiency occurs in prenatal life, and simple goiter results. Specifically, a deficiency of iodine interferes with the synthesis by the thyroid gland of a hormone containing this element. This is called thyroxin, and the rate of energy metabolism is regulated by the amount of this hormone which the thyroid gland feeds constantly into the blood stream. In vast areas throughout many parts of the world the well-being of millions of people is adversely influenced by deficiency of iodine in the soil, water and locally grown vegetable foods. Economically, iodine deficiency has caused enormous losses in the live-stock industry owing to death of young animals from goiter. The provision of a few cents worth of sodium iodide to a pregnant farm animal in regions of endemic goiter insures the birth of normal young.

An interesting investigation recently conducted in my laboratory by Dr. Elsa Orent related to the effects of deprivation of manganese in the rat. There is but little of this element in any foods, and extremely small amounts of it suffice for the preservation of health. Dr. Orent found that a diet complete except for the absence of manganese promotes normal growth in rats to maturity, but at about the 100th. day of the experiment the sperm cells while still abundant have lost their motility. Later the testes degenerate to vestigial remnants containing no spermatozoa. Permanent sterility is the result. Female rats, on the other hand, if mated with normal males remain fertile and produce abundant litters but allow them all to die soon after birth. They exhibit no maternal instincts, failing to build a nest, collect the young or hover over them. The mechanism of the disturbance caused by deficiency of manganese is still under investigation. Provisionally we attribute it to interference with the production of an essential hormone by the anterior lobe of the hypophysis which has a selective effect on the functioning of certain parts of the reproductive system in both sexes.

Dr. Orent and I have recently described the symptoms of magnesium deficiency. Here again we have characteristic physiological disturbance caused by lack of a single inorganic element. It illustrates again the fact that the metabolic processes are interfered with in a different way when one or another of the indispensable nutrient principles is left out of the diet or is provided in inadequate amount. The examples given serve to illustrate the nature of certain of the so-called deficiency diseases.

The spectacular effects of vitamin deficiency have attracted much attention during the past three decades. Here again the damage done by deficiency of the diet in one vitamin differs strikingly from that of every other. In vitamin A deficiency it is the epithelial tissues which are the primary seat of injury. Since all secretory glands are specialized epithelial cells the effects on health are profound. The cells, wherever located, tend to become keratinized, so that they resemble the surface cells of the skin and lose their characteristic functions. Thus the tear glands suffer desquamation of flattened epithelium lining their ducts. These plaques tend to plug the ducts. Tear secretion fails and there is profound injury to the eyes as the result of drying. the salivary glands fail to secrete their quota of saliva and the mouth becomes dry. The secretory glands of the digestive system are damaged and fail to produce their characteristic products. Hence digestion and absorption become perverted and grave malnutrition supervenes. The reproductive glands are likewise affected and sterility results.

When vitamin B_1 is deficient in amount in the food it is the nerve tissues which are the primary seat of injury. The disease beri-beri common among the rice eaters of the Orient has taken millions of lives during the past two thousand years and still constitutes one of the major health problems of the world. The most remarkable researches in recent years on this vitamin are those of Maurer and Tsai of the University of Chicago and of Macy of Detroit. The former have shown that when the diet of mother rats is deficient in vitamin B_1 during a short interval following the birth of their young the latter are partially starved for this substance during a few days in a very immature stage of their existance. After this interval of partial starvation for the antineuritic vitamin the mother is given a complete diet and finishes the task of rearing her young. She cannot put the vitamin into her milk unless it is provided in her food. They have

maintained for several years a rat colony which has been normally nourished for these experiments. When the rats reach a certain age their learning ability is tested by feeding them in a maze, the reward for learning which is the finding of food at the end. Their stock learn the maze in forty to fifty trials. The animals of the same colony which were underfed for a few days while very young, but subsequently fed as the stock, require ninety to one hundred trials to learn the maze. The investigators interpret their results to mean that the central nervous system of the little rat is permanently marked with inferiority as the result of specific vitamin underfeeding.

These results seem to acquire extraordinary significance in the light of Dr. Macy's observations that vitamin B_1 is present in milk, either human or cow, in amount so small that it is questionable whether a diet consisting solely of milk provides as much of the vitamin as the young require. In two sets of experiments in which a basal diet was fed to young rats it was found that when milk served as the sole source of vitamin A, three ml. per day sufficed to induce essentially normal nutrition. When the same diet was given with an abundance of vitamin A but depended entirely on its milk content for its content of vitamin B_1, seven times as much was necessary to provide the indispensable minimum of B_1 as was necessary to provide the rats minimum requirement of vitamin A, viz., twenty-one ml. per day. Pediatricians are now investigating the problem of whether or not infants are benefitted by a vitamin B_1 supplement during the earliest months of life when they are confined principally to milk. The permanent injury to the brain resulting from a brief interval of under-feeding of the antineuritic vitamin in early life may be a matter of great importance in safeguarding the mental efficiency of the child.

The researches of the past few years on the effects of deficiency of the antiscorbutic vitamin C have brought to light some most important knowledge. It has long been known that deficiency of this vitamin causes injury primarily to the endothelial cells throughout the body. The breakdown of the capillary blood vessels results in hemorrhage in many parts of the body. The bone cells are likewise affected since the bones become rarefied. The observations of Hojer that in approximately half the time required in the guinea-pig to induce clinically observable signs of scurvy, there results marked damage to the odontoblasts, the cells which form the dentine of the teeth, show that these cells are far more sensitive to deficiency of vitamin C than are

the cells forming the capillary blood vessels. The odontoblasts form a membrane lining the pulp cavity of the tooth, and from each there is a fine filament which passes through a tubule in the dentine to the base of the enamel. In two weeks feeding to a guinea-pig a diet containing eight-tenths of the minimum protective dose of the vitamin, the odontoblasts are injured so that they are of unequal length. In the same interval, when but half the protective dose is fed the layer of odontoblasts separate from the dentine rupturing the filaments which pass into the dentine. When but three-tenths of the protective dose is fed for two weeks the layer is caused to degenerate into islands of distorted cells. It seems probable that this would cause the death of the pulp of the tooth even if the diet subsequent to the injury of this extent were adequate in vitamin C. The frequency of occurrence of devitalized teeth in human subjects leads to the surmise that many people may have wrought permanent injury to their teeth by running short of this vitamin for periods of two or three weeks or longer. The devitalized tooth is very prone to develop an apical abscess and become a serious menace to health.

Vitamin D is the principle which is most directly concerned with maintaining at the normal level the calcium and phosphorus content of the blood, and hence with the calcification of the osseous system. It is the vitamin, a deficiency of which causes in infants and children the development of rickets. It occurs in the active form in cod liver oil. The discoveries of Hess, Webster, Rosenheim, Steenbock and Windaus, resulted in the knowledge that the mother substance of the vitamin is a sterol first obtained from ergot and called ergosterol. It is a colorless substance insoluble in water, soluble in fat solvents, and is without action on the inorganic content of the blood until it has become activated by exposure to ultra-violet rays. The latter quickly convert it into the vitamin D. Windaus has recently succeeded in crystallizing the pure active vitamin from the mixture of products resulting from the chemical changes brought about by short rays of light. Park has recently suggested that it may appropriately be designated as the ultraviolet vitamin. Since the sun's rays contain ultra-violet rays when the sun is high in the heavens, sunlight during summer, except when the sun is low, is capable of activating the ergosterol which our bodies apparently always contain, some of which is deposited in the skin. It is on this basis that we explain the absence of rickets in the tropics and its frequency in temperate regions. The

dwellers in the far north who derive a large part of their food from the sea secure an abundance of the vitamin in the active form and are accordingly free from rickets.

In the absence of sufficient vitamin D the blood chemistry is abnormal in that phosphorus, especially, and to a lesser extent calcium, fall to a level which does not permit calcification of the bones. The rachitic child is susceptible to respiratory infections to which the normal child is refractory, in part owing to the lack of rigidity of the thorax. Rickets constitutes a health hazard. The new knowledge concerning its prevention has been applied to many millions of infants during the past decade. Almost every mother now knows that the baby should have cod liver oil or viosterol. The latter is a preparation of activated ergosterol (Vitamin D) in a vegetable oil. There is a pronounced tendency, however, for the vigilance of the mother to relax after the child becomes a runabout, and it is still the exception for older children, adolescents and adults to take a source of the vitamin D during the colder months when, because of paucity of ultra-violet rays in sunlight, heavy clothing, and indoor occupation, the opportunity for the formation of the vitamin through irradiation of the skin is practically nonexistent. There is still some difference of opinion as to whether a supply of vitamin D is beneficial to any other than infants and children. Much evidence of an experimental and therapeutic nature is accumulating to support the view that taking a supplemental source of vitamin D raises resistance to infections of several sorts. It has long been the custom of physicians to give vitamin D in cod liver oil to persons suffering from tuberculosis, and Meerssenan and Tricault have recently stated that giving tuberculous patients therapeutic doses of activated ergosterol caused improvement in the general condition of the patient, with increased weight, appetite and lowered temperature, and usually improved physical signs. Robertson has demonstrated increased resistance to infections following the administration of activated ergosterol to animals. Her experiments were mainly with Salmonella muriotitis, which is a natural pathogen to the rat. Blackberg has shown that rats deficient in vitamin D were more susceptible to tetanus toxin than were rats which had been cured of rickets by exposure to ultra-violet rays. Ackert and Spindler found that chickens on a diet lacking in vitamin D were not able to rid themselves of intestinal parasites nearly so well as similar chickens given vitamin D in abundance.

Other examples of increased resistance to infection as the result of the provision of vitamin D could be given if time permitted. They have included heightened resistance to pneumococcus, cholera bacillus, epidemic coryza in animals, etc. The bacteriocidal power of the blood of half-grown rabbits is increased by small doses of vitamin D. Many individuals volunteer the information that taking a source of vitamin D raises their resistance to colds but it cannot be said that this has been fully demonstrated to apply to all people.

The question is now being frequently asked of me whether adults should take a source of vitamin D as a safeguard to physiological well-being. The only logical answer in the light of the available evidence is that there is little room for doubt that an additional source of the vitamin, especially during the colder months of the year, affords a safeguard to health.

