

Harry Sturgeon Crossen, M.D.

W
me
Loc
Dis
Doc
the
and
was
spe
if s
A
whe
year
golo
were
part
The
stud
a no
and
bags
whic
with

The Washington University
Medical Alumni Quarterly

VOL. IV

JANUARY, 1941

No. 2

The Department of Otolaryngology—
Some Notes on Its History and
Development

FROM 1899 TO 1928 BY ARTHUR W. PROETZ, M.D.

FROM 1928 TO 1940 BY L. W. DEAN, SR., M.D.

1899 to 1928

What is now the Department of Otolaryngology had its meager beginnings in the old Medical Building at 18th and Locust Sts. Below stairs, in what was known as the O'Fallon Dispensary, were three rooms. The first was tenanted by Doctor Sluder and one or two assistants and was devoted to the nose and throat cases. In the second, Doctor Shapleigh and his assistants treated ears. The third (by far the largest) was a lunchroom, the oilcloth covered tables of which were spread to overflowing for a few cents by one "Grandma" who, if she had another name, never divulged it.

All this dates back to the closing years of the last century when Greenfield Sluder and John B. Shapleigh, returned from years of graduate study abroad, were put in charge of laryngology and otology as clinical professors. The two branches were kept separate, and both of them were part of the Department of Surgery.

The equipment was primitive. In the otological clinic each student was given a wooden box with a sliding lid containing a nondescript collection of ear specula, eustachian catheters and ear cures. There were powder-blowers and Politzer bags having hard-rubber olive tips and charged with a mixture which smelled strongly of chloroform. Here Doctor Shapleigh with his two assistants, Harry Lyman and Albert Koetter,

competently conducted an exceptional course in the rudiments of otology. The anatomical charts were largely of Doctor Shapleigh's own making.

In the other room Doctor Sluder, with the help of the two Millers, Herman and Edward and later Armin Gundelach, began the teaching for which the Sluder Clinic was to become famous. Sluder was an indefatigable anatomist and spent most of his spare time in the cellars beneath his offices preparing the decalcified specimens which are still part of the Department's anatomical teaching collection.

There were few dull moments for Sluder's students. His colorful personality dominated the scene and made the course in rhinology something of an adventure. These early lectures formed the roots of what was to bloom a decade later into the celebrated volumes upon the nasal ganglion and the causes of nasal headache.

In 1904 there came also the first report of the Sluder method of tonsillectomy by means of a guillotine and the alveolar eminence. Sluder had prepared to present this method before the Section of the American Medical Association in that year but was prevented from doing so by the fact that the Association met in St. Louis and the papers of local members were automatically eliminated by precedent. Sluder managed to get in edgewise with a short statement under the heading of new instruments and thus antedated in his publication Whillis and Pybus, who had developed a very similar method in England. Sluder always emphasized the use of the alveolar eminence in forcing the tonsils through the instrument as distinctly his own contribution.

With the coming of the New Order and the removal of the medical school to Kingshighway, the two departments continued to develop. Roomier quarters were available, and the geographical nearness of the various hospitals and the other departments made for much better co-operation and co-ordination. The two divisions continued separate, the ear clinic in charge of Harry Lyman, the nose and throat clinic successively under Armin Gundelach, M. F. Arbuckle and Arthur Proetz. They remained so until the death of Doctor Shapleigh on September 15, 1925, placed them both under Sluder's unwilling wing.

The first graduate work was undertaken in 1921 when successive groups of eight students were accepted for varying periods for training in otolaryngology. Four of these men came, as a rule, from the Navy, and a number of names now prominent are to be found on those early rosters.

Shapleigh was a less prolific writer than Sluder, but he was a man of wide experience, and his lectures were clear and methodical.

It was in 1925 that Sluder was elected to the presidency of the American Laryngological Association, an honor he had long coveted, and he had prepared as his President's Address a thesis on "The Involuntary Nervous System." The meeting was held that year in Montreal and Sluder, on his way, stopped in New York to discuss the material of his paper with his friend, Jonathan Wright. It was enroute to Boston that Sluder suffered the cerebral accident which was three years later to cause his death.

1928 to 1940

In 1928 poor health compelled Dr. Sluder to relinquish the headship of the Department of Otolaryngology. Dr. Dean was appointed to fill the vacancy on a full time basis. He occupied this position until July 1, 1940, when Dr. Theodore Walsh was appointed head of the department.

It was planned that Dr. Sluder would meet the graduate students at his home several times a week. This arrangement, which would have been a very great advantage to the Medical School, was not carried out because of the death of Dr. Sluder on October 9, 1928. A grant from the Rockefeller Foundation permitted the formation of a salaried staff. Every effort was made to organize the clinical part of the service because a well organized clinical service is the best foundation for research in and the graduate teaching of otolaryngology. The number of house officers was increased to six. Two full time teachers in addition to the head of the department were added. Large grants were made to the department by Frank E. Ball, Arthur Ball, the Philip Morris Company and two anonymous donors. Mrs. Eliza McMillan built the McMillan Eye, Ear, Nose and Throat Hospital. Mrs. Oscar Johnson, Oscar Johnson, Lee Johnson and an anonymous donor built the Oscar Johnson Institute for research in ophthalmology and otolaryngology.

In it, fully equipped, were the best otolaryngologic laboratories in the world.

All of these things permitted an expression of the department which was not possible before. The clinical members of the staff were very active in its development. It soon became equal to any in the world.

Mrs. John B. Shapleigh looked after the departmental library, adding to it all the new outstanding books in otolaryngology.

The experiments in graduate teaching of otolaryngology which were begun by Dr. Sluder and his staff were continued. At first the basic sciences were taught to the house officers. This interfered with the care of patients, so short courses, eight weeks in duration, were tried. It was decided that eight weeks was not enough time to present the subject properly, and the present eight months course was developed. It required considerable courage to attempt this. Many thought the first course would have one or two students. The most optimistic considered ten to be the limit. The first class contained twenty-two students. After that the class was limited to thirty.

Most of the graduates of the class have become house officers in otolaryngology. Their success has proven the excellence of the work done here.

The departmental anatomical laboratories are in the Oscar Johnson Institute. They are well equipped for the teaching of the anatomy of the ear, nose and throat. The very best work is done in these laboratories.

The success of the graduate course was due to all the clinical members of the department contributing their time and energies to the course.

As soon as the laboratories in the Oscar Johnson Institute were completed the clinical members of the staff availed themselves of the opportunity to carry out research problems.

The departmental budget permitted the addition of full time laboratory workers. The following were appointed: C. C. Bunch in audiometry, Dorothy Wolff in anatomy, W. F. Wenner in physiology, Mrs. J. H. Alexander in immunology, Catherine Buhrmester in chemistry, Rossleene Hetler in dietetics,

C. S. Linton and Lloyd Linton in bacteriology, and Marion Pfingsten in cytology.

The investigative work of the clinical members of the staff, together with that of the laboratory staff, aided very much in this country in the development of clinical otolaryngology along conservative lines.

During the last ten years at least two books have been produced in the department that have found a permanent place in medical libraries.

The Displacement Method of Sinus Diagnosis and Treatment by Arthur W. Proetz was published in 1931. This new method of diagnosis and treatment was the result of Dr. Proetz's study of the physiology of the nose, particularly the cilia. The book has been translated into French, Spanish and Italian.

Allergy of the Nose and Paranasal Sinuses by French K. Hansel was published in 1936. This book was the result of many years of careful work and research by Dr. Hansel.

Both of the books are found in practically every otolaryngologic library in this country.

Cancer Surgery

EUGENE M. BRICKER, M.D., '34*

Cancer has long been a popular problem in surgery. Before the discovery of X-ray and radium, surgery offered the only effective form of treatment of malignant disease, and today, for many lesions, this still holds true. In the past few years this popularity has grown, partly as a result of therapeutic and technical discoveries which have increased the possibilities of surgery, and because of the development of tumor clinics where individuals in the various clinical fields have become interested in cancer as a special problem. Inclination and experience have developed surgeons who are particularly adept in the treatment of malignancies. The emphasis placed on cancer by these men has resulted in a stimulation of interest in surgeons in general and particularly in young men still in their period of training. To these, many questions will arise, some of which it is the purpose of this paper to discuss.

In the course of general surgical training, the interne has his first contact with cancer surgery. He should learn that there are certain fundamental differences in the treatment of malignant and non-malignant lesions. He may at times be surprised at what appear to be unnecessarily radical procedures. By his seniors he should hear discussed the principles of cancer surgery, and he should realize that these principles involve more than mere surgical technique. To those who do develop a particular interest in this type of surgery a clear understanding of what it involves and of how it may be pursued is of definite value.

What is there unique to cancer surgery that should distinguish it from surgery in general? Whether or not one agrees that any one man can become in surgery a cancer specialist, it cannot be denied that cancer surgery is specialized. This is repeatedly demonstrated when a well-trained surgeon approaches a lesion which he thinks may be cancer. It is demonstrated at the operating table when cancer is encountered unexpectedly. The whole technique of the surgical pro-

* Chief Surgeon, Ellis Fischel State Cancer Hospital, Columbia, Mo.

cedure changes. Semken† states his views quite clearly and at the same time offers an answer to the question when he says, "Incomplete operations by stimulating cancer growth, tend to bring on conditions that are worse than the original process, and to result in increased suffering and earlier death. Secondary operations for recurrent cancer have seldom resulted in permanent cure. With these experiences as well understood as they have been for many years, it is surprising how many surgeons have failed to plan and carry out the logical cancer procedures in the important first operation, and, even more, that any surgeon would find satisfaction in the feeling that he 'got most of the cancer out'. Cancer surgery needs to be specialized—and specialization will mean not only that each cancer patient will have a better primary operation, but also that many will be saved by operation whose condition would be considered inoperable by the average surgeon."

In surgery for non-malignant lesions the operative procedure is usually aimed at the disease itself. No effort need be expended to maintain a margin of safety. Cancer surgery on the other hand endeavors to stay away from the disease, to encircle it with an anatomical dissection which is usually completely planned before operation. When surgery is used in the treatment of a malignant lesion it must be firmly fixed in the operator's mind that anything short of complete radical excision at the first operation is failure. He must be able to judge what is and what is not an operable lesion, and he should hesitate long before calling any lesion inoperable. Very low mortality figures are impressive, but they are not necessarily an index of good cancer surgery. Much more impressive are high rates of operability which indicate that resection is being carried out on all possible cases and is not limited to early growths which offer few technical difficulties.

The question of whether or not a lesion is resectable must be settled by the surgeon. Particularly is this true with cancer within the abdomen or chest. Seldom can the roentgenologist say with conviction that a lesion is inoperable. Nor should the internist withhold surgical consultation because in his opinion the extent of the lesion or the condition of the patient

† Cancer as a Specialty: Semken, George V., S.G.O. 44, Supplement 2, page 281.

seem to make surgery too hazardous. The surgeon should be well qualified by experience and judgment to decide whether a patient is too debilitated or too old for a major surgical procedure. There is nothing more fatal than withholding surgery from a malignant lesion which is not amenable to other types of treatment. It is much less embarrassing to explore and find an inoperable lesion than to let the patient die without operation and find at autopsy that the lesion could have been resected.

The very fact that cancer surgery so often has to be applied to old and debilitated subjects tends to differentiate it from surgery for non-malignant lesions. The extensive resections involved demand meticulous hemostasis and gentleness in handling of tissue. The long and drawn out dissections are in sharp contrast to the speed and dispatch with which other operative procedures can usually be carried out. There are few surgical problems that demand such patience and painstaking pre- and post-operative care.

There are still some inclined to skepticism when regarding major cancer surgery. It may be thought that the results are not encouraging and that few more advances can be made. It is true that the greatest advances will be made in promoting early diagnosis. However, by the aid of recent advances in surgical technique and in methods of preparing and caring for surgical patients, surgery is now being extended to a large group of patients who, previously, would have been considered inoperable. Unfortunately there are still a great many such cases seen, and it seems that there is still a chance of reducing the morbidity and mortality rates from cancer by extending to a greater degree the possibilities of surgery to this group.

What is an inoperable lesion? An exact definition is impossible. However, in the absence of demonstrable remote metastases and with a patient who has a fair chance of surviving the radical procedure, the only indication of inoperability is the finding that it is physically and anatomically impossible to get completely around the lesion and leave the patient with a physiological mechanism compatible with comfortable living. In many instances the extent of the lesion cannot possibly be determined without surgical exploration. Often at exploration it is impossible to be sure without making an effort at resec-

tion. If this is the case, one should go ahead until there is no longer any doubt. One should not criticize himself too severely for losing a patient by these tactics when they may result in finding the next seemingly hopeless lesion to be resectable. Involvement of a contiguous organ by a lesion does not necessarily contraindicate resection. Carcinoma of the stomach is not always inoperable because it has invaded the pancreas extensively; nor is invasion of the prostate by carcinoma of the rectum an absolute indication of inoperability. If one wonders at the actual worth of such extensive procedures, he should compare even a six month period of prolonged and comfortable life with the certain and usually miserable termination of inoperable cases. Also, the general conclusions as to prognosis drawn from the size and extent of a lesion are often subjected to exceptions when patients are found who live many years following extensive resections.

To the person in surgical training who is particularly interested in cancer there are several points of wide importance that can be stressed. The close association of pathology to general surgery and to cancer surgery particularly cannot be too greatly emphasized. Training in general pathology is an excellent foundation for any type of postgraduate clinical work. However, in surgery, continued association with pathology during the training period is imperative. After a clinical background has been obtained one should find time for a detailed study of tumor pathology. Use should be made of available tumor clinics and hospitals for seeing as many cases as possible before, during and after treatment. Through these clinics and the association afforded with radiotherapists an effort should be made to become familiar with X-ray and radium therapy. One should understand the principles and the application of irradiation. A knowledge should be acquired of dosages, of normal tissue sensitivity and of what tumors are radio-sensitive. It must be realized that the treatment of cancer is not a one-man job, and that the surgeon, radiotherapist and pathologist are an indispensable combination.