In a series of investigations covering a decade in my laboratory, and recently carried on by Drs. Klein and Kruse and Miss Becker, we have come to the conclusion that tooth decay is in great measure the result of faulty blood chemistry, and consequently of saliva which is not appropriately constituted for the preservation of the enamel of the teeth. Mellanby has shown experimentally, as did Greaves and I a decade ago, that faulty diet, especially one deficient in calcifying properties, caused the eruption of hypoplastic teeth, which included defective enamel. Defective enamel will not necessarily result in decay. Decay, we believe, is the result in most instances of a diet unsatisfactory as respects its calcium, phosphorus and vitamin D content. It would require more time than is at my disposal to give an account of this investigation here. The results will be published in the near future. It may be mentioned, however, that Mrs. Mellanby in her studies of groups of institutional children at Sheffield and Birmingham, England, has demonstrated that children receiving activated ergosterol showed a more marked lowering of susceptibility to tooth decay than did children on the same diet given olive oil without the vitamin D. Her results harmonize with our interpretation that a dietary regimen which tends to maintain the phosphorus and calcium of the blood at a high level tends to render the individual caries-immune. For years the dental profession has been convinced that in some manner the diet is the determining factor which renders the person caries-susceptible or caries-immune. We believe we are now in a position to explain the incidence of tooth decay on a theory which

involves a proper or improper quantitative relation in the diet of calcium, phosphorus and vitamin D.

There is a decided tendency of the pregnant mother to sacrifice herself for the preservation of her progeny when her diet is inadequate; she is far more likely to suffer decalcification during lactation when the demand for mineral elements and vitamins is far greater than during pregnancy. I believe no one alert to existing knowledge would hesitate now to state unqualifiedly that the pregnant and nursing mothers of today are generally getting too little vitamin D. If our studies and those of Mrs. Mellanby are as sound as we believe they are, they will afford evidence that in temperate regions people of all ages should take some source of vitamin D.

The researches on the vitamin D constitute one of the most thrilling stories in the history of nutrition. Another relates to the demonstration two years ago by von Euler that the mother substance of vitamin A is carotine, the yellow pigment of carrots and of many other vegetables. Deprivation of vitamin A likewise lowers resistance to certain infections. The yellow pigment is not itself the vitamin, but is converted into the vitamin in the body.

There is no reason to doubt that many remarkable discoveries still await the nutrition investigator. We know relatively little about the mode of action of vitamin E, which Evans and Bishop showed to be indispensable for the completion of prenatal life in the rat. Likewise, we are still uncertain whether pellagra is solely due to lack of vitamin G, or the British B_2. That the disease is due to faulty diet no one familiar with the conditions in regions where it is endemic doubts.

Our knowledge now affords abundant evidence that it is worth while to give thought to the selection of our food. We have been for some decades making certain grave errors in diet. Economic factors demand that much of our bread be made from refined wheat flour. There is a commercial hazard in the marketing of whole wheat flour which justifies the manufacture of bolted flour for bread-making. We do not now condemn any article of our food resources because it is deficient in one or more indispensable nutrients. We take them for what they are and so combine them in our menus that what is lacking in one is provided by another. The keynote to successful nutrition is the proper selection of foods and their proper combination.

We are as a nation eating too much sugar. Our consumption is approximately 115 pounds per capita per annum. It is not that sugar

is in itself an undesirable food, but it is an energy-yielding food only since it contains no proteins, mineral elements or vitamins. If eaten freely it tends to crowd out of the diet other foods which are better constituted to provide the body with the essential nutrients of a properly balanced diet. White flour and polished rice are very deficient in several nutrients but we like them as prominent constituents of our diet. The same may be said of potatoes and other tuber and root vegetables widely used in the human dietary throughout the world. We must use them in proper combinations with certain supplemental foods of unique value in providing what they lack. Among the supplemental foods three stand out as of extraordinary value, viz., milk, the leafy type of vegetable and eggs. These are so important in the dietary of Europe and America that I have designated them the Protective Foods. Our daily diet should be built up around a generous allowance of these foods. Meats should be eaten in moderation, and no restriction need be placed on the selection of foods which appeal to the appetite. But these should be included for the sake of the pleasure of eating palatable foods only after the nucleus of the day's menus is made complete and adequate for the promotion of growth in the young and the repair of physiological waste in the adult. Eat what you want after you have eaten what you should, is a slogan which I have been recommending for many years. When we take excessive amounts of refined cereals and sugar we crowd out of our diet a quota of foods which contain indispensable nutrients. In so far as we do this we create a situation in which the remaining fraction of the diet composed of the complete and supplemental foods must be of extraordinary quality in order to insure a complete and safe diet.

The statements which I have just made are of particular importance just now when economic conditions are such that many are forced to maintain themselves at or near the subsistence level. I question whether we do people a favor by keeping them alive over a winter on a diet which is incomplete in any respect and which tends to undermine health. The national wealth is easily sufficient to provide the needy with a complete and satisfying food supply. I am insisting that relief organizations must not economize on the Protective Foods. The relief ration must include in addition to the articles mentioned some fresh fruit or raw vegetable, or certain commercially canned foods daily in order to provide sufficient of the vitamin C. This sub-

stance is easily destroyed in home cooking and in the pasteurization of milk. Commercial canning results in but negligible destruction. Now that emergency nutrition problems confront large numbers of people it is appropriate to call attention to a suggestion formulated first by Miss Lucy Gillette as to how the money available for food should be divided when economy and safety are the watchwords. She recommends that the money be divided into fifths:

One fifth, approximately, for fruits and vegetables;
One fifth, or more, for milk and cheese;
One fifth, or less, for meats, fish and eggs;
One fifth, or more, for bread and cereals;
One fifth, or less, for fats, sugar and other groceries.

There are everywhere available trained dietitians who will give detailed advice about marketing.

In the feeding of infants it should be emphasized that few pediatricians now recommend the feeding of raw milk. Even certified milk is rendered more digestible by boiling, which destroys the vitamin C while it softens the curd. Milk is likely to provide the minimum requirement of vitamin B_1, hence supplementing the infant's diet by the tenth day with a little orange juice or tomato juice is advisable both to furnish vitamin B_1 and vitamin C. A source of vitamin D should be given almost from birth. This will be either cod liver oil or viosterol as the physician recommends. Early supplementing of the infant's diet with cooked vegetables to supply a supplement of iron and copper is now generally advised.

There is a new movement toward vitaminizing certain foods which form staple articles of diet for young and old. One manufacturer of bread is supplementing the baking formula with an extract of wheat germ to add vitamin B_1. Another is adding vitamin D to bread so that people of all ages will secure a proper quota of the substitute for ultra-violet rays. Certain dairymen are now feeding irradiated yeast to cows to put extra vitamin D into the milk to provide special milk for infant feeding. These practices are a step in the right direction and we shall doubtless see an extension of such methods of improving of the staple foods which enter into the diet of everyone as time goes on.

The newspapers have recently given wide publicity to the poisonous character of large doses of vitamin D, and many people have become

apprehensive of the danger of eating foods vitaminized by the addition of activated ergosterol. This, as is well known to the medical profession, is a false alarm. It is true that vitamin D is an extraordinarily potent substance and the amount of which we require is astonishingly small. Nutrition investigators have established a unit of vitamin D. 150 such units constitute the therapeutic dose sufficient to prevent rickets in an infant. But since three-billionths of a gram of the pure vitamin furnishes the 150 units, a single gram of pure vitamin would furnish fifty-thousand million units. Experiment has shown that a million units are toxic, but the facts brought out by experiment show that this amount would have to be taken daily to cause injury. It is very uneconomical to put large amounts of the vitamin in foods such as bread or milk, and so financial considerations alone would preclude the marketing of foods containing excessive amounts of it. However, all foods which are advertised at present as providing vitamin D, are under the supervision of the Committee on Foods of the American Medical Association, and all such foods are frequently assayed by animal tests to insure that they do not fall below the standard of furnishing at least the minimum therapeutic dose of the vitamin. There is not the slightest prospect that any food or drug will be marketed which will contain harmful amounts of the vitamin, both for the reason stated and because the process of manufacture of vitamin D is controlled by the Research Foundation of the University of Wisconsin under the Steenbock patent, and this Foundation is under the direction of competent scientists who may be counted upon to safeguard the health interests of the public.

CHRONIC INTUSSUSCEPTION*

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The occurrence of intussusception in adults is relatively rare as compared with the incidence of the same condition in early life. The acute form is seen more frequently in infancy, while chronic intussusception occurs in older children and in adults. The absence of a discernible etiological factor is the rule in intestinal obstruction in children, the reverse being true later in life. The relative frequency of intussusception during the first year of life is supposedly due to a disproportion in calibre at the ileo-caecal valve. The mobility, flaccidity and capacity of the caecum and undue length of the mesocolon all favor invagination. Pathological conditions such as tumors, ulcers, diverticuli and foreign bodies often cause chronic intussusception.

Jones, J. G. (1) reported fourteen cases that occurred in Guy's Hospital between the years 1900-1924. Six of the fourteen cases showed tumors to be the exciting cause. Eliot and Corscaden (2) analysed three hundred cases of acute and chronic intussusception and found tumors in 100 of the 300 cases. Sixty of these tumors were benign and forty malignant. Goodall (3) collected 122 cases of primary intussusception, and called particular attention to a case caused by a submucous lipoma which simulated impacted feces. Barnett, (4) reported a case of myoma of the stomach with a gastroduodenal intussusception. This patient suffered from gastric pain for two years and a diagnosis of carcinoma of the stomach had been made. Barrington-Ward, (5) reported a case of recurrent intussusception in a child six years old. The child had been operated upon three times and at the last operation an adeno-papilloma was found. Horn (6) reported a case of chronic intussusception in which the base of the appendix had intussuscepted into the caecum. The caecum was opened and a polypus was found at the base of the appendix. This patient had suffered symptoms for ten years. Schlink (7) reported a case of two month's duration in a girl seven years of age. A diagnosis of intussusception in this case was made by means of X-ray

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examination. Spencer (8) reported a case in a boy 7½ years of age who had been treated in a dispensary four months for abdominal tuberculosis. Sullivan (9) writes of a case where symptoms were present for six months. Six days prior to operation the patient had been taken more acutely ill. An ulcer of the intestine was found which was thought to have caused the intussusception.

Chronic intussusception has been diagnosed preoperatively as malignancy of the intestine, sarcoma of kidney, hydronephrosis, enlarged retro-peritoneal glands, malignant cyst of ovary, volvulus, hernia, appendicitis, and fecal impaction.

We wish to report, herewith, two cases of chronic intussusception. The first patient, C. W., age 6 years, was operated on, February 28, 1925, by Dr. A. M. Shipley, who gives the following note: "Upon opening the abdomen a large mass was found in the sigmoid and could not be separated into fragments by pressure. The gut was large and the mass had a free range of movement up and down in the gut. It was then believed that we were dealing with a large polypus, and a longitudinal incision was made over the sigmoid into the mass. When the gut was opened, the mass was found to be a chronic intussusception. The child's condition was not good, the intussusception could not be completely reduced, so the opening in the sigmoid was closed and a lateral anastomosis was done between the ileum and the sigmoid, below the intussusception. This was done with a Murphy button. The patient was reoperated upon at a later date. The tumor mass with the intussusception was removed, and the gut anastomosed by end to end suturing." The pathological diagnosis was lymphosarcoma.

The patient lived until September 17, 1927, and died of ulcerative colitis at the Union Memorial Hospital. A partial autopsy was made. An abstract of the pathological findings follows: "The patient is a markedly emaciated young boy with two large scars on abdomen. Rigor mortis has set in. An incision was made from xiphoid to symphysis. There was some free fluid in the abdominal cavity. The intestines were markedly distended with gas. In manipulating the colon it perforated. The intestines were removed, and sections showed numerous ulcers. The entire colon and part of sigmoid were studded with punched out ulcers. None had perforated, but many had eaten through to the peritoneum. Microscopic sections showed ulcer only. The pathological diagnosis was ulcerative colitis. Hiss-Russell bacilli were found in the stool."

The second case was admitted to the surgical service of the University Hospital on May 16, 1931. The patient complained of dull abdominal pain and distention and that there had not been a satisfactory bowel

FIG. I. *Caeum Opened Showing Cauliflower-Like Growth and Intussusception, Case II.*

movement for four days. A history was obtained of chronic constipation for the past five years, without other gastro-intestinal symptoms. This patient, a 78 year old, feeble white man, was operated on under

local anesthesia, and a hurried enterostomy done. He did poorly following the operation and died two days later. At autopsy, 3000 c.c. of fluid were found in the abdomen and a large mass was present in the region of the caecum. From this point proximally there was marked abdominal distention; that is, of the small intestine, from the ileo-caecal valve to the stomach. When the mass was investigated

FIG. II. *Cross Section Through Growth at Ileocecal Valve with Intussusception, Case II.*

more closely, it was found to be an intussusception of the head of the caecum and the terminal portion of the ileum into the caecum and ascending colon, dragging in with this intussuscepted portion the appendix and the mesentery of the small gut. About six inches of the ileum had been drawn into the intussusception. The mass was removed, and a growth was found in the region of the ileo-caecal

FIG. III. *Section of Tumor, Case I.* × 200.

FIG. IV. *Section of Tumor, Case II.* × 800.

valve. This was a large polypoid, cauliflower-like mass (Figs. 1 and 2). Apparently this tumor was the etiological factor causing the intussusception and obstruction. The growth was an adeno-carcinoma (Figs. 3 and 4). There was no evidence of regional metastasis into the retroperitoneal lymphnodes or any general metastases. The intussusception was of some duration because rather firm adhesions had formed between the opposing peritoneal surfaces.

EXPERIMENTAL STUDIES

These studies were undertaken to determine the mechanical factors that produce the type of chronic intussusception which is associated with tumors or foreign bodies. Experiments were made on three dogs. A small solid rubber ball was used as the foreign body. This ball was introduced into the lumen of the ileum and was anchored to the wall of the gut by a link of thread to create a condition akin to a pedunculated growth (Figure 5). The wound in the intestinal wall was then closed. Peristalsis was produced by stimulation of the intestinal segment with a galvanic current. The peristalsis pushed the ball down the intestine and an intussusception was formed at the point of attachment of the ball to the intestine. Figure 6 shows the point of attachment of the suture to the wall of the intestine. Figure 7 shows the beginning of the intussusception. Figure 8 shows the complete intussusception. The illustrations with the exception of Figure 1 are photographs taken from a motion picture film made in the course of these experiments. These pictures demonstrated very

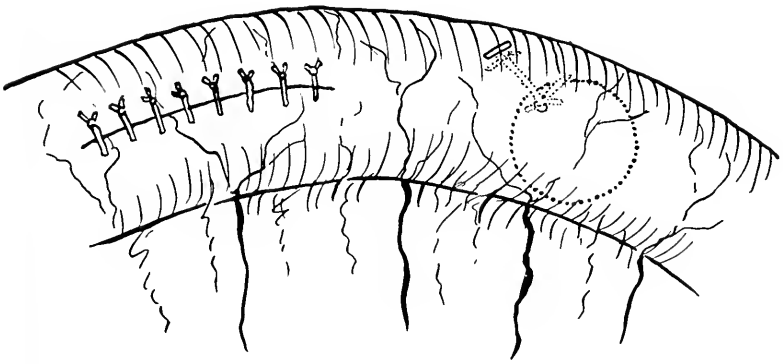

FIG. V.

FIG. VI. *Shows the Introduction of the Rubber Ball Into the Lumen of the Intestine.*

FIG. VII. *Shows the Beginning of the Intussusception.*

clearly that the presence of a foreign body in the intestine such as a pedunculated tumor, can be a mechanical factor in the production of a chronic intussusception.

FIG. VIII. *Shows the Complete Intussusception.*

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DIABETES INSIPIDUS
A REVIEW OF THE LITERATURE AND REPORT OF A CASE

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Historical

Although diabetes insipidus is usually considered a rare disease, it has a history which extends at least as far back as 1682 when Thomas Willis first recognized the difference between a "saccharine and non-saccharine polyuria" by observing that, "in some cases of polyuria the urine has a sweet taste". No further references can be found in the literature until one hundred years later when, in 1792, a Dr. Simmons published a book which contained the first two case reports. One of these cases was his own, and was observed by him for many years. The second, however, was a case which was reported to him through a series of letters from a French physician. This latter instance was that of a girl who early in life was seized with a great desire to drink tremendous quantities of water. As a child, she is said to have consumed a pailful of water or more a day. However, advancing years increased her thirst proportionately and when, in the course of time, she married, her disorder became a matter of economic importance. She consumed as much as three and four pailfuls of water a day, and the price at which water was to be purchased exceeded the earnings of her husband. It is also stated that during her pregnancies (of which there were many), her thirst increased considerably. There was no familial tendency in this case and it was observed that none of the children were similarly affected.

In 1794, just two years later, Johann Peter Frank described diabetes insipidus as a "long continued, abnormally increased secretion of non-saccharine urine, which is not caused by disease of the kidneys". In almost two hundred and fifty years, this definition has not been perceptibly altered. Our next reference of importance carries us to 1858 when Claude Bernard initiated experimental work on the spurious type of diabetes. He found that in animals, wounds of the floor of the fourth ventricle produced a polyuria, and he also discovered that there was no level which would produce a pure hydruria. It re-

mained for Eckhard in 1869 and Kahler in 1886, to complete Bernard's work through their investigations. They showed in animals, that section of the cord at the sixth or seventh cervical vertebra produced an immediate and persistent suppression of urine. Below this point, there was a less certain but more protracted result, and below the second thoracic vertebra, no changes were noted. This evidence, therefore, indicated that the nerve fibers which supply the kidneys pass from the medulla to the level of the sixth or seventh cervical vertebra, where they leave the cord, join the uppermost thoracic nerves and then pass along the wall of the aorta to the renal arteries and kidneys. The importance of this work will become manifest when, as we shall see later, it will be necessary to prove that the drugs which assist in abating the symptoms of this disease, do not produce their effects through their actions on the nerves which supply the kidneys.

INCIDENCE

The following figures are available concerning the occurrence of diabetes insipidus; Eichorst reports 17 cases out of 35,942 consecutive hospital admissions. Futcher reports 7 in 403,000 cases and Gerhardt 55 out of 113,000. The average of a number of observers reveals an incidence of 14 per hundred thousand consecutive hospital admissions.

Males are more frequently affected than females. The age of onset is usually under 40, and many cases are observed in children. Concerning the cases reported among infants and children, it is interesting to note that Gerhardt was able to collect 60 and Von Noorden reports that in 15% of his cases the disease manifested itself during the first decade. Rachel reports cases at 4, 5, 10 and 11 months of age. These are the earliest on record.

The hereditary nature of this disease is, in some cases, beyond a doubt. The series of Weil is reported in almost every review of the literature. In this family, during five generations, there were 220 offspring, and of these 35 developed the disease. In all of them it became manifest during childhood, but it did not affect their lives in any way. They were otherwise prefectly normal individuals, 3 of them living to the ages of 83, 87 and 92, and the others dying of disassociated complaints. Concerning the distribution of this disease among races, I can find no available figures.

ETIOLOGY

Since this condition has been recognized there has been much speculation concerning its etiology. It was at first thought that faulty concentrative powers of the kidney produced this syndrome. Others contended that it was a primary polydypsia and that the renal function was entirely normal. By 1916, however, Fitz in his splendid article divided the condition into two types, the symptomatic and the idiopathic. It was felt that the former type resulted from either kidney disease or hypophyseal disease. Today the theories concerning its etiology are at least more numerous, if not more clear cut. The kidney is relieved entirely of responsibility. The following conditions have been advanced as etiologically responsible for this disease.

A. Idiopathic.
   No specific lesions can be found in this condition.
B. Symptomatic.
   1. Lesions of the hypophysis.
      a. Tumor.
         (1) Primary tumor.
         (2) Xanthrochromatosis.
         (3) Metastatic tumor (usually cancer).
      b. Cyst.
      c. Tuberculosis.
      d. Acromegaly.
   2. Dystrophia Adiposis Genitalis.
   3. Syphilitic Meningitis.
   4. Tumors of the hypothalamus.
      a. Corpora mammillaria.
      b. Optic chiasm.
      c. Tuber cinereum.
   5. Lesions of the infundibular region.
   6. Encephalitis.

Syphilis as a cause of this condition has, of course, been described. This disease, however, holds the unfortunate position of being blamed for most clinical phenomena when they are inexplicable on any other basis, and when the patient is unfortunate enough to have a positive Wassermann reaction. It seems significant, however, that syphilis as the cause of this condition (in some cases at least) was listed as such much more frequently in the earlier reports than at the present time, and it also seems significant that all reports and reviews agree that when the patient has a positive Wassermann reaction, and antisyphilitic treatment is instituted, and the Wassermann reaction is caused to become negative, in no case has an alleviation of symptoms

been noted. Thus while one feels that upon rare occasions syphilis might be the cause of this disease—certainly the older reports have exaggerated its prominence as an etiological factor.