In the course of general surgical training let it be constantly remembered that the only chance of success is in a completely planned and carried out surgical procedure which aims at the optimum result with the first attempt. The rule of going wide

and deep has been repeated until it is surprising that one should find difficulty in forcing himself to go wide enough or deep enough. However, it is a fact that too many errors are made, in spite of this knowledge, by endeavoring to conserve tissue. Let each lesion be approached with a balanced judgment based on a knowledge of the neoplasm that may be involved and the characteristics of its growth, spread and radiosensitivity so that the treatment of choice may be selected. When surgery is selected, it should be realized that it involves an intimate knowledge of specialized surgical anatomy that allows of painstaking dissection of the lesion and usually of its regional lymphatics with a wide margin of safety.

As previously stated, cancer surgery is at present enjoying a period of tremendous popularity. There is every reason to expect this popularity to continue and to increase. A disease that still ranks second as a cause of death, and in which surgery plays such an important part therapeutically, cannot help but be a fascinating problem. Also, interest is stimulated by recent advances in surgical technique and methods of preparing and caring for surgical patients. Improved methods of aseptic anastomosis are increasing the possibilities in gastrointestinal surgery. Sulfanilamide and sulfapyridine have decreased the hazards of many surgical procedures. The application of knowledge gained in recent years concerning the preparation of patients for gastric and colonic operations is resulting in an increase in the number of lesions considered operable. Intensified studies of shock, of water balance and electrolyte concentration are being applied to patients having extensive operative procedures with gratifying results. Relief of nutritional deficiencies by oral and parenteral administration of vitamins has made surgery possible in many poor-risk patients. All these factors exert a great influence on the possibilities of cancer surgery.

In addition the recognition of the fact that cancer can best be handled by a group with special training has resulted in the development of tumor clinics and services where large numbers of cases are available for study and teaching purposes. To the young general surgeon, radiologist or pathologist, these institutions offer opportunities that would be an invaluable supplement to the usual course of training.

The Correction of Protein Deficiencies in Surgical Patients

ROBERT ELMAN, M.D.*

Correction of any nutritional deficiency is to a large extent a biochemical problem. Such dependence of the surgeon on the biochemist was exemplified several decades ago when the mortality rate following operation for the relief of pyloric stenosis in infants fell from a prohibitively high figure to one which approaches zero. This dramatic success was not due to any sudden improvement in surgical technic but was due to a recognition of the chemical deficiencies induced by the disease and its spectacular relief following adequate replacement therapy, i. e., the injection of water and electrolyte. With such pre-operative preparation the obstruction could then be relieved surgically without hazard, and these babies were then observed to make an uneventful recovery. Thus the surgeon learned, perhaps for the first time, that a biochemical deficiency is important and must be corrected before operation is carried out. Such a correction is easy in the case of dehydration due to loss of water and electrolyte; injection of physiological saline or Ringer's solution is, indeed, extensively practiced, and it is doubtful whether many surgical patients suffer from this type of dehydration either before or after operation at the present time. Although replacement therapy of water and electrolyte loss is fairly well understood and practiced, unfortunately these are but two of the six nutritional elements generally considered essential for life. Other deficiencies may also be important in surgical patients; in a good many instances their correction plays just as important part in mortality as in the example just cited. Of these other deficiencies that connected with the various vitamins has attracted the most attention in recent years. Though important in wound healing and in other ways, vitamin deficiencies will not be the subject of this present discussion. Less well known but probably of equal importance is deficiency in protein which will be

* Associate Professor of Clinical Surgery, Washington University School of Medicine.

briefly discussed. This deficiency has become recognized only since World War I, but has aroused attention only during the past decade.

History.—For a long time and even in some quarters at the present time deficiency in protein has not been considered important. The reason is largely due to the fact that the body has large stores of reserve and non-essential tissue proteins (such as muscle), which, it is felt, can be called upon in case of emergency and that, therefore, no serious deficiency need exist except, perhaps, in the extremely emaciated patient. During World War I it was noted that many patients suffered from "hunger swelling," or "war edema," which, after much investigation,^{1, 2} was found to be associated with a protein deficiency in the plasma. Although Starling's hypothesis of the importance of plasma protein in maintaining the osmotic pressure of the blood dates back to 1895, it was not until 1917 that Epstein³ used it to explain the nutritional edema in nephrosis. Nevertheless, the importance of protein deficiency in the blood was not generally appreciated until ten years later following the extensive clinical studies of Peters,⁴ Salvesen,⁵ and others who found that hypoproteinemia occurred in a great many hospital patients suffering from chronic and acute illnesses of one kind or another. During the past decade the importance of this type of protein deficiency has become widely recognized; it is particularly of interest to surgeons because many patients suffering from surgical lesions are found to be suffering also from hypoproteinemia. From the biochemical point of view it is important to emphasize that the detection of hypoproteinemia means that the theory of the existence of adequate stores of tissue protein does not hold and that if there is a deficiency in the serum protein there must also be a deficiency in other essential proteins and that, therefore, we may not depend upon the existence of large masses of muscle or other more theoretical stores of protein but that we must consider deficiencies in protein just as we consider deficiencies in water and electrolyte and deficiencies in vitamins.

Hypoproteinemia.—Under normal conditions the concentration of protein in the plasma is about 7 grams per cent; of this, but a few tenths of a gram are due to fibrinogen. If this

is subtracted, as it is when blood is allowed to clot so that serum is obtained instead of plasma, there is little significant change in the total figure. What remains is a combination of the two remaining proteins, namely, albumin and globulin. Under normal conditions the albumin concentration is roughly twice that of the globulin concentration. The relationship between the two is often spoken of as the A/G ratio, a figure which may or may not be of significance. Of much greater importance is the actual concentration of the albumin fraction inasmuch as it is the fall in the albumin fraction which is usually observed in hypoproteinemic states. From the practical point of view, then, we should really speak of hypoalbuminemia rather than hypoproteinemia. Moreover, it is the albumin fraction which is concerned mostly with maintaining osmotic pressure of the blood, and it is the osmotic function of the plasma protein which is mostly involved in the deficiency states just discussed. It is probable that the globulin fraction has more to do with the carrying of immune bodies than with maintaining the osmotic pressure of the blood.

The chemical method used in determining the concentration of serum or plasma protein is extremely important. Variations which are obtained by inaccurate methods may be quite valueless. Errors may occur either in the determination of the protein or in the fractionation of albumin and globulin or in both. Of the two methods for the determination of protein we use and emphatically advise the Kjeldahl procedure in preference to nesslerization in measuring nitrogen. We also use and advise that separation of albumin and globulin be effected with the centrifuge rather than with filter paper. Details can be found in most biochemical texts. The actual fall in serum protein, particularly in the albumin fraction, is often 50 to 75 per cent of the normal. In general a serum protein of below 5 gms. % or a serum albumin of below 2 gms. % is considered abnormally low and is often accompanied by nutritional edema.

While there is a definite relationship between the clinical occurrence of nutritional edema and the level of serum albumin, there is a considerable lag in this relationship. There may be rare occasions when the serum albumin is near normal, yet edema exists. On the other hand, the albumin may fall

even below 2 gms. % without demonstrable clinical edema which will, however, inevitably develop if the low serum albumin persists for a sufficiently long period of time. It is, therefore, often misleading to speak of a critical level of serum albumin. It is important to realize that edema of the interstitial tissue may occur for a long time before it is evident clinically as a swelling which puts on pressure.

A second source of confusion is the relationship of the plasma volume to plasma protein concentration. This is important in evaluating the significance of hypoproteinemia. Actually the plasma volume may vary so much, especially when intravenous fluids are being given, that the concentration of plasma protein must always be considered in relationship to changes in the concentration of the red blood cells which is a rough measure of the variations in relative plasma volume. It is, therefore, of importance to measure the hematocrit or red cell concentration whenever a serum protein or serum protein concentration may be observed in patients receiving fluids due entirely to the dilution of the plasma, which can be very readily followed by frequent determinations of the red blood count or the hematocrit.

Toxic Destruction of Protein.—A second type of protein deficiency which can be measured occurs in many patients in whom there is an abnormal destruction of tissue protein. This is revealed by finding an excessive excretion of nitrogen in the urine. This phenomenon has long been observed in a good many serious illnesses, notably in the infections. It also occurs following extensive trauma and is frequently in seriously ill patients after a serious operation. The important point about this type of protein deficiency is that replacement therapy should take such a loss of nitrogen into account, i. e., administration of protein nourishment is extremely important in any individual who is losing a great amount of nitrogen due to the actual effects of the disease process itself. There is actually very little data in regard to this type of protein derangement in surgical patients. It is probable that further study will reveal that not only does this type of toxic destruction of protein occur rather frequently but that many of the clinical manifestations are due actually to such a phenomenon. Regardless, however, of such further observations it seems

apparent that this type of derangement has definite therapeutic implications which must be recognized if we are to use protein replacement therapy.

Surgical Shock.—During the past few years it has become increasingly apparent that plasma loss, i. e., fluid containing 7% protein, is an important feature of the circulatory failure in shock. This is particularly true in severe burns, in the therapy of which plasma in large amounts is decisive, in contrast to the ineffectiveness and even danger of injecting large quantities of saline and glucose alone. It is not too much to say that an acute hypoproteinemia occurs in severe burns, in severe hemorrhage, and probably in other examples of surgical shock. The fall in blood volume in all of these conditions is due to loss of fluid containing protein which must be taken into account if we are to practice true replacement therapy. In other words, the acute protein loss cannot be remedied by the injection of saline and glucose alone; fluids possessing colloids capable of exerting long-lasting osmotic pressure must be used and for this plasma is ideal. While the value of whole blood in surgical shock is generally recognized it is not often realized that the plasma portion is the most significant; in burns in fact the red cells are not even needed. The amount of plasma required may be tremendous; in a severe burn as much as 10 to 20 cc. per kilogram (700 to 1400 cc. for an adult) may be necessary to meet the loss and return fluid balance to normal.⁶

Methods of Protein Administration

Oral administration.—Needless to say the oral method of administering fluids and food should always be used when possible. This seems to be an unnecessary statement. However, there has been so much parenteral injection of fluids in recent years that it seems important to emphasize the fact that the oral method should be used whenever the patient can ingest and assimilate food or fluid in this manner. The oral method is, of course, convenient but there are certain factors which must be observed. In the first place, proteins vary in their biological activity. This is due to the fact that the efficacy of the proteins depends upon their constituent amino-acids, of which 11 are essential or indispensable, i. e. these 11 cannot be synthesized by the body and must be supplied. The bio-

logical value of the protein, therefore, depends upon the relative proportions of these 11 amino-acids. It has long been known that certain proteins are very rich in these essential amino-acids and, indeed, contain all of them. These biologically active proteins are present in eggs, milk and meat with soy beans perhaps to be added. Obviously, if the patient is suffering from an acute or chronic protein deficiency and is having difficulty in ingesting a large amount of food, it should be the duty of the physician to see that the kind of protein given is of a biologically active sort. In this way the protein deficiencies can be met with a relatively small amount of protein. The dose of such proteins is ordinarily given as 1 gram per kilogram per day. This dose may be increased in patients who need protein urgently.

A second factor in the administration of protein by mouth is the possibility that in sick patients digestion is not normal and that even though an adequate protein diet is ingested, digestion and absorption are so impaired that the efficiency of the protein diet is not wholly achieved. Such a situation may develop in hypoproteinemia because nutritional edema of the intestinal mucosa occurs interfering with normal function. Deficient absorption occurs also in various types of pancreatic insufficiency, in diarrhea and in intestinal fistula. When oral alimentation is insufficient for such reasons or is impossible or inadequate for other reasons, protein must be given parenterally.

Transfusion.—One of the earliest methods for the correction of hypoproteinemia was the use of whole blood transfusions. This indeed is true replacement therapy although a more accurate method is the use of plasma alone, particularly if there is no deficiency in the red blood cells. In recent years the use of plasma has become more and more extensive, particularly because it can usually be given without the necessity of typing. Plasma is ideal in acute hypoproteinemia, i. e., in surgical shock and after severe burns, although it should be remembered that large amounts may be required.

In chronic hypoproteinemia, unfortunately, transfusions often correct protein deficiency inadequately, particularly when the deficiency is pronounced and much protein is needed to restore conditions to normal. In such patients it has been found

that the administration of one or two or even many transfusions is apt to produce but a transient and very slight increase in the concentration of serum protein. Indeed, in Barnes Hospital recently as much as 1000 cc. of plasma was injected into a 40 kilogram patient on three successive days with pronounced though transient clinical improvement but without increasing the level of hypoproteinemia, which was about 4 grams per cent. Obviously, in such a case the serum protein or plasma is being utilized for other purposes of the body than in replacing the serum protein. This, indeed, is what one would expect in any patient who is suffering from a severe protein depletion. There are other requirements for protein besides plasma. When these requirements are unsatisfied by the normal channels the blood plasma is drawn upon. Obviously, therefore, the injection of plasma protein serves to supply not only the missing protein in the blood stream but also missing protein throughout the entire body. For example, to supply an average adult with 70 grams of protein per day would require the plasma from about 2500 cc. of whole blood each day. This is probably the explanation of why transfusions either of whole blood or of plasma are very apt to be disappointing when large amounts of protein are required.