The rôle of the hypophysis in this condition was unquestionably demonstrated by Cushing in his Shattuck lecture in 1913. However, the significance of the hypothalamus and infundibulum has been brought out more recently. Concerning the former, priority goes to Camus and Roussy, who in 1913, reported that they had been able to produce a transitory polyuria by puncturing the hypothalamus of dogs through the sphenoidal bone with a heated drill. They continued their experiments and in 1920 were able to produce conclusive evidence that the polyuria does not depend on a lesion of the pituitary. For indeed they were able to produce it in a dog from which the pituitary gland had been previously removed. Following the removal of the hypophysis there was a transitory polyuria of a few days. These investigators therefore, waited more than a month and after the polyuria had subsided and the output of the animal was consistently normal, the tuber cinereum was punctured, and a second polyuria produced. Bailey and Bremer, working in Cushing's laboratory verified these results. Helen Bourquin discovered the same phenomenon to be true when the corpora mammillaria were destroyed.

Futcher has reported a case of metastasis of a carcinoma of the lung to the infundibulum which produced a symptomatic diabetes insipidus. He suggests that although there may be certain centers in the hypothalamus regulating the water exchange in the body, "the evidence seems very strong that disturbance of the action of a diuretic—antidiuretic hormone produced in the posterior lobe of the pituitary is a very important factor in the etiology of the disease, possibly by sensitizing the centers, or by regulating their function". The first reference to infundibular tumors, however, is given by Newmark, in 1917 when he reported the case of a young boy who presented the symptoms of diabetes insipidus coupled with a tremendous desire for and tolerance of alcohol. He was watched very closely and several years later developed definite symptoms of brain tumor. Necropsy revealed a glioma infiltrating the infundibular region.

SYMPTOMATOLOGY

The essential symptoms of this condition are as follows:

1. Thirst.
2. Polydypsia.
3. Polyuria.
4. Anorexia.
5. Constipation.
6. Minimal perspiration.

Weir, Larson, and Rowntree in an excellent review and study of 15 of their own cases endeavored to determine explanations for the symptomatology. They were interested in determining first, whether the thirst or the polyuria preceded, and just what effect, thirst had upon the condition. In three of their cases, the onset of the disease was sudden, and thirst was the chief complaint. In two cases, the onset was with thirst but gradual. In the rest, the onset was too insidious to be certain of the sequence. They remind us first of Cannon's explanation of normal thirst on a basis of a local sensation resulting from a local dryness of the buccal mucous membranes, and due to a decreased secretion from the salivary glands, which in turn is dependent on the diminished supply of fluid furnished these glands by the body because of its depletion in water; and, the osmotic pressure of the blood remains unchanged, despite the deprivation of fluids in the tissues. Now thirst and dry mouth are complained of by all patients and to determine the effect of local sensation, they first cocainized the mucous membranes of the mouth and nasopharynx to a point of anaesthesia, but this failed to control the polydypsia. They then injected pilocarpin to increase the salivary flow—and while the amount of saliva was increased, it did not, in any way, control the patient's thirst or intake. It seemed, therefore, that the polydypsia was a result, and not a cause of the condition.

A determination of the status of the urinary tract is, of course, necessary to rule it out as a cause of this condition. An examination of the urine usually reveals the following:

1. An output of from 3 to 14 liters a day.
2. A specific gravity of 1.001 to 1.004.
3. Sugar—negative.
4. Albumin—may or may not be present.

5. Inosite is said to be present in quantities above the normal. However, very few investigators have made tests to determine the presence of this so-called "muscle sugar" and the fact that it is increased in several other conditions, renders it by no means a pathognomonic or diagnostic finding.

6. Renal function tests are normal.

7. Cystoscopic examination shows that the increased secretion of urine is bilateral and proportional from each kidney. The phenolsulphonephthalein appearance time is likewise normal in each kidney.

TREATMENT

For idiopathic diabetes insipidus the following drugs and procedures have been used, but with the exception of pituitrin they are of no avail.

1. Histamin has been given subcutaneously but produced no changes except in one case where there was some control of symptoms for three hours.

2. Spinal puncture—occasionally an observer has reported the use of spinal puncture with apparent benefit. Other individuals have found it to be useless. Five to 10 cc. of fluid are usually removed. Weir, Larson, and Rowntree tried this method in each of their 15 cases, removing both the prescribed amounts and larger amounts, but in not a single case was there a satisfactory result.

3. Antisyphilitic treatment as mentioned before shows no beneficial results even in cases where the Wassermann test was positive.

4. Restriction of fluids is a poor idea. It produces profound depressive changes in the patient, it is not curative, and only exaggerates existing conditions.

5. Atropin even in large doses is worthless.

6. Pituitrin produces definite alleviation of symptoms during its application. It can be used either subcutaneously or intranasaley. Let us digress for a moment and investigate its history. Schaefer and Herring in 1910, found that the extract of the posterior lobe of the pituitary produced an effect on the eliminating power of the kidneys. They found that it produced a diuresis, but failed to recognize that their work had been done on anaesthetized animals and that different results might have been obtained on a normal animal. Von der Velden, Farini, and Ceccaroni in 1913, each independently administered extract of the pituiary lobe to patients with diabetes insipidus

and obtained wonderful results of temporary value. The thirst, polyuria, and polydypsia were controlled. An effort to determine how pituitrin acted resulted in a large amount of experimental work. Animals were studied under normal conditions, after various amounts of water per unit of body weight, and after pituitrin. It was found in all cases that the subcutaneous administration of pituitary extract checks the production of a water diuresis, even in normal animals. It was thought by some, that the action might be through the splanchnic nerves. Therefore, a series of animals was used in which these nerves to both kidneys were sectioned. However, this series responded with a diuresis to water which was abolished by pituitary extract. Therefore, it is apparent that the influence of the pituitary extract is independent of nerve supply to the kidney and the mechanism involved in the control of diuresis by pituirin, is thus far not explainable. Whether the disease is produced by a hyper or hypo-function of the gland, is not known and supporters for each of these doctrines can be found in large numbers. Hoppe-Seyeler says, that "renal function in diabetes insipidus fails only by a little pituitrin of being normal". Among the more prominent theories concerning the action of pituitrin are the following:

1. That its absence produces an abnormal escape of fluid from the tissues to the circulating blood.

2. That it disturbs the relative ease with which water of the blood leaves the blood to form urine.

METABOLISM

1. Blood changes.
   a. Findings indicate dilution.
      (1) Total nitrogen and sodium chloride are decreased.
      (2) Blood volume and plasma volume are increased.
      (3) Changes in electrical conductivity—none.
2. Dietary changes.
   a. High protein diet produces slight increase in concentration of the urine.
   b. High salt diet produces the same effect.
3. Control of the intake of water produces only slight increase in concentration.

PROGNOSIS

1. Idiopathic.—No prophesies can be made concerning the outcome of this condition. It is certainly not fatal, it does not produce an asthenia, and other than the polyuria and polydypsia, does not incapacitate the patient. It usually persists throughout life though cases are reported where it terminates abruptly in a spontaneous cure.

2. Symptomatic.—The prognosis is usually serious, and is determined by the underlying conditions.

WATER INTOXICATION

In the course of their investigations Weir, Larson, and Rowntree came upon a phenomena which had hitherto been unnoticed. During the course of treatment, they asked one of their patients, who had been given pituitrin to continue drinking his usual quantity of water. He did so but soon developed a severe headache, nausea, puffiness of the eyelids, edema of the ankles, and ataxia. He went to bed, abstained from drinking water for a while, and was promptly relieved. Feeling that this phenomenon might have been due to the pituitrin, these investigators gave a number of dogs frequent large doses of pituitrin. However, the dogs showed only drowsiness, slowing of the pulse, and sleep. Feeling, therefore, that these effects could not have been produced by pituitrin, they gave another series of dogs a small amount of pituitrin (to inhibit diuresis) and through a stomach tube administered large amounts of water. The following effects were noticed in order:

1. Asthenia, restlessness, frequent attempts at urination, diarrhea, and vomiting.
2. Tremor and salivation.
3. Drowsiness, muscular twitchings, and ataxia.
4. Convulsions.
5. Coma.
6. Death.

Autopsy showed (1) early onset of rigor mortis, and (2) no gross lesions.

The toxic effects of water are thus amply shown. These experiments were repeated in animals whose renal nerves had been sectioned, and the same effects observed. In this connection, it is interesting to note that in the Lancet of 1904, Carter reports a case of acute

diabetes insipidus complicated by coma. In view of Rowntree's work, a review of this case causes one to feel that an explanation on the basis of water intoxication might be feasible.

This case-report is that of a boy, 6 years of age, who was admitted to the Pediatric service.

FAMILY HISTORY—Mother and father are living and well. The grandparents died of natural causes. There is one sister age 4 years, who is quite normal. There is no family history of diabetes insipidus, tuberculosis, or cancer. Both parents deny venereal infection. There have been no miscarriages.

PAST HISTORY—This child was delivered spontaneously, after a nine months' gestation. The mother had no toxemia. The birth was neither very rapid nor very slow, and the child showed no abnormalities. His infancy was uneventful. He was breast fed at first, and put on cow's milk at eight months. At one year, the child had measles, chicken pox, and mumps. He had never had pneumonia, diphtheria, whooping cough, chorea, or rheumatism. Four years ago, a dentigerous cyst was removed from the lower left jaw by Dr. C. R. Edwards. Three months later, he had a strangulated hernia. One year ago, his jaw was again operated on for dentigerous cyst, which had apparently recurred, and in October, 1930, his tonsils and adenoids were removed.

He was always a very alert child, active, learned to talk and walk at the usual ages, and presented no peculiarities.

A review of his systems reveals nothing remarkable. Prior to the onset of the present illness he was not subjected to frequent respiratory infections, his gastro-intestinal tract was negative, there was no constipation, and his genito-urinary tract was apparently normal.

PRESENT ILLNESS—The mother states that the onset of his present illness was insidious, but probably began in December, 1930. He had a slight amount of polyuria and polydypsia, but with the onset of the warm weather, this summer past, the thirst, polyuria, and polydypsia became extremely marked, and he imbibed copious quantities of fluids. It was also noted that his perspiration was not great, and that he became constipated. His appetite had become considerably poorer, and he had failed to gain weight.

PHYSICAL EXAMINATION—In an endeavor not to unnecessarily lengthen the discussion by recounting the routine physical examinations, I shall not mention negative findings, and merely say that this child has been thoroughly examined, both physically and neurologically, and no positive findings have been observed.

COURSE IN HOSPITAL—The temperature has not been very striking, although for several times it has reached and maintained the level of 100 degrees. The pulse rate has been quite constant between 90° and 100°. The respirations have been constant at 24.

X-RAY STUDIES—"Roentgen examination of the skull shows a medium sized sella, normal in outline. No evidence of intracranial pathology."

"Roentgen examination of the inferior maxilla shows that there has been a marked regeneration of bone in the region of the cyst, on the left side, and the bone presents a healthy appearance, at the present time."

"Roentgen examination of the chest shows the lung field clear. There is some increase in the root shadows."

"The sinuses are clear. There is no focus of infection."

BLOOD EXAMINATION—

1. Red blood count, 5,000,000 (the average of 8 readings).
2. White blood count, 5,000 to 9,000.
3. Hemoglobin, 90%.
4. Differential count: Polymorphonuclears, 70%; lymphocytes, 26%; mononuclears, 4%.
5. Wassermann reaction: Negative.
6. Stool: Negative.
7. Urine: The urine has always been extremely pale, but has never showed any albumin, casts, sugar, red blood cells or white blood cells. More will be said of its specific gravity later.
8. Renal function tests: Phenolsulphonephthalein, 75%.
9. Basil metabolic rate: Plus 38.
10. Glucose tolerance test:

Fasting	75 mgs.
½ hour	114 mgs.
1 hour	114 mgs.
2 hours	93 mgs.
3 hours	87 mgs.

METABOLIC STUDIES—During his entire stay in the hospital, close check was taken of the intake and output, and the following experiments were performed:

1. Fluids were limited to 1000 c.c. The output for that day was 1675 c.c. The specific gravity of this urine was 1.008. However, the child was extremely uncomfortable, complained of tremendous thirst, and presented the most avid, longing for water.
2. On restricted diet, and unrestricted fluids, his average intake was 5800 c.c.; average output, 6000 c.c. The specific gravity was 1.001.
3. Diet: Salt poor, pituitrin ½ c.c. Duration of test, 8 days. Average intake, 1400 c.c. Average output, 1500 c.c. Specific gravity, 1.003.
4. Diet: Protein, 75 grams, salt poor. Duration, 4 days. Revealed no diminution in intake or output, no concentration of the urine.
5. Diet: Protein, 25 grams; salt, 4 grams. Duration, 4 days. Revealed no diminution in intake or output, increased thirst. Specific gravity, 1.008.
6. Over a five day period, on unlimited fluids, and normal diet, the following test was performed:

		Urine			Plasma		Blood				
Date	Intake	Output	Sp. gr.	Tot. N.	NaCl	Tot. N.	N.P.N.	Uric Acid	Sugar	Cl.	Remarks
12/12	5800	6600	1.003	3.5	380	1.15	23	2.1	78	290	Control
12/13	7050	5200	1.004	3.08	370	1.07	21	2.1	82	295	Control
12/14	6000	4000	1.004	3.2	360	1.0	21	2.2	78	290	Pituitrin
12/15	6000	6200	1.003	4.0	370	1.25	21	2.1	77	305	Control
12/16	6400	6900	1.003	4.7	360	1.017	22	1.9	66	295	Control

It is interesting to observe from these studies, that the entire blood study reveals evidences of dilution, while the total nitrogen secreted in the urine shows a definite diminution in amount.

It perhaps would be well to recall the normal figures for various tests which were performed. They are as follows:

1. Urine—amount 1500 to 1800 c.c.
   specific gravity 1.015 to 1.025
   total nitrogen 12 to 18 grams

2. Blood—Non-Protein Nitrogen 25 to 38 mgm. per 100 c.c.
   uric acid 2 to 4 mgm. per 100 c.c.
   chlorides 450 to 500 mgm. per 100 c.c.
   total nitrogen .96 to 1.28 mgm. per 100 c.c.
   sugar 80 to 100 mgm. per 100 c.c.

This case, therefore, seems to be one of diabetes insipidus of the idopathic type, in which the intake and output can be controlled favorably by repeated doses of pituitrin, but not by single doses. It might be argued by some that this might be a case of symptomatic diabetes in which the dentigerous cyst had undergone malignant degeneration, and a cerebral metastasis has produced the changes. This does not seem to be so; for, in the first place, the X-ray evidence of the jaw is unfavorable to such a supposition; secondly, one would expect to find metastasis in the regional lymph nodes; and thirdly, the sella turcica should show some enlargement. The changes that we have shown through our various dietary experiments are not striking, but are quite in accord with the results noted by other investigators.

Thus it seems that diabetes insipidus is a condition which leaves the individual with an impaired apparatus for the equilibration of water metabolism, but in no other way alters his mode of life. It can be readily controlled, however, and might well be considered a physiological curiosity of the first order.

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THE MEDICAL ALUMNI ASSOCIATION, UNIVERSITY OF MARYLAND

MESSAGE OF THE PRESIDENT

By Albert E. Goldstein, M.D.,
Baltimore, Md.

My message to the Alumni as president of the Alumni Association was purposely delayed. I felt I would be better qualified to perform this duty at the completion of my term. I have had the advantage over other presidents in that I was chairman of the board of directors for a year prior to my election as president. From this, one can readily observe that an opportunity presented itself to me for the past two years to visualize conditions more advantageously than my predecessors.

To those who are not familiar with the facts, mention might be made here of the tremendous indebtedness that existed in the Alumni Association upon my election as an officer two years ago. This indebtedness was to the extent of over $50,000. It has been a difficult task to reduce this, but I am happy to deliver to you the message that it has been reduced to about $23,000. This was only made possible by the untiring efforts of eight other reliable, high spirited board of directors.

Our institution as an Alumni Association is no longer conducted at a loss, but in spite of these times of depression we are now on a firm footing.

Unfortunately the work of our Alumni Association falls upon a hand full of men, most of whom are local. In our particular instance little support has been obtained from the majority of graduates who remained as local residents. Relative to the out of town graduates, I regret to state that in the great majority of cases very little assistance was obtained. The feeling of no concern or obligation to the Alma Mater existed after graduation. This was not only from a financial standpoint but from one of spirit and loyalty.

It is usually said that a university or college is as strong as its alumni. There is no argument to this, as it is the truth. Accordingly, the University of Maryland School of Medicine cannot be very strong for its Alumni Association has not been very strong (with the exception of a small group) from a standpoint of finance, spirit, loyalty or

active membership. This is very tragic as we have over six thousand graduates in medicine. We not only possess numbers of graduates, but men of calibre and in many instances, while proportionately small, graduates who have stood out in medicine.

The Alumni Association has never been as active as it has in the past ten years. In the past two years keen interest has been taken by a much larger group, but still small, particularly by those who are acting as board of directors.

Four conditions are essential to be a good alumnus, which ultimately goes to make up a good alumni association and in turn gives the university proper and legitimate publicity. They are active membership, spirit, loyalty and finally a desire to train oneself and particularly to train other graduates, so that they may occupy creditable positions in their own or other universities as the call may arise.

Without active membership you do not voice your opinion which is essential. Unadulterated spirit to the Alma Mater is of extreme importance. This to date is lacking to a great extent by our graduates when they once depart from the school and in many instances at school. These are unfortunate facts that I am compelled to report to you at this time. Certainly, there must be a plausible explanation for conditions of this kind, but to date I have heard none.

A tremendous number of graduates have been sent out to practice medicine in one field or another in the past one hundred and twenty-five years. The calibre of the men leaving is better each year. In the past decade, the men graduated from the medical school have been trained as well as any institution could train them. In spite of this, comparatively few have become very prominent, very few have entered the field of real scientific or investigative medicine and still a smaller number have been trained as teachers or trained to occupy positions that would be a credit to the institution. The policy undoubtedly has been in the past to send forth practising physicians and while it is not for me to change the policy, I believe I speak in behalf of a large number of alumni, that in order for our alumni and our university to receive the same recognition which we deserve and that others receive, we should, as alumni make every effort to have more than practising physicians sent forth from our Alma Mater.

In every graduating class especially today, there are always a few who are desirous of following along the field of investigation or re-

search or who seem to have the possibilities of a good teacher or of being developed into a good clinician either medical or surgical.

It is my contention that one, two or three graduates of each class should be kept where ability is demonstrated, and trained so they may be fitted to occupy positions when the opportunity presents at other institutions or our own Alma Mater. In this manner the university will receive the recognition it deserves and each alumnus will not only be proud of their classmates but of the institution. Alumni who are desirous of making an effort should be given an opportunity and vice versa, I am personally in favor of discarding the undesirables. As well as opportunity knocks at the door of each individual, so it knocks at the door of your university. We have an opportunity at present and I am personally appealing for your cooperation and loyalty as an alumnus to assist in making it a bigger and better university.

We are going to celebrate this June our one hundred twenty-fifth anniversary. I hope and trust we will have a large return of graduates to help in the celebration. Many reunions are going to be held with many important events taking place. After all is said and done, it is your university as well as mine and in spite of everything we love it and are going to be loyal to the end.

ANNOUNCEMENT

University of Maryland, Division of Medical Extension

A Combined Review Course for Physicians

June 6th—June 24th, 1932

During three weeks of June, 1932, the Division of Medical Extension of the University of Maryland will offer its ninth annual review course for physicians. This is a single, intensive, general course, which will last only three weeks. It is designed primarily to give the physician in general practice the opportunity of studying those methods of diagnosis and of treatment which are in current use in the University Clinics. By careful use of the short period of time available a wide range of subjects is briefly presented. The greater part of the course is devoted to general medicine, but surgery and the various specialties are also included.

Information:

Questions concerning the course may be addressed to the Dean of the Medical School, University of Maryland, Baltimore.

Requirements for Admission:

The applicant must be a registered physician in good standing. Preference will be given to physicians registered in Maryland.

Enrollment:

The course this year will be limited to twenty men. It is suggested that applications be made promptly as the course will be filled up in the order that applications are received. Address: Dean of the Medical School, University of Maryland, Baltimore.

Fees and Tuition:

A matriculation fee of $25.00 will be charged to all registrants from Maryland. For those coming from other states a charge of $50.00 will be made.

Registration and Matriculation:

Monday, June 6, 1932, 8.30 A. M., northeast corner Lombard and Greene Streets, Baltimore.

Daily Schedule:

8.00-10.00—Lectures.

10.00-11.30—Ward Rounds.

11.30-12.30—Clinic.

12.30- 1.30—Lunch.

1.30- 2.30—Dispensary Clinic.

3.00- 4.30—Laboratory and Therapeutic Procedures, X-Ray and Electrocardiography.

Lectures:

The morning lectures will deal with modern advances in diagnosis and treatment. The subjects will be chiefly from the field of general medicine and surgery with a few lectures devoted to the specialties.