Parenteral injection of amino-acids.—Beause of the practical difficulties in giving a sufficient amount of protein in the form of plasma and whole blood in patients in whom the oral method is impossible or ineffective, it occurred to us several years ago that it might be possible to supply the protein needs of the body by means of a mixture of amino-acids injected intravenously. Absorption of amino-acids from the intestinal tract is, indeed, the normal method by which digested protein is assimilated. Internal protein metabolism also occurs by continuous hydrolysis and synthesis, the connecting link being the constituent amino-acids. During the course of the study many problems developed which proved difficult to solve; a short preliminary note was published previously in this Quarterly.⁷ The complete solution of these difficulties seems close to realization at the present time. It is now possible to prepare a crystal clear solution containing all of the amino-acids of hydrolyzed casein. This preparation has proved innocuous on intravenous injection; nearly 400 such injections have been given

with no untoward reactions. The clinical improvements as well as evidences of protein synthesis and positive nitrogen balance have been definite; details are described elsewhere.^{8, 9} It is probable that this particular intravenous preparation will soon become available for general use in patients requiring protein nourishment and unable to take anything by mouth.

BIBLIOGRAPHY

1. Maver, M. B. Nutritional edema and "war dropsy." *J. A. M. A.*, 1920, 74; 934.
2. Kohman, E. A. The experimental production of edema as related to protein deficiency. *Am. J. Physiol.*, 1920, 51; 378.
3. Epstein, A. A. Concerning the causation of edema in chronic parenchymatous nephritis: methods for its alleviation. *Am. J. Med. Sc.*, 1917, 154; 638.
4. Peters, J. P., Wakeman, A. M. and A. J. Eisenman. The plasma proteins in malnutrition. *J. Clin. Inv.*, 1926, 3; 491.
_____, and A. J. Eisenman. The serum proteins in diseases not primarily affecting the cardiovascular system or kidneys. *Am. J. Med. Sc.*, 1933, 186; 808.
5. Salvesen, H. A. Variations in the plasma proteins in non-renal conditions. *Acta Med. Scand.*, 1929, 72; 113.
6. Elman, R. Therapeutic significance of plasma protein loss in severe burns. *J. A. M. A.*, in press.
7. Elman, R. Amino-acids. *W. U. Med. Alumni Quart.*, 1938, 1; 192.
8. Elman, R. and D. O. Weiner. Intravenous alimentation. *J. A. M. A.*, 1939, 112; 796.
9. Elman, R. Parenteral replacement of protein with the amino-acids of hydrolyzed casein. *Ann. Surg.*, October, 1940, V. 112, #4; 594-602.

The Ovarian Hormones and Their Clinical Uses

WILLARD M. ALLEN, M.D.*

There are two groups of substances which are recommended and widely used for treatment of ovarian dysfunction. The first group is composed of the true sex hormones, which are produced by the ovaries, testicles, adrenals and placenta. These compounds are all more or less closely related and are comparatively simple chemical compounds. In the female we like to believe that the sex hormones, estrogens and progesterone, are of major importance, whereas in the male we like also to believe that the androgen, testosterone, is of prime importance. The situation is not quite as simple as this since men excrete true estrogens in the urine and women excrete true androgens. In fact a normal woman excretes virtually as much androgen as does a normal man. The adrenals also produce true female and male sex hormones. For example, progesterone, the hormone of the corpus luteum, has been isolated in pure form from the adrenals. Some of the active principles of the adrenal are androgenic. This group of compounds is biologically effective regardless of whether the gonads are present or absent. It is obvious that they can be used whenever one wishes to substitute for the ovary.

The second group is made up of those substances which produce an effect by virtue of their ability to stimulate the gonad. These are, of course, the gonadotropic hormones. They produce an effect on the vagina or uterus solely because they stimulate the ovary to produce a sex hormone or hormones, and these in their turn produce the effect on the uterus or vagina. It goes without saying that the gonadotropic hormones are of no use when the ovaries have been removed. They also usually are of little avail when the ovary has become less able to respond to gonadotropic substances because of ageing, as for example in the menopause. These hormones are obtained from the anterior lobe of the pituitary, the blood

* Professor of Obstetrics and Gynecology, Washington University Medical School.

serum of pregnant mares and the urine of pregnant women. It seems probable also that the anterior lobe produces at least two gonadotropic hormones, one of which is predominantly follicle-stimulating and the other luteinizing. The effect on the ovary also depends in large measure on the relative amounts given, the rapidity and manner of administration. The other gonadotropic hormones are most likely produced by the chorionic epithelium of the placenta, hence they are called chorionic gonadotropins. These hormones of chorionic origin were at one time thought to be similar, if not identical with those produced by the anterior pituitary but it now seems quite certain that, while they are gonadotropic, they are not identical with any known pituitary hormone. In fact some workers even suspect that each species may elaborate a chorionic gonadotropin peculiar to itself. This is supported by the fact that equine chorionic gonadotropin has properties quite different in some respects from human chorionic gonadotropin. These gonadotropic principles are not simple organic compounds but are compounds of high molecular weight, and are probably of protein nature.

But now to return to the sex hormones.

The estrogens are of great value in but few disturbances and these are directly connected with certain, or almost certain evidences of ovarian hypofunction. One such indication is found in treatment of certain types of vaginitis.

The vaginal mucosa of the child and the postmenopausal woman is very thin, lacking in glycogen and readily susceptible to infection. Gonorrhoeal vaginitis is a notoriously chronic condition in childhood but it disappears spontaneously with the first signs of puberty. This is because at puberty the ovaries begin producing estrogen, the vaginal epithelium thickens and as a result of the presence of more glycogen in the epithelium, more lactic acid is formed, the acidity is increased and the vaginal secretions and the vaginal wall no longer provide a suitable medium for the gonococcus. In childhood the vaginal wall responds to estrogens given artificially the same as it does to estrogens produced by the ovary at the beginning of puberty. The simple daily application of an estrogen by use of a suppository results in about one week in a marked thickening of the vaginal epithelium, increased

acidity and decrease in purulent discharge and if continued for about three or four weeks the cultures for the gonococcus become negative and remain so. The vaginal epithelium, of course, reverts to the thin atrophic type a short time after discontinuing the estrogen. The application of 0.1-0.2 mgm. of estrone daily, or a correspondingly smaller amount of estradiol, in this manner clears up the local infection, but an insufficient amount is absorbed into the general circulation to produce any signs of premature puberty, such as enlargement of the breasts.

Senile vaginitis is also readily improved by the same comparatively simple regime. It is, of course, important not to combine this treatment with alkaline douches. In fact it usually is best to give no supportive treatment of any sort. Estrogen therapy is designed entirely to produce an increased amount of vaginal desquamation which in turn makes more glycogen available for breakdown into lactic acid, the increased acidity destroying the organisms responsible for the vaginitis.

The vaginal smear is of considerable help in determining the success of the treatment in vaginitis, whether it be in the child or in the elderly woman. The smear before treatment shows many pus cells and a small number of epithelial cells the majority of which are not cornified whereas soon after the institution of treatment the pus cells rapidly disappear, the epithelial cells become numerous and eventually more or shows the change fully as well. The reddened moist vaginal wall soon changes and becomes pinkish-gray, semi-translucent, and the purulent, semi-liquid vaginal discharge is replaced by a white, rather thick, somewhat cheesy secretion.

The second readily accepted use for the estrogens is for alleviation of the unpleasant symptoms of the menopause. The menopause is a disturbing time to every woman but how disturbing depends in large measure, I expect, on the point of view. Some authorities state that the majority of women pass through the climacteric with very little difficulty whereas others state that the majority of women have distressing symptoms. My own feeling about the matter is that the majority of women have some of the subjective symptoms of the menopause, such as the flushes, nervousness and sleeplessness,

but that in only a few are the symptoms sufficient to warrant intensive treatment with estrogens. The menopause is a period of transition, one of readjustment, and the use of large amounts of estrogens serves only to defer the time when readjustment has to be accomplished.

The most common symptoms of the menopause are flushes, nervousness, insomnia and menstrual irregularities, and these occur in the majority of cases. Occipital headache is also fairly common and when present a very troublesome symptom. These subjective symptoms plus many others are rapidly improved by estrogens, although it may take doses of the order of 5-10 mgm. or more of estrone or 2-3 mgm. of estradiol benzoate per week to relieve the headache. Headache is ordinarily interpreted as being due to enlargement of the pituitary. Whether or not this is the correct explanation it is a fact that the pituitary increases in size following castration in animals and in the woman there is an increased amount of gonadotropic hormone present in the urine following castration and during the climacteric and, when adequate amounts of estrogen are given the amount of gonadotropic hormone in the urine is restored to normal. This experimental finding supports the idea that estrogens depress the pituitary in so far as the production of follicle stimulating hormones are concerned.

The next subject which I would like to mention is amenorrhea. I do not know how general the practice may be but often, when a woman develops amenorrhea other than during pregnancy the first endocrine product tried is some one of the estrogens. The results are usually unsatisfactory unless perchance the amenorrhea is actually due to the menopause when there is subjective improvement. Amenorrhea is not necessarily due to ovarian failure as in many instances there is little evidence of estrogen deficiency, the vaginal wall is thick and the uterus of normal size. The disturbance is one of failure of ovulation. The use of estrogen in such a patient, theoretically at least, only further depresses the pituitary and hence places the ovary on a still lower functional level, and in practice the result is exactly what one would expect. When large doses are given for two or three weeks, vaginal bleeding may occur because of artificial estrogen deprivation but spon-

taneous periods practically never result from such treatment. Even if the amenorrhea has been of long standing and there is marked atrophy of the reproductive organs, the use of estrogens rarely if ever does more than produce growth of the uterus, vagina and breasts. The ovaries are not stimulated and hence no real improvement is obtained.

Recently estrogens have been used in the treatment of severe dysmenorrhea, the rationale being to give a sufficient amount during the first half of the cycle to suppress ovulation and hence convert a normal ovulatory cycle into an anovulatory cycle. It should, of course, not be done in the ordinary case of dysmenorrhea but should be reserved for the intractable case that fails to respond to simpler measures. There is probably no permanent injury to the ovary from this procedure but when one recalls the extraordinary difficulty encountered in handling some cases of functional bleeding in adolescent girls and young women, a condition due in all probability to failure of normal ovulation, one should be somewhat reluctant to convert a fertile, ovulatory cycle accompanied by dysmenorrhea to a sterile, anovulatory cycle free of dysmenorrhea.

There are other miscellaneous uses for the estrogens such as, prevention of lactation, production of growth of the breast by local application, etc., which are of academic interest only. One point of interest has recently been brought out by the observation that estrogen given for the first few days in the puerperium not only prevents lactation but also may reduce the morbidity.

The second ovarian hormone is progesterone. This hormone is produced by the corpus luteum, a structure formed from the walls of the graafian follicle following ovulation. The corpus luteum is always present during pregnancy and in most species it is essential for the normal continuation of pregnancy. The corpus luteum hormone, progesterone, produces alterations in the endometrium and myometrium which make possible the normal implantation of the fertilized egg. Without this hormone implantation becomes impossible. Progesterone is the hormone of pregnancy.

The question is, what clinical use can be made of these physiological properties of progesterone?

Progesterone may be used in dysmenorrhea, the theory being that the pain is due to ischaemia resulting from strong contractions of the uterus. Progesterone does relax the uterine muscle in both animals and humans and hence, should be beneficial in dysmenorrhea. The general opinion, I think, is that about one-half of the cases of dysmenorrhea are benefited. My own experience has not been extensive, but in several patients there can be no doubt but that marked improvement was noted. The progesterone has to be given before the period has begun and I have had the best success when 1.0 to 2.0 mgm. was given intramuscularly on the last three days immediately preceding the flow. I have got the impression also that it is the progesterone given in the last 24 hours before the onset which produces the effect. Unfortunately the treatment is not curative in any sense of the word since the next period is usually as bad as ever.

Threatened abortion is, of course, theoretically the indication par excellence for progesterone. Excision of the corpus luteum of pregnancy results in abortion in most mammals (including the human in early pregnancy) and experimentally progesterone will maintain pregnancy normally following excision of the corpora. Transfer of this information to the human is not so justifiable, however, because there is very little evidence that abortion is necessarily due to corpus luteum deficiency. In many instances it may be and probably is due to corpus luteum deficiency but this is frequently due to the presence of a defective embryo in utero. The administration of progesterone to such a case, of course, might defeat the natural process of expelling the defective embryo. I have seen one such case where the abortion was prevented on two different occasions only to have a defective embryo expelled at the fourth month in which the placenta and membranes were intact but without a fetus. In case of a threatened abortion in which the bleeding is slight and the uterus of normal size and consistency for the period of amenorrhea progesterone is, of course, indicated. It can do no harm and it may be beneficial.

The question of dose is paramount. In normal pregnancy at the third month 10-20 mgm. of pregnanediol are excreted daily. If this be taken to indicate the amount of progesterone metabolized it is obvious that 5-10 mgm. as a minimum should

be given daily until the symptoms have subsided, i. e., for a week or so. It seems probable that some abortions may occur because the placenta does not begin elaborating sufficient progesterone quite soon enough, and if this be so then progesterone given for a short time might be expected to give good results.

Habitual abortion is also considered an indication for progesterone. This is a rare condition and some of these cases will occasionally carry a fetus to term after many previous miscarriages with no treatment. Many patients will have two or three spontaneous miscarriages only to have the following pregnancies progress normally. It is very difficult, therefore, to evaluate the beneficial results reported in the literature, especially since the doses used have usually not been large. In habitual abortion progesterone, if used at all, should be started almost as soon as pregnancy can be diagnosed and it should be continued probably to the fourth or fifth month, the reason for beginning early being that the fetus may fail to develop normally if the progesterone level is inadequate. In the rabbit progesterone deficiency in early pregnancy leads to defective development and early death of the embryos.

Functional bleeding is one condition worth special consideration. Amenorrhea or bimonthly bleeding usually do not impair the health, but continuous bleeding leads to considerable ill health, and rarely death has occurred from blood loss due to functional bleeding. The exact cause of the bleeding is not known. It is reasonably certain, however, that ovulation is not occurring and hence that progesterone is not acting. The use of pituitary hormones for this condition is based on the assumption that ovulation may be induced, and a normal cycle established. This can rarely be accomplished by this means. There is one other method of approaching the problem that is often successful. This involves the use of progesterone. As I mentioned earlier, progesterone has the property of preventing estrogen-deprivation bleeding and also of preventing the onset of normal menstrual bleeding if given in adequate amount. It is logical, therefore, to try it, especially since continuous functional bleeding and hyperplasia are presumably associated with progesterone deficiency. There is an added reason. Some investigators believe that hyperplasia and the

associated bleeding are due to hyperestrinism. If so, progesterone is the natural hormone to use because there is ample evidence indicating that progesterone reduces or at least alters the effect of estrogens.

We have given progesterone to several adolescent girls with more or less continuous bleeding with rather uniform results. The general plan has been to give progesterone intramuscularly, 2 to 10 mgm, daily, for from five to ten days. Ordinarily the bleeding decreases markedly after the second and third dose but a small amount of brownish discharge may persist. When the injections are discontinued, one of two things may happen. The bleeding may recur within 48 to 72 hours and persist for four or five days, resembling in every respect a slightly profuse menstrual flow. Bleeding does not invariably decrease when progesterone is given. Occasionally the spotting or even moderate bleeding may continue during the course of injections but usually cessation of injections is followed by increased bleeding. In every instance where this result has been obtained the flow has stopped completely after a few days. This bleeding is probably a true progesterone-deprivation bleeding. Bleeding may occasionally increase during the course of injections. The reason for this is not clear at present but there are so many peculiarities about bleeding that one can only record the observation and await the explanation. For example, I have seen bleeding occur in a castrated woman receiving estrogen daily, during a course of injections of progesterone, hence with no deprivation of either hormone. In other cases, usually when the smaller doses were given, the bleeding has stopped but there has been no recurrence as a result of the withdrawal of progesterone.

These results, by themselves, are of considerable interest but the subsequent course has been even more interesting. In most instances several fairly normal periods have followed the progesterone therapy. The first patient treated by this scheme was given crystalline progesterone in 1935. She was 15 years old and had had continuous bleeding for two months. She was given 2.0 mgm. daily for five days and the bleeding stopped. Menstrual periods began about a month later and have been quite regular ever since. Another patient of 17 years who had been bleeding daily for two years, was given 5 mgm. daily for

six days. The bleeding stopped after the third injection. A copious menstrual period began two days after the last injection and lasted five days. During the next six months the periods were somewhat irregular but there were no prolonged periods and there was no episode of prolonged bleeding. I cite these two only as examples of what has occurred. In some cases there has been a recurrence of functional bleeding after several months of normal cycles, but the same beneficial results were obtained by a second course of progesterone.

The beneficial effects in functional bleeding from progesterone should not be permitted to obscure the fact that functional bleeding is a manifestation of ovarian dysfunction. As such it may indicate hypothyroidism and many patients with functional bleeding have been permanently relieved by the use of thyroid.

Amenorrhea, one of the most troublesome types of endocrine dysfunction when it is not amenable to thyroid extract and improved nutrition, provides another type of disturbance in which progesterone may be used. In view of the observation that the vicious cycle of continuous bleeding could frequently be broken by progesterone, we have tried it in several cases of amenorrhea in which there was no marked atrophy of the reproductive organs. In several cases the administration of 5-10 mgm. daily for six days was followed by menstrual bleeding, the onset being 48-72 hours after the last injection. One of these cases treated recently had had no menstrual periods for two years and had failed to menstruate following the use of equine chorionic gonadotropin, and human chorionic gonadotropin and had proved intolerant to thyroid extract. Two menstrual periods were induced by the use of progesterone, following which a normal period occurred. Another patient who had not menstruated for one and one-half years bled for four days after only three injections of progesterone. I cite these observations only to show that bleeding can be induced in amenorrhea individuals as a result of progesterone deprivation. Estrogen deprivation also is followed by bleeding in amenorrheic patients but it is practically never followed by normal cycles. It seems too much to hope that cycles produced by progesterone deprivation would be followed by normal pe-

riods but at least it can be no more of a failure than most of the other hormones that have been used.

In conclusion then, there are but two ovarian hormones—a group of compounds, the estrogens, and the corpus luteum hormone, progesterone. These substances have proved of inestimable value to the student of the physiology of reproduction and their judicious use in the human being has been followed in some instances by relief of suffering and illness and in all instances by instructive results. They are not compounds to be used for the cure of all disturbances of the reproductive processes, but they do have use in some conditions in which true ovarian deficiency does exist.

NOTE: Condensed from two special lectures presented by Dr. Willard M. Allen at Washington University School of Medicine on November 6th and November 13th.

The Background of Greek Medicine

THOS. S. DUNCAN, A.B., M.A., PH.D.*

The layman who looks with an eye of interest, not to say concern, on the vast field which would seem still to be open to the student of medicine, cannot fail to look also with a certain degree of interest to the past history of the science. He turns to its past not merely with the interest of the antiquarian. The progress made by medicine in the direction of alleviating human suffering is of so vital interest that each step in its history makes its appeal in a much more intimate way than the progress of other sciences and arts. To the layman the knowledge of every new advance comes bringing hope and comfort, hope, though perhaps a vain one, that with the patient perseverance of the scientist in medicine, at some far distant day, disease will be prevented, and, in the meantime, comfort in the thought that means to alleviate the pain attendant on disease are becoming increasingly more numerous. This is not saying that the layman cherishes the hope that with the help of the scientist in medicine he will attain to immortality.

In the use of the word "concern" one does not wish to convey a wrong meaning. Today as one looks at the astounding accomplishments of science in other fields and the uses to which results are being put one may well express concern over their effect on the human spirit, and on society in general. The same concern is not expressed over the uses to which the results of scientific research in medicine are put. Here all objects tend to human betterment. The concern expressed is over the vastness of the range to be traversed and, no doubt, as minds more keenly alive to the possibilities of the science are put to work on it, the field will broaden more and more. Each new student of medicine, no doubt, feels as he surveys the field the same awe as Hippocrates did, the awe which he expressed in the opening sentence of his famous oath: Life is short; science is long; opportunity is fleeting; experience is deceiving.

* Professor of Greek and Latin, Washington University.

I. The Deities and Healing

To get a very complete understanding of Greek medicine before the fifth century is impossible. That the Greeks were interested in the art of healing early goes without saying. On the attributes given to their deities many references to the art of healing are seen. *Zeus*, the father of gods and men is not commonly, though sometimes, associated with healing and in one or two Greek myths he is represented as jealous of the art when it goes beyond a certain point. In most versions of the *Prometheus* myth not much is made of the art of healing among the gifts that Prometheus brought to men, but it is no doubt implied and, of course, Prometheus is the prime example of the lesser deity who suffered at the hands of Zeus, because his benefactions made humankind less dependent on Zeus; in fact, made them in a sense competitors in their command over the material universe and human life. But Zeus' jealousy of the art of healing is exemplified by his treatment of Apollo. In the opening of Euripides' play *Alcestis*, Apollo tells that he was put out as a slave by his father, Zeus, to work on the estate of Admetus because by his healing art he had kept his son Asclepius from death. Myths like this (and there are many of them in Greek story) are illustrative of a certain pessimism in Greek thought in all periods. On the one hand no people so much as the Greeks have made claim to the closest association with the divine, and yet with the claim there is always inevitably linked the idea of divine jealousy over that association. In other words, the Greeks loved the idea of their divine inheritance and yet were afraid of it. The healing of sickness was a divine prerogative, in the period of myth.

Among his many other attributes *Poseidon* had the power to heal disease (Aristeid. 1, 29 Dind).

Hera also, the wife of Zeus, has two functions in respect of the art of healing. According to one she allays the sufferings of women, especially in child bed. But again it was she who sent madness upon Heracles and made him slay his wife and children. In this latter incident, however, she wreaks vengeance on Heracles because his mother supplanted her in Zeus' affections.

The deities *Athena* and *Hermes* were no doubt associated

at some time or other with healing. In the care of Athena were certain medicinal herbs, especially those for women. The care of children also was her province. The serpent which is an attribute of both Athena and Hermes is evidence of their association with the art. But fifth century representations of Athena do not all show the serpent as an attribute; in fact only one—the great Athena Parthenos of Phidias does. And in representations of Hermes the serpent is wound about the caduceus or staff; and yet it is given as much prominence as it is on fifth century representations of Asclepius, where it is wound around the staff that is his attribute.

The names of Hera and Heracles, who was also a god of healing, are related to the word "hero" and associated with battle. The names of the sons of Asclepius also suggest battle—e. g. Machaon. One need not press this too far to show war as the original occasion for the skill of the physician and surgeon.

The goddess *Artemis*, daughter of Zeus, is also associated with healing. Her sphere is the protection of the young, whether of animals or humankind, and she ensures easy birth. *Dionysus* also played his part in ministering to the mind diseased, by keeping a proper emotional balance—a balance which to us seems rather in the direction of excitement than on an even plane. It seems so probably because there is less emotion naturally in our make-up than in that of the Greek. This god also freed from pain.

The opening lines of the *Iliad* illustrate clearly one attitude to disease in Greek myth. Of course, the story is old and one must not assume that fifth century Greeks believed it literally any more than our age does. Agamemnon has done despite to the priest of Apollo by taking his daughter and keeping her as a prize of war. For this outrage Apollo sends a plague upon the Greek host, so great a plague that we are supposed to believe men die by the thousands. It is only when Agamemnon sends Odysseus to restore the maiden and make amends that the god withdraws the plague. One may suppose that even in our own day some would believe that disease is sent because of the anger of Heaven over some deed which has no connection with the disease.

Certain semi-divine beings were also associated with heal-

ing. *Hera* and *Artemis* worked through the medium of the *Eilithyiae*, called the daughters of *Hera* sometimes, who relieved the pains of childbirth. These could hasten or delay birth, but their work was almost always beneficent. *Cheiron* the Centaur also knew the art of healing and taught it. A Centaur as is well known was a creature half man and half horse. At least that was the form in which fifth century art represented him. Whether *Pindar*, who makes much of *Cheiron* as a teacher of healing and the arts of refinement, thought of him in that form is doubtful. At any rate he must be thought of as a creature close to Nature, conversant with all the wild herbs and able to use their healing properties. *Cheiron's* pupils in the art of healing were *Heracles*, *Jason* and *Achilles*; but the latter two of these did not become proficient in the art of healing, and it was long after *Cheiron's* tutelage that *Achilles* learned good manners. (A beautiful treatment of *Cheiron*, by the way, is that by *Matthew Arnold* in his essay on "Maurice de Guérin.")

Asclepius we have seen was the son of *Apollo*, the god of healing. He became the patron of physicians. He is the divine ancestor of the *Asclepiadae*, the guild of physicians to which *Hippocrates* attached himself and which we shall notice at greater length later on.

Here then is the divine background of Greek medicine. Any close study in the field of Greek institutions causes one to realize how important it is always to find the divine background; without a concern for it one studies *Plato* in vain and, I imagine, *Aristotle* was more concerned with it than he professed to be.

II. Healing in Homer

In the study of any phase of Greek life and art as well as science it is customary and highly necessary to go back to *Homer*. An enquiry into the background of the history of Medicine should offer no exception. Of the many *Lives* none represent *Homer* as a physician, but physicians who have studied his poems, particularly the *Iliad*, are struck by his accurate knowledge of the human body and the effects of disease and wounds. The two most prominent physicians of the *Iliad* are *Machaon* and *Podaleirius*. They came from *Oechalia*, a city in Northern Greece. It is to be noted that they do not

devote all their time to the art of healing, for they are represented as leaders of the men of Oechalia and in command of thirty ships. Of Machaon Homer says he was "a physician worth many men at cutting out arrows and laying on gentle drugs." (*Il.* 514) Both were sons of Asclepius. Machaon himself in the heat of battle receives a wound in the shoulder from Paris as he fights valiantly. In this version of their descent it is to be noted also that Asclepius is not a god, but a mortal king who ruled in Thessaly.

Probably other physicians were with the Trojan host. Paieon is named as physician on Olympus, healing Ares of his wound. (*Il.* E.RTTQ. His name suggests one of the epithets of Apollo. But Patroclus, a mortal who was no physician, cut an arrow from the thigh of Eurypylus, washed away the blood, and "laid on a bitter root, rubbing it with his hands, a pain-killing root which stopped all his pain; and the wound dried, and the blood stopped." This was the drug which, they said, "Patroclus learned from Achilles, whom Cheiron taught most righteous of Centaurs." (*Il.* 11.842).

Homer's knowledge of anatomy is indicated by his description of wounds received in battle. The realism also with which he describes gruesome sights suggests the familiarity of the doctor and not the timidity of the layman. His description of the death of Dioues and Peirous will illustrate: "Dioues was struck on the right shin near the ankle, by a sharp stone. The jagged stone destroyed both tendons and bones utterly. And he fell back in the dust, stretching out his two hands to his dear comrades, and breathing away his life. And Peirous who had struck him ran up and stabbed him with the sword near the navel; and all his inwards poured out on the ground and darkness covered his eyes. But as Peirous fled Aetolian Thoas struck him with his spear in the breast above the nipple and the bronze stuck in his lung." (*Il.* 4.418-526). Diomedes strikes Aeneas with a stone "on the thigh at the point where the femur turns in the cotyloid cavity and the stone, hitting the hip-joint, ruptures the two upper muscles and tears the skin." (*Il.* 5.305). These are only one or two examples from a great number found in books five and eleven; the books where the fiercest fighting takes place and where Homer seems to revel in description. Incidentally of these books eleven be-

long to the stratum of the *Iliad* which even the highest of the higher critics assign to the original poet.

There is an excellent description of the twitchings that occur when a mortal wound has been inflicted: Asios, pierced through the neck, falls to the ground and lies full length, grinding his teeth and plucking at the blood-stained dust. (Il. 13.357). But only the medical man can do justice to the examples. A goodly number, though not complete, is found in "*Cumston, The History of Medicine.*"

About medicine little is found in Homer. Helen "dopes" the wine for Telemachus with "nepenthe" from Egypt, a land which bears many drugs, many fairly mixed and many baneful, "and is full of doctors." Odysseus looks for a "man-killing drug" to put on his arrows when he comes to slay the suitors. And woman here, as in later drama, knows baneful drugs and healing plants.