Ward Rounds:

The class will be divided into groups for ward rounds and will visit the ward patients on the medical, surgical, and special services, in the University, Mercy and City Hospitals.

Clinics:

There will be a daily clinic in the Amphitheatre of the University Hospital. These clinics will be given by different departments.

Dispensary Clinics:

The class will be assigned in groups in rotation to the Dispensary Clinics for pediatrics, genito-urinary diseases, syphilis, and gastro-intestinal diseases.

Laboratory, Therapeutic Procedures, Roentgen Diagnosis, Electrocardiography:

In these afternoon periods instruction will be given in the laboratory methods of diagnosis. Modern functional tests such as those employed in diseases of the kidneys and of the liver will be demonstrated. The technique of, and the indications for the use of such procedures as transfusions, venesection, infusion, and spinal puncture will be taken up, and demonstrated when possible. There will be a number of periods devoted to X-Ray diagnosis. Electrocardiography and the interpretation of electrocardiograms will be briefly presented.

BULLETIN

OF THE

SCHOOL OF MEDICINE UNIVERSITY OF MARYLAND

Board of Editors

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THE ONE HUNDRED AND TWENTY-FIFTH JUBILEE

This year marks the 125th anniversary of the founding of the University of Maryland. The Bulletin is informed that the Board of Regents and Faculties of the several Schools are making arrangements to celebrate the occasion during Commencement Week with appropriate ceremonies. For the convenience of the medical alumni who contemplate attending the celebration, a preliminary program of events is published elsewhere in this issue. More specific information cannot be given at this time.

The following facts in connection with the history of the University may be of interest to our readers:

The College of Medicine of Maryland, the present School of Medicine, was granted its charter by the Legislature on December 18, 1807, and conferred the first degrees on five candidates in 1810. Those named in the bill of incorporation as the first faculty were: John B. Davidge, M. D., and James Cocke, M. D., joint professors of anatomy, surgery and physiology; George Brown, M. D., professor of the theory and practice of medicine; John Shaw, professor of materia medica; and William Donaldson, professor of the institute of medicine. Cordell in his History of the University of Maryland states that the College sprang from a course of lectures begun by Dr. John Beale Davidge, in 1802, to a private class of pupils. These lectures were continued annually until merged into the course of the College.

The School of Medicine ranks fifth in point of age among the medical schools of the United States, being preceded by the Univer-

sity of Pennsylvania (1765); Harvard (1782); Dartmouth (1798); and the College of Physicians and Surgeons of New York (1807).

In 1812, the College of Medicine was empowered by Act of Legislature to annex Faculties of Law, Theology and Sciences and to assume the title of University of Maryland. It is said to be the eighth chartered University in this country. The seven antedating it are: Harvard (1780); Georgia (1785); Brown (1785); North Carolina (1789); Pennsylvania (1791); Vermont (1791); Ohio (1804).

The fine old University Building was begun in April, 1811, on ground bought from Colonel John Eager Howard. The Faculty expected that it would be ready for occupancy at the opening of the session of 1812-1813. Although this hope was not realized, it was so far advanced as to be partially tenable during that session, and some of the lectures were given in it. The money for the purchase of the ground and for the erection of the edifice was raised by lottery. It is the oldest medical school building in the United States.

The University Hospital, long known as the Baltimore Infirmary, was opened for the reception of patients on September 20, 1823, with four wards and two resident students.

The University was one of the first institutions in this country to organize special courses of clinical instruction and to recognize gynecology as a separate branch of instruction. It was the second school in America to make practical anatomy compulsory.

The Greene Street wing of the Hospital was built in 1874. The Dental Department was established in 1882; the Lying-in Hospital in 1887, and the Training School for Nurses in 1889.

Old Practice Hall, now known as Gray Laboratory, was built in 1825 and rebuilt in 1893. Its immediate destruction by fire necessitated a second rebuilding.

The present University Hospital was erected in 1896 and the old Dental Building, now used as a pathological laboratory by the Medical School, in 1893. The Maryland College of Pharmacy was acquired in 1893, as the department of pharmacy. The Dental and Pharmaceutical Departments and the University Hospital Training School for Nurses were erected into independent schools in 1920.

In 1920, the University of Maryland by Act of Legislature was amalgamated with the Maryland State College of Agriculture, located

at College Park, Maryland. The institution is now a State University in fact as well as in name.

In 1913, the Baltimore Medical College was merged with the Medical School and in 1915, the College of Physicians and Surgeons of Baltimore.

The alumni have great reasons to be proud of what has been done by the University on slim resources. The endowments are small. The improvements of the physical conditions and the acquisition of property, until recent years, have been with money saved from students' fees.

The University approaches its one hundred and twenty-fifth jubilee with confidence in its future success. It is in better physical condition than it has ever been to meet its obligations both to the public and its pupils. Ere long the new University of Maryland Hospital will be under construction. During the past ten years, new dental, pharmacy, law and nurses buildings have been erected.

The University authorities hope that a large number of alumni will return for the commemorative exercises. Everything will be done to make the homecoming profitable as well as pleasurable. Show your loyalty by your presence.

JOHN B. DAVIDGE, M.D.

THE ENDOWMENT FUNDS

The attention of our alumni and friends is again called to the dire necessity of an adequate endowment fund for the Medical School. The best effort of every department is being cramped by the lack of sufficient money. Legacies are, of course, welcome, but present day gifts will bring immediate results.

The Board of Trustees of the Endowment Funds reports for the fiscal year ending December 31, 1931, as follows:

	Invested	*Cash*	*Total*
Faculty of Physic Fund	$56,644.93	$1,028.04	$57,672.97
General Endowment Fund	19,353.70	1,060.97	20,414.67
Katherine Gibson Fund	2,556.99	954.60	3,511.59
Chas. M. Hitchcock Fund	5,000.00	284.21	5,284.21
Leo Karlinsky Fund	3,000.00	366.12	3,666.12
Leon Frank Fund	2,466.56	399.83	2,866.39
Randolph Winslow Fund	2,500.00	88.32	2,588.32
David Street Fund	350.00	741.61	1,091.61
Burt J. Asper Fund	.....	261.07	261.07
D. A. R. Fund	945.00	770.26	1,715.26
Chas. Frick Research Fund	500.00	901.80	1,401.80
J. C. Hemmeter Fund	9,719.87	937.05	10,656.92
Law Fund	.....	254.26	254.26
Pharmacy Fund	.....	68.77	68.77
Dental Fund	.....	36.07	36.07
L. S. Ashman Fund	.....	191.48	191.48
Julius Friedenwald Fund	11,978.29	157.18	12,135.47
I. & C. Cohen Fund	4,920.14	386.29	5,306.43
German H. H. Emory Fund	.....	634.22	634.22
J. M. H. Rowland Fund	5,568.95	941.34	6,510.29
E. & L. M. Zimmerman Fund	1,003.47	32.07	1,035.54
A. Bradley Gaither Fund	.....	545.69	545.69
Caroline Dorsey Coale Fund	2,250.00	66.47	2,316.47
Jos. W. Holland Fund	.....	14.42	14.42
John F. B. Weaver Fund	77,845.00	3,002.71	80,847.71
	$206,602.90	$14,124.85	$220,727.75

Total of all funds December 31, 1931 ..... $220,727.75
Total of all funds December 31, 1930 ..... 134,653.06

Increase for 1931 ..... $86,074.69

PROCEEDINGS

OF THE

University of Maryland Biological Society

Officers of the Society

Harvey G. Beck, President — John C. Krantz, Jr., Secretary

O. G. Harne, Treasurer

C. O. Appleman, W. H. Schultz, Eduard Uhlenhuth, C. C. Plitt, Councillors

The University of Maryland Biological Society held its Thirty-third Program Meeting Tuesday, December 15, 1931, in the Chemical Amphitheatre, School of Medicine, University of Maryland.

Ruth Musser, A.B., M.S. of the Department of Pharmacology of the University of Maryland Medical School presented a paper entitled "Relation between the Degree of Oxidation of Adrenalin and its Physiological Activity and Colorimetric Determination." Mrs. Musser presented evidence to show the various stages of the oxidation of adrenalin solution by biological and chemical methods. Her work indicated that the biological assay of the oxidized adrenalin solution paralleled the chemical test.

A second paper was presented by Margarethe Oakley, A.B. of the Bureau of Chemistry of the Maryland State Department of Health. The subject of Mrs. Oakley's paper was "A Study of the Relationship between Acid Taste and Hydrogen-ion Concentration as Related to Solution of Magnesium Citrate." In this paper, Mrs. Oakley presented a comprehensive physiochemical study of Solution of Magnesium Citrate, and pointed out the interesting relationship between acid taste and hydrogen-ion concentration. Essentially, it was shown that the presence of a buffer salt in an acid solution materially enhances the acid taste of the product.

The Thirty-fourth Program Meeting of the University of Maryland Biological Society was held Thursday, January 21, 1932, in the Chemical Amphitheatre, School of Medicine, University of Maryland. The guest speaker of the evening was E. V. McCollum, Ph.D., D.Sc. of the Department of Biochemistry of the Johns Hopkins University School of Hygiene and Public Health. The subject of Dr. McCollum's talk was "Recent Advances in the Science of Nutrition." Dr. McCollum reviewed the various discoveries that have emanated from his laboratory, and from other laboratories related to the science of nutrition, particularly to the isolation of the several

vitamins. In addition, Dr. McCollum covered in a very comprehensive way the discovery of the essential characters of certain metallic constituents in foods, particularly manganese. Of special interest was the discussion that Dr. McCollum pointed out regarding the calcium-phosphorus ratio in a diet, and its relation to dental caries.

This meeting was especially well attended by many visitors from the Johns Hopkins University and nurses from the various hospitals in the city.

The Thirty-fifth Program Meeting of the University of Maryland Biological Society was held Tuesday, February 16, at 8.30 P. M. in the Chemical Amphitheatre of the University of Maryland. The meeting was presided over by Dr. Uhlenhuth in the absence of President Beck. The paper presented to the meeting was "A Study of Spontaneous Activity in the Excised Uterus of the Rat, Its Volume Displacement and Irritability to Pituitrin, with Reference to the Oestrous Cycle," by O. G. Harne an abstract of this important work follows:

A STUDY OF SPONTANEOUS ACTIVITY IN THE EXCISED UTERUS OF THE RAT, ITS VOLUME DISPLACEMENT AND IRRITABILITY TO PITUITRIN WITH REFERENCE TO THE OESTROUS CYCLE.*

By O. G. Harne,

An improved method and new apparatus are described for the study of the excised uterus of the rat. Two types of spontaneous contractions (maximal and submaximal) which show a definite relationship to the stages of the oestrous cycle are found. By treating the horns exhibiting submaximal responses (found in stages Late V, I, and Early II) with minute doses of pituitrin "O" (.00125 to .005 cc.) they pass rapidly into the active stages (Late II, III, IV, and Early V) exhibiting only maximal responses. If, however, horns in the active stages are treated with pituitrin, the rate of contraction and tonus are increased.

The irritability of the horns to pituitrin is not constant for all stages of the cycle. Something, exerting an influence upon this irritability, accompanies the cyclic changes. This substance has not yet been isolated.

The volume displacement of uterine horns is known to vary. This volume change does not, however, account for either the variable response to pituitrin or the varying degrees of spontaneous activity observed in normal tissue. The latter are studied from the stand-point of tissue manipulation. The apparatus was adapted for ligating end-portions of the horns during the course of experimentation. When the tubal end (proximal) was tied, spontaneous activity was altered in type and rate, while ligation of the distal end reduced the activity only in proportion to the amount of contractile tissue involved. Thus the regulating influence of the tubal end is suggested and inconsistencies of response attributed to unequal treatment, and not to tissue variations. These studies also force the conclusion that there exists some substance, the function of which results in volume changes in the uterus and bears a definite relation to pituitrin action. The presence of this substance inhibits the uterus but lowers the threshold of stimulation for pituitrin, and vice versa.

* *From the Department of Physiology, University of Maryland.*

ALUMNI ASSOCIATION SECTION

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The names listed above are our officers for the term beginning July 1, 1931, and ending June 30, 1932.

KEEP THE LIBRARY IN MIND

When discarding old journals, either bound or unbound, books, reprints, etc., keep the library of the University of Maryland in mind. All of this material can be utilized. The journals help to fill up broken sets. The books may not be on the shelves or they may serve to replace worn out volumes. We are especially anxious for reprints written by our alumni. These are being preserved in separate files and as sufficient are collected they will be bound. Volumes of historic interest are particularly welcome. We take this opportunity to thank those who have loaned the library their support and bespeak their continued interest. The library hours are 9 a. m. to 10 p. m. daily. Alumni and friends are accorded the privileges of its shelves. Attendants are always present and will do everything within their power to make the visitor feel at home.

THE CARD PARTY

The University of Maryland Medical Alumni Association held a very enjoyable and successful card party on Tuesday, January 26,

1932, at the Alcazar, Cathedral and Madison Streets, Baltimore, Md. The purpose of the affair was to bring together the alumni and their friends. There was a prize for each table as well as many door prizes. Many of the members of the Woman's Auxiliary Board of the University Hospital graced the occasion and loaned their assistance in various capacities. Their help is gratefully appreciated. An attractive feature of the evening was the bevy of pretty nurses and other young ladies who sold candies to the players. More than 800 persons attended the benefit which netted about $875.00. This money was applied towards reducing the mortgage on the Alumni house. Dr. William Houston Toulson was the chairman of arrangements. Many of those present expressed the hope that the party would be made an annual activity.

ITEMS

Dr. George Conrad Halley, of Twin Falls, Idaho, class of 1922, has been taking a course in the Public Health School, Johns Hopkins University.

Dr. Welch England, class of 1926, is a student in the Graduate School of the University of Pennsylvania.

Dr. J. King B. E. Seegar, Baltimore, Md., B. M. C., class of 1900, has removed his offices to 2 West Read Street.

Dr. J. M. Hundley, Jr., Associate in Gynecology, has returned from a prolonged stay in Europe, where he did investigative work in the laboratories of Professor Robert Schroeder at the University of Kiel and of Professor Robert Meyer at the University of Berlin. He has resumed his duties at the University.

Dr. Hugh Warren Brent, Baltimore, Md., class of 1903, is convalescing from an operation for the removal of a tumor from the facial nerve.

Dr. Arthur M. Shipley, Baltimore, Md., class of 1902, who has been a patient in the University Hospital, has sufficiently recovered to resume his duties.

WEDDING

Ann Elizabeth Butts, R. N., Baltimore, Md., University of Maryland Training School for Nurses, class of 1913, was married February 29, 1932, to Mr. Osborne Lewis Grimstead.

DEATHS

Dr. William Edgar Anderson, Englishtown, N. J.; B. M. C., class of 1898; for 16 years a member of the board of education; aged 64; died, December 4, 1931, of cardiac disease.

Dr. Albert James Baker, Duryea, Pa.; B. M. C., class of 1895; aged 66; died, December 18, 1931, of cerebral hemorrhage and cardiac disease.

Dr. John Leo Batterton, Forty Fort, Pa.; B. M. C., class of 1893; aged 62; died, February 18, 1932, of angina pectoris.

Helen Beachley, nee Morgart, R. N., Hagerstown, Md.; University of Maryland Training School for Nurses, class of 1924; died, April 7, 1932. She was the wife of Dr. Jack Henson Beachley, University of Maryland, class of 1926.

Dr. Archibald Merritt Burt, Mannington, W. Va.; P. & S., class of 1904; aged 50; died, December 15, 1931, of cerebral tumor.

Dr. Roscoe C. Carnal, Ormel, N. Y.; class of 1905; aged 49; died, January 13, 1932, of an injury received in a fall from a second story window.

Dr. Maclane Cawood, Owensville, Md.; class of 1902; aged 51; died, February 29, 1932, of cardiac disease.

Dr. Jeremiah Black Clayton, Corning, Calif.; class of 1893; colonel, U. S. Army, Medical Corps, retired; entered the army as an assistant surgeon in 1897, and was promoted through the various grades to that of Colonel in 1917, was retired in 1930 for disability in line of duty; aged 59; died, February 2, 1932, of chronic endocarditis and bronchopneumonia.

Dr. John Eldon Corbin, Clarksburg, W. Va.; P. & S., class of 1907; served during the World War; formerly secretary of the Harrison County Medical Society; aged 51; died, December 16, 1931, of influenza.

Dr. Lester L. Cox, Locust Valley, N. Y.; P. & S., class of 1887; aged 70; died, December 6, 1931, of asthma and hepatic cirrhosis.

Miss Emma J. Daly, R. N., Baltimore, Md.; University of Maryland School for Nurses, class of 1893; died, February 22, 1932.

Dr. James Edward Deets, Clarksburg, Md.; class of 1882; past president of the Medical and Chirurgical Faculty of Maryland; past president of the Montgomery County Medical Society; formerly member of the state legislature; past president board of education; aged 75; died, December 2, 1931.

Dr. Ezekiel Grant Dilworth, New York, N. Y.; B. M. C., class of 1895; aged 68; died, February 11, 1932, of coronary thrombosis.

Dr. Walter E. Edwards, Polk City, Fla.; B. M. C., class of 1896; aged 63; died, January 8, 1932, of hypostatic pneumonia, cerebral hemorrhage and arteriosclerosis.

Dr. Truman E. Fairall, Tecumseh, Neb.; class of 1873; aged 83; died, January 31, 1932, of a fractured hip received in a fall. Mrs. Fairall writes that Dr. Fairall was well and in active practice at the time of his accident. He had been located in Tecumseh for nearly 35 years. She will be pleased to hear from any of his class-mates.

Dr. Robert Cornelius Fleming, Louisville, Ky.; P. & S., class of 1900; served during the World War; aged 54; died, February 11, 1932, of cardiac disease.

Dr. Howard Winslow Gibbs, Scranton, Pa.; B. M. C., class of 1913; served during the World War; aged 44; died, January 30, 1932, of carcinoma.

Dr. Charles Sleeper Gilman, Lakeport, N. H.; B. M. C., class of 1896; member of the American Proctologic Society; aged 58; died, January 20, 1932, of gallstones and cholecystitis.

DR. JAMES ELIJAH GOETHE, Jacksonville, Fla.; B. M. C., class of 1892; aged 77; died, February 1, 1932, of cerebral hemorrhage.

DR. ALFRED GRIFFITH, McAlester, Okla.; class of 1866; Civil War veteran; aged 87; died, in November, 1931.

DR. FLAVIUS E. HARTSELL, Oakboro, N. C.; B. M. C., class of 1895; aged 62; died, February 14, 1932, of encephalitis.

DR. DAVID EDWARD HOAG, New York, N. Y.; class of 1896; clinical professor of neurology, University and Bellevue Hospital Medical College, and the New York Polyclinic Medical School and Hospital; served during the World War; aged 63; died, January 20, 1932, of pneumonia.

DR. WILLIAM ZELLARS HOLLIDAY, Atlanta Ga.; class of 1882; past president of the Medical Society of Georgia; formerly professor of pediatrics and dietetics, Medical College of Georgia, Augusta; aged 72; died, February 20, 1932, of arteriosclerosis.

DR. JAMES LEE HOPKINS, Havre de Grace, Md.; class of 1897; aged 59; died, March 28, 1932.

DR. JOHN MILLER HYSON, Red Lion, Pa.; P. & S., class of 1875; aged 81; died October 24, 1931, of pneumonia.

DR. LISTON B. JOHNSON, Georgetown, S. C.; B. M. C., class of 1897; aged 57; died January 2, 1932, of pneumonia.

DR. ELMER ELLSWORTH LANGLEY, Los Angeles, Calif.; B. M. C., class of 1905; member of the Pacific Coast Oto-Ophthalmological Society; aged 50; died, November 12, 1931.

DR. JAMES H. A. LOFLAND, Melfa, Va.; P. & S., class of 1876; aged 82; died, February 29, 1932, of uremia consecutive to an injury of the femur received in a fall.

DR. ROBERT C. MEADE, Castlewood, Va.; P. & S., class of 1892; aged 64; died, October 10, 1931, of cerebral hemorrhage.

IN MEMORIAM

Doctor Robert C. Meade was born in Russell County, Virginia, September 13, 1867, and died of cerebral hemorrhage, October 10, 1931. He was the son of Reeves Meade and Nancy Gose. His early youth was spent at his pleasant country home where he worked on the farm and in his father's store. He taught school at the age of seventeen.

Before entering the medical profession, he served in the capacity of both surveyor and salesman. He helped survey the Norfolk and Western Railroad between Norton and Bluefield. Just before he entered Medical College, he sold fruit trees in the mountains of Virginia and West Virginia.

Doctor Meade graduated with honors from College of Physicians and Surgeons, Baltimore, 1892. He began to quickly build up a successful practice which steadily grew with the faithful service he gave all over his native country.