If the poetry of Homer is the work of one man it speaks for a fair degree of the knowledge of the human body and the art of healing on the part of one man. If it is the work of an age then it would argue for a fairly general knowledge. But how much the late Mycenaean age knew about medicine it is almost impossible to know. Some later words in the Cretan language argue for a knowledge of drugs by the Minoans, and the remains of the Minoans palaces show an attention to sanitation that was not equalled by the mainland Greeks in the historic age. The Cretan words that are carried back to Minoan are: *dictame*, which had miraculous powers; *asplenum*, a remedy for affections of the spleen; and *daukos*, a fat reducer.

III. Fifth Century Medicine

Since we don't know from any other source than Homer and the remains of palaces what the Mycenaean Age accomplished in the arts, we are accustomed to saying that the great age of Greece in all spheres of human thought and endeavor was the fifth century. Certainly it was a great age in the awakening of thought. The initial impulse was religious but the scientific spirit soon developed. The spirit of enquiry was fostered not in any one obscure part of Greece alone, but over the whole Greek world. It is true that the lighthearted Ionic Greeks made great contributions, a fact which was acknowl-

edged by the other fact that Ionic Greek became the favored medium of expression. Yet some of the great spirits were Dorian: Herodotus, the Father of History was Dorian, and Hippocrates of Cos, the so-called Father of Medicine. Each wrote in the Ionic dialect. To Hippocrates we shall return later.

IV. The Physicians in the Fifth Century

As was suggested above, sanitation in the fifth century Greece was given less attention in cities than it should have been given. This was eminently true of Athens which quickly became the centre of Greek culture after the Persian Wars as it came to be the focal point around which trade and commerce turned. Disease was common. The great plague in the early years of the Peloponnesian War, the plague to which Athens' foremost statesman, Pericles, succumbed and from which Thucydides, the historian, made an exceptional recovery, was probably due to bad sanitary conditions. The city then was a fertile field for physicians and there were physicians of all sorts. Along with much scientific knowledge derived from the schools of Croton, Cnidus, and Cos there was much quackery and much superstitious practice. The superstitious person, suffering from pain, for example, would apply a puppy to the spot affected in the belief that the puppy would absorb the pain and the sufferer be relieved. It reminds one of the practice in the country districts of Eastern Canada of using a poultice of fresh cow manure to cure sore eyes, only that in the latter there is not the idea, common in the folk-lore of being able to transfer the pain to some other object or person. In fifth century Greece wine was often prescribed when a patient was in high fever, and Cheirisophus the trusted Spartan friend of Xenophon died from an over-dose of drugs administered while he suffered from fever. (*An.* 6.4,11.)

But the study of medicine was in high repute. The great dramatist Aeschylus was a priest of Asclepius and of a minor deity Alcon who had much to do with the art of healing. Euripides shows great interest in many places. Thucydides seems to have had more than an amateur's knowledge. Gorgias of Leontini, the father of oratory in Athens and the man who developed oratorical prose writing made much reference to medicine and was the first, in his studies of dramatic poetry,

to enunciate the famous theory of *catharsis* later formulated by Aristotle, a theory derived no doubt from the study of medicine and expressed in medical terms.

One or two famous physicians it is interesting to mention at the end of the fifth century the historian Ctesias from Ionic Asia Minor was employed at the court of Artaxerxes the Persian. Being a physician he rose to high esteem at the court because of his cure of Artaxerxes' wound received at the hand of his brother at the battle of Cunaxa. His contemporaries and later historians attempted to detract from his fame by asserting that he was a prince of liars, but he furnished materials used liberally by his detractors. No doubt he became wealthy, but the physician is lost in the historian as far as he is concerned. His work gave him opportunity to collect materials for his history. Incidentally, however, he was the court physician.

Cities like Athens had their public physicians, who, by the way, gave their services free to the poor. Among these state physicians one is famous: Democedes a celebrated doctor came to Aegina from Croton, where the Pythagorean school had been established and whose most celebrated representative among the doctors was Alcmaeon (c-500 B. C.) This Democedes it is interesting to know was paid a talent (\$1080) for a year's service; more than four times the general's pay in the Athenian army. At the end of the year he was attracted to Athens across the bay by the fee of one hundred minae ($1\frac{2}{3}$ talents), but the Athenians were in turn outbidden by Polycrates of Samos who increased his pay to *two* talents.

Now these fifth century physicians were not specialists, but were general practitioners. They learned the whole of surgery and the whole of medicine. Training was begun very early. Methods were crude no doubt and quackery frequent, but there were many physicians who were not only skilled but conscientious. Two methods were recognized: that employed with slaves, the demand for unquestioning obedience to the treatment prescribed; and that employed with freemen where persuasion was recognized as essential.

Physicians in private practice worked in association with the guilds of Asclepiadae or independently. Sometimes, too, they were attached to one of the great shrines for healing.

These shrines were the homes of the gods Apollo, Artemis, Hecate, and later Serapis; and the most famous of them were at Epidaurus, the shrine of Asclepius; at Delphi, the shrine of Apollo. The method of procedure at these shrines is well known. The patient before treatment must sleep all night in the temple of the gods, record to the priests what he had dreamed, and on the ground-work of this have a treatment prescribed. On leaving the shrine cured, he dedicated as a memorial to the shrine a representation of the part cured, in terra cotta, marble, silver, or gold. Offerings of other sorts also were made no doubt. The poor man might sometimes be able to offer the god no more than a cock, as Socrates does who made a virtue of his poverty.

The cave of Trophonius in Boeotia was famous, for there married people went who had failed to beget children. On what basis a promise of future success was made no one knows.

It is impossible to say just how soon the practices of these shrines became corrupt. One is likely to be inclined to think, because they work on very slight common sense grounds that they were never more than imposture. Certainly there could never have been much of the scientific about them unless it be in the handling of nervous disorders.

V. Hippocrates and His Successors

Cos, the birthplace of Hippocrates, is famous in the history of Greek thought and Greek literature. In the field of literature it claims Theocritus the poet who made pastoral poetry fashionable, a type that influenced English literature enormously in the eighteenth century and that, though not a great type, had a steadier and more tenacious life than any other in all European literature down to the eighteenth century. It produced also Philetas who worked in the field of love poetry. The latter was, himself, a physician, and Praxagoras, the father of Theocritus, was one. Hippocrates' own work, *The Epidemiae*, was the model for a species of intimate biography by Ion of Chios. Like many of the other small islands of the Aegaeon, Cos arouses wonder at the intellectual energy that radiated from it.

Of the life of Hippocrates we have few details. The chief schools preceding him and contemporary with him were:

Croton, at the head of which was Alcmaeon; Cnidus, whose head, Euryphon, followed the empirical method in the treatment of disease; Cos, the school of Hippocrates. This school worked on the theory that in order to treat any part of the body thoroughly a study of the whole body must be made.

It would require a series of lectures to give the influence of Ionic philosophy and the philosophers of contemporary schools of the Ionians; perhaps Anaximenes with his theory of air as the primal element influenced him most. From Pythagoras' system of numbers he may have derived his theory of the critical days as well as the theory of opposites. With the theory of Heracleitus that all things are in constant motion, hence undergoing constant change, he was in sympathy. The latter's theory of opposites also appealed to him. Undoubtedly Anaxagoras, himself a physician, and Empedocles of Acragas, likewise a physician, had their influence. But with all that can be assigned to predecessors in philosophy and science Hippocrates stands out as the real originator of the science. The long list of works in the *Hippocratic Corpus* while including much not written by him, indicates that he was a pioneer in every branch of medicine known to his day.

Quitman Underwood Newell, 1886 - 1940

Our esteemed colleague, Dr. Quitman Underwood Newell, passed away suddenly on November 4th, 1940.

Dr. Newell's sudden death was a great loss to his associates, and the members of the Faculty of the School of Medicine deeply mourn his loss.

Dr. Newell was born in Mobile County in June, 1886 near the town of Whistler, Alabama and was the seventh of nine children. He received his early education in grammar school and high school of Whistler, Alabama and attended Barton Academy at Mobile, from which he was graduated. After three years of work as an accountant in the Mobile and Ohio Railroad, he began his medical career at the Mobile Medical College, then the Medical Department of the University of Alabama, where he obtained his M.D. degree with honors in 1911. In July, 1911, he came to St. Louis where Dr. Henry Schwarz appointed him as interne on the Obstetrical and Gynecological service at the Washington University Hospital. The following two years he served as resident physician and obtained his early training in gynecology under the direct supervision of Dr. H. S. Crossen.

In July, 1914, he was appointed an assistant in the Department of Obstetrics and was associated in private practice with the late Dr. Herman Hanser. During the next three years, he was an active teacher in the Department of Obstetrics and Gynecology.

During the World War he served overseas as Captain in the Evacuation Hospital No. 18, and saw much active service in France and Germany. He returned to his work in St. Louis in 1919, and was immediately made instructor in the School of Medicine and was given an active service both in Obstetrics and Gynecology in Barnes Hospital. He continued in this work until 1921, when the gynecological service was separated from obstetrics and went to Surgery Department with Dr. H. S. Crossen as Chief. During this time he was one of the most active members of the Gynecological Department and in recog-

dition of his work, he was made an Assistant Professor in 1926. In 1929, the obstetrical and gynecological services were again united and he continued his active work in the combined service, in which he was appointed Associate Professor in 1933 and Professor of Clinical Obstetrics and Gynecology in 1936.

In addition to his activity in the Medical School, Dr. Newell enjoyed an extensive private practice, and in order that he could carry out his work in the Medical School his private practice for many years was entirely conducted in Barnes and St. Louis Maternity Hospitals. As a result of this, Dr. Newell was intimately connected with the work of the house staff. He was an excellent teacher and imparted much of his knowledge and skill to the house men through the years of his active service.

Among his many society memberships are Southern Surgical Association, American College of Surgeons, American Association of Obstetricians, Gynecologists and Abdominal Surgeons and the Central Association of Obstetricians and Gynecologists, and was President-Elect of the Southern Medical Association for 1940, when his untimely death prevented him from carrying out his duties as President of the Southern Medical Association, a duty which he looked forward to with great enthusiasm.

Dr. Newell, published many articles on clinical gynecology, his chief interest being the diagnosis and treatment of uterine cancer. Most outstanding of his publications was, no doubt, that associated with Edgar Allen and Pratt on the recovery of human ova from the female tube, which was published in the American Journal of Obstetrics and Gynecology in 1930. By an ingenious method of recovering the ova from the fimbriated end of the tube, this work was made possible.

In 1920, Dr. Newell married Miss Katie Lou Kelley of Whistler, Alabama. To them were born two children, Quitman, Jr., now 18 years of age and Doris, now 15 years of age who survive him. Mrs. Newell died in 1924.

And so on November 4th, 1940, ended the career of one of the most active and loyal members of the Faculty of the School of Medicine. His energy, his enthusiasm and his loyalty to both the institution and his friends will long be remembered.

Be it therefore resolved that the above tribute concerning Dr. Newell be spread on the minutes of the meeting of the Executive Faculty of Washington University School of Medicine, and that a copy of the resolution be sent to his family.

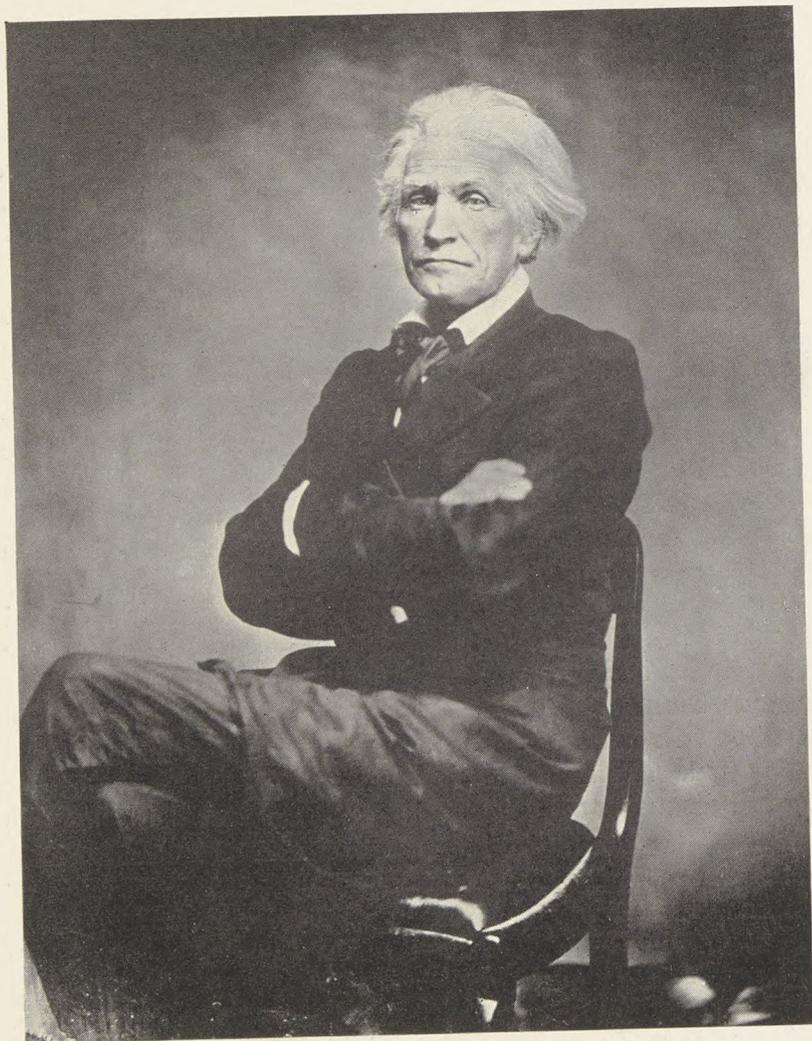
To Mark the Grave of Dr. Joseph Nash McDowell, Founder of the Missouri Medical College

In a famous valedictory oration, Dr. Joseph Nash McDowell drew a picture of the return of his spirit to St. Louis at some time in the future long after his earthly activities had ceased, and of its viewing his grave marked by a stone bearing a simple inscription.