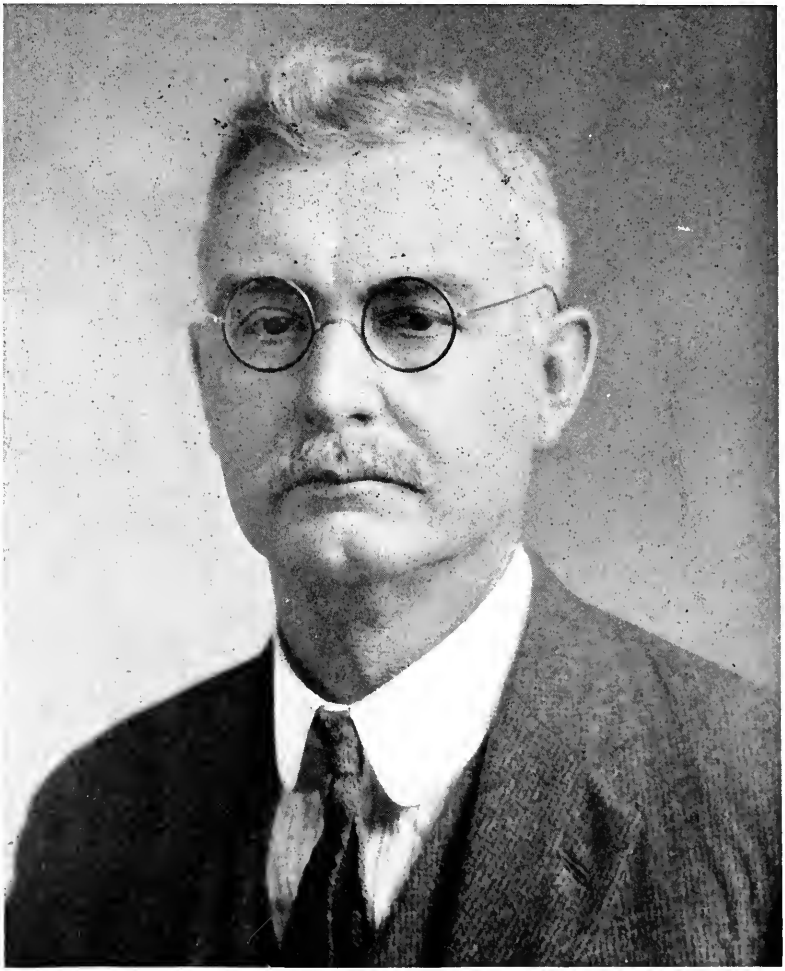
Doctor Meade was married on January 6, 1904, to Jennie Williams. Two children survive to mourn the loss of their beloved father, Robert C. Meade, Jr. and Thelma Meade, both of Castlewood, Virginia.

Not only was Dr. Meade a highly capable physician, but an honored citizen as well. He was active in politics, he gave generously to schools, churches, and charitable organizations. He was beloved by every one with whom he came in contact and his passing has left a great void in the hearts of his many friends. It has been truly said since he left us "The poor man's Doctor is gone".

The most appealing part of his career to me was his love for the medical profession, having started as a country Doctor in the days when the only mode of travel was walking and horseback riding. In later years, when the opportunity to leave the country to enter a city hospital, presented itself he declined, saying that he preferred to remain in the mountains of southwest Virginia with the people he loved. "He lived in the morning sunlight, and marched in the ranks of the right. He was always true to the best he knew and the shield that he wore was bright."

Dr. Meade had a forceful and magnetic personality. His many friends always found him happy and entertaining, not only in recounting his varied experiences but also because of the keenness of presentation of topics of discussion and clearness of expression of his opinions. He was always considerate of the opinions of others, but fearless to stand alone, if he felt he was right. He stood to the sternest trials as only a brave man can.

Children and old people were an especial delight of Dr. Meade. He was a great lover of boys and constantly had one for his companion. They loved to



DR. ROBERT C. MEADE

flock at his beautiful home, when he was there, to amuse him. Many a boy misses the companionship of his dearly beloved friend.

He died at the post of the duty. The day of his death had been an unusually busy one and he left this world blessed with the peace of having served his people well.

Green be the turf above thee,
Friend of our better days,
None knew thee but to love thee,
Nor named thee but to praise.

B. C. WHITE, Castlewood, Va.

DR. PETER MCLEAN, Laurinburg, N. C.; class of 1906; aged 51; died, March 22, 1932, of pneumonia. Dr. McLean was a grandson of Dr. Angus McLean, pioneer physician and one of the first McLeans of Scotland and Robeson County, N. C., also a grandson of Dr. Archibald Patterson, a prominent physician of Scotland County. He attended Davidson College and the University of North Carolina before entering the School of Medicine, University of Maryland.

DR. LARKIN B. MILLER, Dallas, Tex.; P. & S., class of 1891; aged 63; died, October 19, 1931, of chronic nephritis, and hypertrophy and dilatation of the heart.

DR. SYLVAN MCELROY, of Orlando, Fla.; class of 1907; city health officer; aged 48; died suddenly, January 1, 1932.

DR. ELMER MARTIN PERRY, Fort Spring, W. Va.; B. M. C., class of 1895; aged 62; died, January 6, 1932, of asthma and bronchopneumonia.

DR. WILLIAM T. PRATT, Rockville, Md.; P. & S., class of 1890; for many years health officer of Montgomery County; aged 63; died, December 16, 1931, of cardiac disease.

DR. JOSEPH EDWARD RADER, Huntingdon, W. Va.; P. & S., class of 1894; past president of the West Virginia Medical Society; fellow of the American College of Surgeons; aged 60; died, February 26, 1932, of diabetes mellitus and asthma. During the World War, Dr. Rader served as chairman of the West Virginia Council of National Defense, and was formerly a city health officer.

DR. WILLIAM THOMAS ROWE, Meyersdale, Pa.; class of 1895; aged 65; died, February 2, 1932, of cerebral hemorrhage.

DR. JOHN WILLIAM SHAW, Newburyport, Mass.; B. M. C., class of 1906; aged 56; died December 5, 1931, of angina pectoris.

DR. JAY RALPH SHOOK, Colonel, M. C., U. S. A., Hot Springs National Park, Ark.; class of 1899; fellow of the American College of Surgeons; entered the Army as an assistant surgeon in 1901, and was promoted through the various grades to that of Colonel in 1927; aged 54; died, March 5, 1932. Death was due to strangulation by an improvised noose of bed linen.

DR. WILLIAM QUAIL SKILLING, Lonaconing, Md.; class of 1883; aged 72; died, February 6, 1932, of pneumonia.

DR. HARRISON TONGUE, Elkridge, Md.; class of 1871; aged 85; died, February 3, 1932, of chronic nephritis.

DR. EDWARD FINLEY WADDLE, Chillicothe, Ohio; P. & S., class of 1883; served in Spanish-American War, as a Captain of the M. C.; U. S. Army; aged 61; died, March 9, 1932, of hepatic cirrhosis with ascites, nephritis and myocarditis.

DR. FREDERICK WILLIAM WALSH, Rockville, Conn.; P. & S., class of 1884; aged 70; died, December 20, 1931, of cerebral hemorrhage.

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* Compiled by:

Ruth Lee Briscoe

LIBRARIAN

UNIVERSITY OF MARYLAND LIBRARY Founded 1813 SCHOOL OF MEDICINE

Deaths, Continued.

One Hundred and Twenty-fifth Anniversary of the University of Maryland.

SPRING ACTIVITIES

The President and Board of Directors of the Alumni Association, together with the Anniversary Committee, the Dean and Medical Council of the Medical School of the University of Maryland, cordially invite you to attend these activities.

PROGRAM

June 3rd, 1932

9:00 A. M. - 12:00 Noon.—Registration at the Medical Alumni House, directly opposite the Administration Building, University of Maryland, Lombard and Greene Streets.

12:00 Noon.—Luncheon. (Complimentary.)

1:00 P. M.—Annual Meeting of the Medical Alumni Association, University of Maryland, in the Chemical Amphitheatre.

2:00 P. M.—Clinic. Dr. Raymond G. Hussey, Yale University—*Coronary Thrombosis.*

Major Norman T. Kirk, U. S. A.—*Some Phases of Amputation.*

4:00 - 7:00 P. M.—Intermission.

7:00 P. M.—Annual Banquet.

GUESTS OF HONOR

R. A. Pearson,
President of the University of Maryland.

The Honorable Howard W. Jackson,
Mayor of Baltimore.

Honorable William P. Cole,
Member of the House of Representatives.

Samuel M. Shoemaker,
Chairman Board of Regents, University of Maryland.

Randolph Winslow, M.D., LL.D.,
Emeritus Professor of Surgery, University of Maryland.

Graduates of 1932 School of Medicine, University of Maryland.

SPEAKER

R. A. Pearson,
President of the University of Maryland.

June 4th, 1932

4:00 P. M.—Commencement Exercises, Ritchie Colosseum, College Park, Maryland.

Inasmuch as this is the One Hundred and Twenty-fifth Anniversary of the school, all classes are urged to hold reunions. The following classes* have definitely expressed their intention to hold a reunion this year:

Class of 1907, Dr. Frank S. Lynn, acting chairman, Medical Arts Building, Baltimore, Maryland.

Class of 1912, Dr. A. E. Goldstein, acting chairman, Medical Arts Building, Baltimore, Maryland.

Class of 1922, Dr. Geo. E. Shannon, 700 North Fulton Avenue, Baltimore, Maryland.

Class of 1927, Dr. F. K. Morris, 3414 Gwynns Falls Parkway, Baltimore, Maryland.

NOTE: The reunions will include the graduates from the College of Physicians and Surgeons, University of Maryland and The Baltimore Medical College. Any other classes desiring to hold a reunion will please get in touch with the Alumni office, 519 West Lombard Street, Baltimore, Maryland, and we shall be pleased to help in every possible way to make the affair a success.

Secretary of the Medical Alumni Association:

Kindly send.....ticket... for the Alumni Banquet of the Medical Alumni Association, University of Maryland, to be held at Lord Baltimore Hotel, on Friday evening, June 3rd, 1932, at 7 P. M.

I { will / will not } *or* be present for the Luncheon.

Enclosed please find subscription at $4.00 per ticket.

Name .....

Address .....

(*Detach and mail to*: Medical Alumni Association, 519 West Lombard Street, Baltimore, Maryland.)

* Since going to press many other classes have signified their intention of holding reunions.

Programs may be obtained at the time of registration.