The recent investigations of Dr. Robert E. Schlueter ('95, Missouri Medical College) reveal the record of McDowell's burial in Bellefontaine Cemetery, St. Louis, the location of the family lot and of the Doctor's grave, but no stone to mark the last resting place of the founder of the Missouri Medical College. There can be no doubt that there was once a marker and that in the course of many years it suffered some damage and has not been restored.

The idea of placing a marker at Dr. McDowell's grave was discussed at the reunion of the Class of 1895, Missouri Medical College, held in Murphysboro, Illinois, last June. It was felt that the alumni of the Missouri Medical College now living would welcome an opportunity to pay tribute to the memory of the founder of their school and of a great pioneer in medical education in the West. Inquiry is being made to contact members of Dr. McDowell's family in order that the proposal should be known to them and to learn whether the placing of a marker would meet with their approval. A committee of the Class of 1895 has been appointed to investigate all aspects of the proposal, to decide upon the form of the marker and its cost and to bring the project to the attention of the Missouri Medical alumni. It is expected that a report of the committee will be ready for publication in the April issue of the Quarterly.

R. J. Terry (for the committee)



This portrait of Dr. Joseph Nash McDowell was found by Dr. Harold A. Bulger who has kindly permitted its use in this place. It is reproduced here because it is taken from an excellent photograph and also because it will serve to correct an unfortunate mistake that occurred in volume 1, number 1, of the Quarterly in which the frontispiece is a portrait of Dr. William Carr Lane, incorrectly named Joseph Nash McDowell.

Civil War Note

The following letter was written in response to a request for some recollections of Mr. Kibbe, who was a guard at the McDowell Medical College when it was utilized as a military prison during the Civil War.

A note from his daughter accompanying it related that Mr. Kibbe was 96 on September 22, and that he is still active and alert to current affairs.

Early in September 1862, a number of the recruits of the 12th Wisconsin Battery were on our way south for service in the Civil War. We had enlisted at Janesville, Wisconsin, gone to Chicago and on to St. Louis. There we were delayed waiting for transportation facilities. While in St. Louis we were quartered in Schofield Barracks which, as I recall, occupied a quarter of a block near the center of the city.

I do not remember many of the experiences during the time spent there, but do recall one or two affairs.

One night just at bed time, we heard a shot and rushed outside to see what had happened. We found that one of our energetic boys had been going through a little extra practice on the Manual of Arms and that during the practice his musket had slipped from his hands to the sidewalk and been discharged. The bullet cut through an arm and a leg of one of our best men, who was sitting on a stone at the left of the entrance to the headquarters building. The wounded boy was cared for at the hospital and finally recovered. Probably our boy at practice was entertainingly awkward, but at some hazard to onlookers. The medical attention must have been very good as the wounded boy recovered quite rapidly from an apparently severe injury.

At one time, I was detailed on night duty as guard over the confederate prisoners confined to one of the buildings of McDowell College. This was my first military assignment, and I well recall my chestiness as I paraded forth and back with my musket on my shoulder.

However, we had no trouble with the confederates, and I remember the feeling that we were being very well treated

by all the people with whom we came in contact. The whole experience seems to have been a fairly pleasant one.

Later, after a furlough home, I was again in St. Louis where I stayed at a new hotel which seemed very sumptuous for those times. I do not recollect the name of this hotel.

After a couple of days, I was furnished transportation down the river to Vicksburg where I rejoined my battery.

If there is any person who remembers any of the events of those days, I shall be glad to hear from him.

Very sincerely,

A. R. Kibbe,
New Richmond, Wisc.

DEPARTMENTAL CONFERENCES

Pathology

BRONCHIECTASIS — ACUTE DISSEMINATED
ACTINOMYCOSIS

History No. 82328: A 43 year old woman, a beautician, was admitted to the Surgical Service of the Barnes Hospital on July 8, 1940, complaining of an intractable productive cough for the past fifteen years. At times, the sputum had been blood-tinged.

Fifteen years ago she underwent an abdominal operation for the removal of leiomyomata of the uterus and a cyst of the ovary. The post-operative course was stormy. Following this she had an annoying cough and a moderate amount of sputum, but had been reasonably well until one year ago at which time she had a panhysterectomy. Eleven months after this operation she again developed the signs and symptoms of inflammation of the right lung. The sputum at this time was foul and blood-streaked and the cough was severe.

On admission to the hospital physical examination revealed a well developed and fairly well nourished white woman. There were dullness, diminished breath sounds, an increased vocal and tactile fremitus over the right lower lobe. Laboratory examination contributed no significant findings. An x-ray of the chest showed increased density in the right lower lobe and elevation of the right leaf of the diaphragm. Bronchoscopic examination revealed bronchiectasis of the right lower lobe. Lipiodol studies confirmed this impression and on August 1, 1940, the lower and middle lobes of the right lung were removed. Convalescence was satisfactory until August 16, when putrid empyema developed and was adequately drained by a rib resection. Toward the latter part of August, she became apathetic, disoriented and presented neurological signs suggestive of an abscess of the brain. There was a complete left hemiplegia with convulsions involving the right arm and leg. The patient's course was rapidly down-hill and she died September 9, 1940.

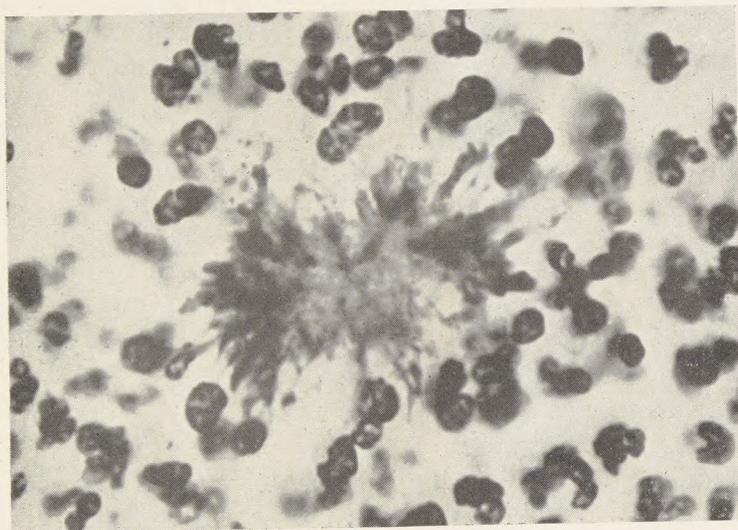


Fig. 1—Colony of Actinomyces in an abscess of the spleen

Post mortem No. 8833: The left pleural cavity was completely obliterated by fibrous adhesions. On the right side the two layers of pleura were adherent and thickened by a grayish white tissue. The cut surface of the lungs was normal except for bronchopneumonia and small foci of organizing pneumonia in the right lower lobe. The liver contained one small abscess 3 millimeters in diameter. The spleen was enlarged and in the superior pole there was an abscess containing 5 cc of greenish yellow pus. There was a similar abscess in the inferior pole of the spleen. The leptomeninges were thickened by a grayish yellow exudate in the subarachnoid space especially in the left lower parietal region. Section of the brain revealed many discrete abscesses in all parts. The largest cavity measured 2 centimeters in diameter. Microscopically the abscesses in the liver, spleen and brain consist of foci of necrosis surrounded by an area of inflammation with polymorphonuclear leukocytes. In these abscesses there were small clumps of a ray-fungus similar to actinomyotic granules. (Fig. 1.)

Discussion: This case is unusual in the development of an acute disseminated actinomycosis following an operation on the lung. In a certain percentage of lung abscesses and bron-

chiectasis, abscesses of the brain develop, but it is unusual to have abscesses in the liver and spleen under these conditions.

ACUTE MENINGOCOCCIC SEPTICEMIA

Friderichsen-Waterhouse Syndrome

History No. Q 2485. A four year old white boy was admitted to the St. Louis Children's Hospital on November 21, 1940, in a comatose condition. He had been perfectly well until the previous evening when he refused to eat supper and stated that he did not feel well. Later in the evening he had several convulsions and developed a high fever. In the morning there was a red rash over the entire body.

On entrance to the hospital he was cyanotic and breathing irregularly. There were purpuric areas over the skin varying from 5 to 25 millimeters in diameter. There were petechiae in the conjunctiva and in the mucosa of the nose and mouth. The neck was stiff but there were no other neurological signs. The white blood cell count was 56,000 with a marked shift to the left. A blood culture revealed many meningococci.

Postmortem No. 8931. The brain was grossly normal and microscopically there were a few lymphocytes and a rare polymorphonuclear leukocyte in the subarachnoidal space. The lungs were congested and edematous. The spleen was large and soft. The adrenals were large and on section the greater part of the adrenals was made up of fluid and clotted blood.

Discussion. This case is a typical example of acute meningococcic septicemia with minimal changes in the meninges and extensive hemorrhage into the adrenal glands. It is generally known as the Friderichsen-Waterhouse syndrome. It is believed by many that the symptoms of sudden collapse are in a large part due to the hemorrhage into the adrenal glands.

HEMORRHAGE INTO THE ADRENALS IN THE NEWBORN

History No. 24901. A twenty-one year old white woman (primagravida) was admitted to the St. Louis Maternity Hospital on October 21, 1940. The pregnancy had been uncomplicated. She had a funnel pelvis and the fetus was in full breech presentation. After a labor which lasted two hours and twenty-five minutes a well developed male infant was delivered. The infant weighed 3900 grams. In order to accomplish the delivery incisions were made in the cervix and the

after-coming head was extracted with some difficulty by the Mariceau maneuver. The postpartum course of the mother was uneventful.

The baby at birth was cyanotic and artificial respiration had to be performed for several minutes before he cried. The blood sugar was 18 mgs. percent and upon the basis of a clinical diagnosis of hemorrhage into the adrenals cortical hormone and glucose were given. The baby lived twenty-two hours after delivery.

Postmortem No. 8898. There was one small tear in the tentorium cerebelli with a small amount of hemorrhage into the tentorium. There were several small hemorrhages into the subarachnoidal space over the cerebellum. The posterior portions of both lungs were red and firm and microscopically showed an early bronchopneumonia. The adrenals were three times normal size and on section the architecture was completely obscured by a mass of clotted and fluid blood. Microscopically only a few cells on the periphery of the adrenal were preserved.

Discussion. The adrenal gland in the newborn infant undergoes a remarkable series of changes. First adequately described by Aschoff, these changes consist of necrosis of the internal two thirds of the adrenal cortex. Only the zona glomerulosa is left as an intact structure. The process takes place during the first few weeks after birth and is usually completed by the second or third month. The adrenal glands of the adult represent regeneration from the zona glomerulosa. Within the past few years physiologists and pathologists have come to recognize the adrenal glands as not a dual endocrine but rather a triple endocrine organ. The three parts are the adrenal cortex in the usual sense, the adrenal medulla and the so-called X-zone. The X-zone represents the cells of the adrenal which are directly concerned with sex. On restudy of the process of neonatal involution of the adrenal it is found that the necrosis occurs in the X-zone. At times the process is so severe that there is extensive hemorrhage and it is probable that the examples, such as this case, of hemorrhage into the adrenals of the newborn are nothing but an exaggeration of this normal physiological process. It is an adequate cause of death in newborn infants.

TULAREMIA

History No. A 9607: A 76 year old white woman was admitted to the Barnes Hospital on November 14, 1940, in a comatose condition. From relatives, it was learned that on November 7, she picked up a dead rabbit in her back yard and dressed it. Four days later she became suddenly ill with a cough, nose bleed and a high fever. Her right forefinger began to swell and was painful.

On physical examination at the time of admission there was a diffuse cellulitis of the right index finger, but without ulceration. The lymph nodes in the axilla were enlarged. The pharyngeal mucous membrane was swollen and reddened and the cervical lymph nodes were enlarged. There were rales over the base of both lungs. In the hospital the temperature ranged from 38° to 41°. The white blood cell count was 15,000 and the differential showed a marked shift to the left. She died three days after admission.

Post Mortem No. 8923: In the lower lobes of both lungs there were several ill-defined foci of increased density which were subcrepitant and dark red in color. The left was normal except for a few 1 millimeter in diameter gray foci especially beneath the capsule. The spleen was soft and dark purplish red in color. Throughout all parts of the spleen there were small yellowish white foci, 1 to 3 millimeters in diameter which were soft in consistency. The mucosa of the bladder was edematous and congested. The axillary lymph nodes were greatly enlarged, soft grayish white in color and in large part necrotic. Microscopically the lesions in the liver, spleen and lymph nodes were essentially the same. In the center of each focus there was an area of necrosis. Surrounding the necrotic area there were large mononuclear cells some of which contain pyknotic nuclei.

Discussion: Aside from the lack of ulceration on the finger, this is a typical case of tularemia. There is the history of dressing a rabbit and an incubation period of four days. The enlargement of the axillary lymph nodes, the small foci of necrosis in the liver and spleen and the bronchopneumonia are characteristic of the disease and a pathological diagnosis of tularemia can be established even in the absence of a definite history.

CHOLECYSTOCOLIC FISTULA — CHOLELITHIASIS

History No. 84075: A 53 year old white woman was admitted to the Barnes Hospital for the second time on August 19, 1940. She was first seen in the Washington University Clinic in December, 1939, following an illness of two weeks, characterized by a severe boring, almost constant pain, in the epigastrium and in the right upper quadrant of the abdomen. This pain did not radiate and did not require medication although it interfered at times with sleep. She was advised to enter the hospital under a tentative diagnosis of acute cholecystitis, but she refused to do this. From time to time during the winter and spring her friends remarked on the yellow color of her skin and she herself observed that her urine was dark in color and that her stools were pale in color.

In June, 1939, she had a severe attack of pain in the right subcostal region followed by a cramp-like pain in the lower abdomen. At the end of $2\frac{1}{2}$ days she passed per rectum a stone measuring approximately $2\frac{1}{2} \times 1\frac{1}{2}$ cm which showed one facet on the surface. The pain immediately disappeared but there followed a watery diarrhea which continued until admission to the hospital two months later. She had lost 50 pounds in weight in the preceding six months. Analysis of the stone showed it to contain about 85% cholesterol.

Physical examination on admission revealed a temperature of 37.4, pulse of 78, respirations of 24 and blood pressure of 110/65. The significant physical findings were tenderness in the right subcostal area and slight tenderness in the right upper quadrant of the abdomen without palpable masses. The liver was possibly slightly enlarged. There was a rectocele and varicosities of the lower extremities. The roentgenographic and fluoroscopic studies of the gastro-intestinal tract revealed a cholecystocolic fistula between the hepatic flexure of the colon and the fundus of the gall bladder. The urine contained a trace of albumin, but was not otherwise remarkable. Following pre-operative administration of fluids the abdomen was opened and the fistula closed and the gall bladder removed. Following operation the course was stormy with a precipitous fall in blood pressure and slight elevation of the pulse and respiration. A transfusion and other therapy were of no avail and she died on the second post-operative day.

Post Mortem No. 8810: The peritoneal cavity contained 2500 cc of sero-sanguinous fluid which clotted. The clots were most abundant in the region of the bed of the gall bladder. The point of closure of the colon showed no unusual features. The common bile duct was slightly dilated and throughout the hepatic duct there were numerous small, 1 mm., in diameter calculi. No interruption of the larger blood vessel could be demonstrated to account for the hemoperitoneum. The liver weighed 1500 gms and on microscopic examination showed slight cholangitis and moderate obstructive biliary cirrhosis. There was a slight chronic endocarditis of the mitral valve without enlargement of the heart.

Discussion: The cause of death in this patient would appear to be exsanguination as the result of the hemoperitoneum. As no larger blood vessels could be demonstrated as the source of hemorrhage it may be assumed, but not accepted as proven, that the hemorrhage was parenchymatous in nature and due to a hypoprothrombinemia. It is possible that for 6 months there was an inadequate amount of bile in the gastro-intestinal tract for the proper absorption of vitamin K. It is also possible that the diarrhea for a two months period prevented absorption of vitamin K. The weight loss would indicate an inadequate absorption of the usual dietary constituents, protein, carbohydrates and fat.

The clinical picture of disease of the gall bladder, cholelithiasis, ulceration into the colon and the passage of a gall stone in the stool is a rare condition, but entirely typical in this case.

Urology

Attempt is constantly being made by staff analysis of pyelograms to improve the accuracy of such diagnosis by group observation and by adding new interpretive points. In this regard we find throughout the country that there is less general belief in the accuracy of the "aberrant blood vessel" diagnosis, that is, a blood vessel not going to or from the hilus as it should but rather to or from the lower half of the kidney. In transit such a blood vessel may contact the ureter near or at the ureteral pelvic junction and symptomatically produce

ureteral block and a pyelographic filling defect at the point where it meets the ureter. These retrograde pyelograms made with 30% Hippuran solution show this point very definitely in the negative shadow or narrow break in the radio-opaque filling of the ureter. This filling defect is at the proper place and further is exaggerated in the "erect" pyelogram. In all urological retrograde x-ray studies first we take a plain x-ray film, then a pyelogram with the patient in Trendelenburg's position, then the catheters are withdrawn immediately in order not to splint the ureters, and the "erect" pyelogram is made. Complete cystoscopic studies in this case show equal phenol red output from the right and left kidney and are otherwise negative. The history and physical findings are not typical though rather suggestive of kidney pain, but when we overdistend this kidney pelvis with water we *do not* reproduce the *old* pain of which the patient complained. We must use water for this test as an irritating substance such as sodium bromide, for example, will produce ureteral spasm and cause a unilateral though usually more generalized abdominal pain. Pelves which long have been subjected to back pressure will not be sensitive to overdistension.

The intravenous pyelograms of the same patient, which we demonstrate next, show the same suggestive defect in the filling of the ureter with no dilatation of the pelvis above it. Our intravenous pyelograms are made by routine procedure. The important steps are: (1) Withhold all fluids for 12 hours, usually 9 P. M. to 9 A. M. (2) Give 1 cc. pitressin "H" in divided doses 1 hour and $\frac{1}{2}$ hr. before the examination. (3) Take plain (14 x 17) kidney, ureter and bladder films. (4) Take 5 min. film without abdominal compression. This constitutes an imperfect but suggestive differential kidney function test in that it shows the ability of each kidney to concentrate iodine. In this case this ability is equal, the same as we found in the differential phenol red retrograde kidney function test. (5) 15 and 30 minute films. These films are made with the patient flat. (6) 30 minute "erect" film. With all of these films before us it is interesting to note that almost exactly only the 11th and 12th ribs show and therefore the entire ureters and bladder are demonstrable on each film. We consider this very important. From the standpoint the usual differential diag-

nosis—aberrant blood vessel or ureteral spasm or filling defect, we note that the kidney is a little low and that the ureter, beginning with the negative uretero-pelvic shadow, seems to curve upward and then traverses downward upon the psoas major muscle. This is the new interpretative point! We have found in many cases, with the help of Dr. Robert J. Terry of the Department of Anatomy, that if the pelvis of a kidney is located somewhat upon the posterior aspect, and if the psoas major muscle is unusually thick, or the kidney somewhat ptosed to bring the pelvis near a thicker portion of the muscle, that the ureter near the ureteral pelvic junction will in some instances angulate near this point, that it may travel up and onto the psoas major muscle. This is the status in this case; in other cases this occurrence actually causes urinary obstruction. The belief is growing that such a kink or angulation as we see here will produce a filling defect in the pyelogram which may strongly suggest an aberrant blood vessel. When such a diagnosis is made and not substantiated at operation there inevitably results an increasing doubt in the very well and correctly established diagnosis of "aberrant blood vessel."

D. K. Rose, M.D.

News of the School

Harry Sturgeon Crossen Testimonial

GEORGE WULFF, M.D.

In recognition of his ability as a gynecologist and teacher for more than forty years, Dr. Harry Sturgeon Crossen was honored on November 23 at a dinner given by more than 200 of his friends and colleagues in the medical profession.

The testimonial was held at the Coronado Hotel and centered around the presentation of a portrait of Dr. Crossen to Washington University Medical School. The portrait was executed by Scott MacNutt of St. Louis and has been added to those already present in the Medical School Library. Dr. Otto H. Schwarz, former professor of obstetrics and gynecology, presented the portrait to the University and Dr. Malvern B. Clopton, as President of the Corporation, accepted it.*

Toastmaster for the evening was Mr. Frank C. Rand, Chairman of the Board of Trustees of Barnes Hospital. The guest speaker was Dr. George Gray Ward of New York City, Professor Emeritus of Gynecology at Cornell University. He spoke of the close relationship between his and Dr. Crossen's careers and of the many advances made during their more than forty years in practice.

Dr. P. A. Shaffer, Dean of the School of Medicine, presented to Dr. Crossen a leather-bound copy of the evening's program which contained the signatures of the entire group contributing to the event.

Dr. Crossen then told of the close relationship between any teacher and his students emphasizing the value of such associations especially to the teacher, stimulating him to new thoughts and endeavors.

Dr. Crossen is a graduate of the Old Missouri Medical School in 1892 and after extensive training at City Hospital and the old Woman's Hospital became associated with Washington University as an instructor in obstetrics and gynecology in 1901. He later became Professor of Clinical Gynecology,

* See frontispiece.

serving in that capacity until 1935. Since then he has continued his close connection with the teaching as Professor Emeritus.

He is widely known for his books on gynecology. His "Diseases of Women," now in its eighth edition, is one of the most practical and thorough treatises we have. His "Operative Gynecology," now in its fifth edition is of excellent value as a reference to the many different techniques in gynecological surgery. He also has written a "Synopsis of Gynecology" and a "Gynecology for Nurses," and within the past two months his latest volume has been published, "Foreign Bodies Left in the Abdominal Cavity."

Dr. R. S. Weiss Honored by American Academy

Dr. Richard S. Weiss, assistant professor of clinical dermatology at Washington University Medical School, has been elected president of the American Academy of Dermatology and Syphilology.

Dr. Weiss is also president of the Missouri Social Hygiene Association and vice-president of the section on dermatology and syphilology of the American Medical Association. He is a graduate of the Medical School being a member of the Class of '09.

Dr. G. D. Royston Chosen President-Elect of Obstetricians and Gynecologists

Dr. G. D. Royston was chosen president-elect of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons at the fifty-third annual meeting of the association at Excelsior Springs, Mo., in September, 1940.

Dr. Royston is a graduate of Washington University School of Medicine ('07) and is now professor of Clinical Obstetrics and Gynecology there. He has been a member of the American Board of Obstetrics and Gynecology since its beginning.

Marriage

Dr. A. C. Stutsman to Miss Helen Eades of Urbana, Ill., on December 21st. Dr. Stutsman is Assistant Professor in Clinical Otolaryngology at Washington University Medical School.

The Medical Library

The library was the recipient recently of a very nice gift of thirty-one volumes of works, mainly on neurology and psychiatry, donated by Dr. Samuel Treat Armstrong, class of '79, of the St. Louis Medical College; also a much prized photograph of the class of '79. Among the books was a set of the Loeb Classical Series of Hippocrates, in four volumes, a translation by W. H. S. Jones and E. T. Withington.

The library of the University of Illinois School of Medicine in Chicago has given us seven works by Dr. William Allen Pusey, also an additional set to be placed in the Engman collection. The Illinois library houses the entire library of Dr. Pusey, a gift to them before his death. They are distributing the remainders of his personal works among the library members of the Medical Library Association insofar as they will go around.

Dr. Clopton has given the library several photographs for its Beaumont collection, one of Deborah Beaumont and others of the E. A. Beaumont home, from the collection of the late Ethan Allen Beaumont, grandson of Dr. Beaumont. These had been sent to him by Mrs. K. L. Kessler, of De Pere, Wisconsin.

The Wyeth Chemical Company has sent the library a framed copy of "Osler at Old Blockley" by Dean Cornwell. This is the second of a series of six which the artist is to do for the company.

On November 25th, the librarian was given a surprise tea in the Dean's office, in celebration of her 25th anniversary in the library of the medical school. Dr. Shaffer spoke in appreciation of Miss Lawrence's part in the development of the library during these 25 years. She was then presented with a silver bowl and a number of letters and telegrams from the faculty and other well-wishers. About 75 persons were present.

The portrait of Dr. Harry Sturgeon Crossen, by McNutt, which was presented to the medical school by his colleagues and friends at the celebration commemorating Dr. Crossen's 40 years' association with the school, is now hanging in the library reading room.

LOCATIONS FOR PRACTICE

Monroe, N. C. Town and county has population of 42,000. Desires an Eye, Ear, Nose and Throat specialist. Inquire of Dr. K. E. Neese.

Grover, Colo. Inquire of Mrs. O. G. Johnson.

Protestant community in agriculture district desires young, gentile doctor. Population, 360 but has good reason to expect increase in the coming year. Inquire Alumni Office.

Missouri county. Thirty minute drive over good roads to modern hospital. Inquire of Mr. J. Grant Frye, Cape Girardeau, Mo.

Owensville, Mo. Take over practice of doctor called for military service. \$5000 to \$6000 a year. Inquire Dr. Seth S. Barnes.

Palmyra, Mo. Inquire of Mr. Wm. M. Schaffer.

Residency open in Wabash Employees' Hospital, Decatur, Ill. Inquire of Dr. D. A. Spence, Surgeon In Charge.

Neihart, Montana. Contract practice in mining camp. Guarantees between \$400 and \$500 per month. Inquire of Mr. H. J. Evens, Lexington Mining Company.

In Memoriam

Dallas Seth Boles, '01, Ava, Ill., died September 12, of heart disease; aged 63.

Hiram Jackson Clark, '07, Excelsior Springs, Mo., died October 2, of heart trouble.

Leander Cox, Mo. '89, Springfield, Mo., aged 80, died January 6, of heart attack.

H. W. Harris, Mo. '88, Canton, Mo., aged 76, died August 12, of coronary thrombosis.

John Archer Hatchett, Mo. '84, Oklahoma City, Okla., aged 87, died August 16 of arteriosclerosis and pneumonia.

C. H. Lockhart, '98, Witt, Ill., died May 17, of cerebral hemorrhage.

Ray Herman McGuire, '32, Medora, Ill., died August 24, of cerebral hemorrhage.

Archie L. Shanks, '01, Hannibal, Mo., died October 23, of coronary occlusion, aged 65.

Rollin J. Smith, Mo. '87, Appleton, City, Mo., aged 79, died July 20.

Otto Jacob Stein, '91, Palos Verdes, Calif., died November 21, 1938.

Frank A. Stubblefield, Mo., '82, Brighton, Ill., aged 80, died July 27.

Richard S. Tyler, Mo. '79, Sweet Springs, Mo., aged 84, died September 22, of myocarditis.

H. F. Wilton, Mo. '85, Nocona, Texas, died.

Alumni News

Graduate of Washington University Aboard British Warship

In a letter to Leland Stansell, newspaper man of East St. Louis, Dr. William Love, '40, told of Christmas Eve aboard an unidentified British Warship.

His letter follows:

Christmas Eve.

"Dear Lee:

With very mixed emotions I am endeavoring to answer a letter from you which I received today! I could not wish for a better Christmas gift than your letter and the enclosed clippings. Since I wrote you last the world has been more than ever topsy-turvy (and incidentally, it's very hard to write with the ship pitching me over the shop!). It's much too bad. I can't go on and will finish this tomorrow, God willing and a calmer sea!

What a lovely scrawl! Things are much more calm now so I'll get on with this. Since I last wrote you I was given orders to go to sea and here I am. I can't tell you the name of the ship or where we go but take it from me we go places and see things. This time we will be traveling for 30 days and I expect to get a good suntan. We get to our home port in Scotland each time.

It is uncomfortably cold here right now and when I'm on deck I feel as if I should never be warm again. I've had one taste of being out on the Atlantic wet through with no shelter to go to and I could only wish for a hot St. Louis day.

This is still Christmas Eve and I have the wireless on (radio to you) and Adelaide Hall is singing. It's wonderful to hear an American voice and I'm practically on the verge of tears! Christmas Eve—how different from my last one when I was at Eastlian till closing and then on to other places with Johnny Nunn and Roy Boehmer! At that time I had but an inkling of the things that were to come and realization of the grimness of this terrible affair. As I remarked to you before—everyone over there is playing for keeps.

I'm sorry that I can't tell you the name of my ship—you mention the Jervis Bay incident in your last letter—two of my best friends went to a watery grave in that naval display. You mentioned the Ajax, a fine ship.

It is now 11:40—10 more minutes before Christmas. What are you doing—probably at the Seville—lights blazing and no fear of a red warning. What is a red warning? Well, I'll tell you—when the evening approaches (and they always are) if he (Jerry) comes near your immediate vicinity; the siren wails. In music it would look like this. (Here Dr. Love drew a few bars of music indicating that the sound would go from a very low pitch to a very high pitch and back again.)

But I can say this—if I ever get the D.T.'s that's what I'll hear. Day after day and hour after hour it goes on. Then you run for shelter—on board ship there is no place to run but to action stations and wait. Suddenly from a cloud a dive

bomber swoops with two Messerschmits in convoy—the deck is sprayed with bullets by the later, with the hope of sending us all to cover while the bomber drops its deadly salute in our midst. Happily, we know what to expect and to the last man they stick to their post. A. A. fire quickly sends the marauders on their way and we all breathe again!

As easy as that? No—someone is always hurt and after the scare the surgeon has his work to do, but it is a privilege to work on people who daily offer their lives for the sake of decency. Now I'm getting melodramatic but it still goes!

These are marvelous people and if I meet my end and I could not ask to be in better company or for a better cause. You people in America and Canada have no realization of war—and there is nothing I can say that will give you the realization. A year ago when I was sitting out in the Yellow House I was as conscious of war as you are now. It is moving toward your doorstep and when it arrives you will know what these people have been putting up with on theirs for the past year!

Enough for our situation—thank God there are places left where a light may shine unshielded—where no gas masks are part of the daily dress, and one computes their future in years of instead of minutes!

And my watch says 12:00—so I'll say 'Merry Christmas.' Give my best to everyone. I wonder if mental telepathy is working and if you are giving me a thought at this moment!

You asked if I would like cigarettes—my shipmates would love

them. As for me I'd like socks. Can you knit? They have to be navy blue. Please write soon; and do me another favour. Will you get a copy of your column quoting my letter and send it to my sister, Mrs. G. Meldrum, Penticton, B. C., Canada. I've written to them but no letters seem to get through—so send them a copy of the column and tell them I'm O.K. I'd really appreciate it!

Now the time has come to say goodbye—for 30 days—I'll have this flown ashore and I hope it finds you and yours in the best of health enjoying the finest of New Years.

My very best,

Bill."

E. F. Ellis, '85, Fayetteville, Ark., recently gave his entire medical library consisting of more than 1100 volumes to the University of Arkansas School of Medicine. Dr. Ellis was listed as the first subscriber and only continuous subscriber in the Fortieth Anniversary issue of the Year Book of General Medicines.

Horace E. Ruff, '94, 723½ East 13th St., Little Rock, Ark., is a Lieutenant-Colonel in the U. S. Medical Reserve Corps, and recently was decorated with the order of the Purple Heart and Silver Star medals of the U. S. Army for bravery in action in the Argonne Forest Battle during the World War I. Dr. Ruff has two sons, both doctors. The oldest, Dr. Horace E. Ruff, Jr., is teaching physics at Louisiana Poly Tech, Ruston, La., while the youngest, Dr. John Ruff is in the U. S. Public Health Service at Ozark, Ark., being head of that particular district.

Sandor Horwitz, '95, Peoria, Ill.,

was recently honored by the Illinois State 40 et 8, an honorary society of the American Legion, when he was elected grand medecin. The 40 et 8 in recent years has done much for Child Welfare in the state and Dr. Horwitz has been personally active in this work.

F. L. Whelpley, '02, Goldsboro, N. C., has for the past twenty-three years been affiliated with the State Hospital there, the last three years as Superintendent. Dr. S. B. McPheeters, '03, is Health Officer of Goldsboro and surrounding county.

Harley Marshall, '09, who has been practicing medicine in Herington, Kansas, for thirty years, spent Christmas with his daughter who is a dietician in the University of California Hospital, San Francisco, Calif.

For his paper, entitled "The Aortic Arch in Primates," Dr. C. F. De Garis, '12, was awarded an A. Cressy Morrison Prize in Natural Science in 1940 by the New York Academy of Sciences. The cash award was \$200. With R. E. Chase, he also recently published a paper entitled "The Brachial Plexus in *Macacus rhesus*, Compared with Man;" this appeared in the *American Journal Phys. Anthropology*, vol. 27, Sept. 20, 1940.

Joseph Madison Greer, '12, Phoenix, Ariz., is interested in aviation medicine. He is a licensed airplane pilot and flies his own plane. Dr. Greer is a surgeon and is a Fellow of the American College of Surgeons and of the International College of Surgery. He is a Commander in the U. S. Naval Reserve.

George V. Feist, '23, Kansas City, Mo., recently received orders from the War Department promoting him

to the rank of Lieutenant-Colonel Medical Corps Reserve.

Thomas M. Boulware, '26, Birmingham, Ala., is president of the Alabama Association of Obstetrics and Gynecology. Dr. Boulware is married and has two children; Zoe Ann, 6, and Thomas, III, 3.

Earl Maxwell, '28, is Commanding Officer of the newly formed Savannah Air Base Hospital in Savannah, Ga. He holds the rank of Major in the Army Medical Corps.

Walter G. Stuck, '29, has an office for his practice of orthopedic surgery in San Antonio, Texas, and is Chief of the Orthopedic Surgery Service at the Robert B. Green Hospital there. He is secretary of the Texas Surgical Society and associate editor of the "Southern Surgeon." Dr. Stuck was married March 28, 1936, to Mary Eleanor Buck of Chicago and they have one daughter, Eleanor, aged 3.

Lawrence Livingston, '30, Cordell, Oklahoma, is a member of the U. S. Medical Reserve Corps. Dr. Livingston is married and has one child, a boy.

C. S. Linton, '32, has a new office for his practice of Ophthalmology and Otolaryngology in association with allergy in Tucson, Ariz. He issues a standing invitation to his classmates to visit him any time they are in that vicinity.

J. Keller Mack, '32, was recently appointed Medical Director of the Children's Hospital, Louisville, Ky. This is a 75 bed hospital which takes general pediatric cases and is affiliated with the University of Louisville for teaching purposes.

John H. Platz, '32, has an office for general practice at 111 S. Main St., Carrollton, Mo. He is secretary

of the Carroll County Medical Society and a Fellow in the A. M. A. Dr. Platz is a Captain in the Medical Corps Reserve and is assigned to the 268th General Hospital.

W. H. Doyle, '34, Fite Clinic, Muskogee, Okla., was a recent visitor to the Alumni Room. He was enroute to the Southern Medical Medical Association meeting. On February 15th, Dr. Doyle is to obtain his Master of Medical Science degree from the University of Pennsylvania.

Corinne Westphal, '34, has an office in Yorktown, Texas, for the Practice of Ophthalmology and Anesthesia. Dr. Westphal is a member of the Texas State Medical Society and the American Society of Anesthetists.

Leonard G. Rosenthal, '34, was married November 21st to Miss Marian Lerner of Carbondale, Ill. Dr. Lerner has an office for the practice of Otolaryngology in the Lister Bldg., St. Louis, Mo.

Wm. S. Wallace, '35, became Professor of Radiology at the University of Texas Medical School, Galveston, on January 1, 1941.

Michael O'Heeron, '35, was recently married. Dr. O'Heeron is practicing GU Surgery in Houston, Texas.

David O. Weiner, '35, is a member of the U. S. National Guard, Missouri Division, and was among those who left for active duty on January 2.

Ben Schwartzman, '35, and Mrs. Schwartzman are the proud parents of a baby girl born October 30. She has been named Lois Ann.

Irl R. Long, '36, was commissioned a First Lieutenant in the Medical Corps of the Army October

24. He is on duty at Fort Jackson, S. C.

John F. Dillon, III, '36, has an office for the practice of Obstetrics and Gynecology in the Belt Bldg., Montgomery, Ala.

Orwyn H. Ellis, '36, recently opened an office at 727 West 7th St., Los Angeles, Calif., for the practice of Ophthalmology. Dr. Ellis has two children; a girl, Nancy Elizabeth, 4½ years old, and a boy, George Haywood, 2 years old. He holds the rank of First Lieutenant in the Army, and is an Instructor at the College of Medical Evangelists.

M. L. Skaller, '37, is in general practice in Blytheville, Arkansas.

Julian P. Levinson, '37, has just completed three years at Mercy Hospital, and is now at Mayo Clinic in Rochester. Dr. Levinson is specializing in internal medicine with special reference to cardiology.

Eldred LaMonte Gann, '37, is a Captain in the Medical Corps of the Army, and is stationed at Barksdale Field, Louisiana.

Marie Wittler, '37, is with the State Bureau of Maternal & Child Welfare in Madison, Wis. Dr. Wittler spent the Christmas holidays in St. Louis with her parents.

J. William Shuman, Jr., '38, has completed one year of a three year preceptorship in anaesthesia at the Methodist Hospital, in Los Angeles.

Pearl E. Koch, '38, writes that on July 6, 1940 she became Mrs. Max Richard Boye. Mr. Boye is chief engineer of Wyman-Gordon Co. of Harvey, Ill. At present Dr. Koch is not practicing but expects to practice later in Internal Medicine & Cardiology.

Benjamin Milder, '39, is associate

resident in Ophthalmology at Billings Hospital, Chicago.

Dale Bishop, '40 and Mary McFayden, '40, were married on November 9, 1940. Dr. McFayden has a year's appointment in pathology at Washington University, and Dr. Bishop is interning at City Hospital, St. Louis.

Burton E. Kitchen, '40, was married to Miss Max Garland of Watsonville, Calif., on August 31, 1940. Dr. Kitchen is serving his interne-

ship at San Francisco City and County Hospital. Mrs. Kitchen is a graduate of Washington University Nursing School ('40). They are residing at 1202 Hampshire St., San Francisco, Calif.

Wm. Love, '40, writes us that he would very much appreciate each line that comes his way and that he can be reached by addressing his mail—Surgeon Lieut. Love, R.C.N. V.R., Admiralty, G. P. O., London, England.

Student News

Marriages

Ruth Belding of Oakland, California, to Bruce Canaga, '41, on December 24, 1940.

Jane Sanford to Al Lemoine, '43, on December 23.

Birth

Mr. and Mrs. Charles Yarbrough, '41, announce the birth of a son, Stephen, on Dec. 21.

The Senior class has been rather active in class affairs. A Halloween dance at Hoene's Barn was so satisfactory that it was followed by another dance early in December which was likewise all that could be asked. Senior class officers are Cramer Reed, president; Jud Chalkley, vice-president; and Kenneth Kerner, secretary-treasurer.

The other classes have not conducted any activities as a group. The usual interclass athletics have been conspicuously absent. Let's

hope that we can pep things up a little during the remainder of the year. The Junior class is conducting a bridge tournament and, under the guidance of Phil Shahan, is making arrangements for the annual Junior-Senior Dance.

Junior class officers are Alan McAfee, president, and Helen Reller, secretary-treasurer. Freshman class officers are John Payne, president; Tom Stoffer, vice-president; and Dick Compton, secretary-treasurer. The sophomores have apparently seen no need of electing any.

Helen Hewitt, '44, was recently awarded a fifty dollar prize in a contest conducted by THYRSUS, the Washington University dramatic club, for her play "Esty."

Social life has been enlivened by frequent house dances given by the various fraternities. A particularly enjoyable dance was the one given by the Nu Sigma Nu's at the Westborough Country Club in November.

Charles Huguley, '42

PLEASE CONTRIBUTE NEWS

for the Quarterly and Information for the Alumni Office

using the following form as a guide and sending your response
to Miss Louise Hunt, Washington University
School of Medicine

Full name (print)

Class of

Office address: number and street, town and state

.....

Membership in medical and other scientific societies and offices
held

Field of work (as general practice, ophthalmology, public
health, pathology, teaching, investigation, etc.)

.....

Connection with hospitals and schools

.....

.....

Army and Navy (branch and rank)

Papers published in present year (title, journal, volume,
pages, and date)

.....

.....

.....

Books published (give full title, publisher, place, date, number
of pages, illustrations)

.....

.....

(OVER)

Editor or associate editor of medical or other scientific journal. Election to honorary societies (name of society and date of election). Honorary degrees, citations, medals, prizes

Member of scientific expedition, medical survey

Recipient of fellowship or of grant-in-aid of investigation

Connection with or activity in any other province of medicine not covered by the above

Have you a son or daughter entering the School next year?

Recent marriage—name, date and place

Recent birth—sex, date

Death—name, class, date of death, place

Desirable location for practice: town and state, number and street

Remarks

Write a letter of 200-250 words to the Quarterly for publication.

Please donate to the Library of the School of Medicine copies of books and reprints of papers you have published. You will confer a benefit to the Library and help to establish a record of the literary contributions of our graduates and faculty.