EVENTS

The following papers, presented here in abstract, were read at the meeting of the Yale Medical Society held November 27, 1928.

EFFECT OF TEMPERATURE ON CO2 ABSORPTION CURVE OF BLOOD

ANNA J. EISENMAN, PH.D.

The assumption of a straight line relationship between bicarbonate in the blood and temperature is erroneous. Fourteen blood samples of various oxygen capacities were analyzed for CO₂ by the

Abscissa = temperature in degrees centigrade; ordinate = Δ(BHCO₃) 12° - 38° in volumes per cent; contour lines = oxygen capacity in volumes per cent;
• = observed points from normal bloods.
Van Slyke method. The analyses were made after exposing the samples to 40 mm. tension of CO₂ in air, and the temperature was varied in the several analyses from 23 to 38 °C.

The upper curve in the accompanying chart represents the differences in bicarbonate of normal or polycythemic bloods at the temperatures indicated on the abscissa. The other curves are contour lines representing the temperature differences in bicarbonate of bloods containing less hemoglobin than normal. The oxygen capacities in volumes per cent are indicated on the contour lines.

The chart offers a fair, though limited, solution of the problem of correcting bicarbonate determined at room temperature and 40 mm. tension of CO₂ to bicarbonate at 38 °C. and 40 mm. tension of CO₂. Given bicarbonate at 40 mm. CO₂ and room temperature, and the oxygen capacity of the blood, the value of ΔBHCO₃ can be read off on the Y-axis of the correction chart. The correction ΔBHCO₃ is a subtraction factor, for bicarbonate content is lower at higher temperatures.

Since, therefore, the formula \( \frac{\Delta BHCO_3}{\Delta T} = K \) is proven to be incorrect, and differences in bicarbonate for a temperature change from 37 to 38 °C. are less than the difference for a change of one degree at lower temperatures, it is evident that previous calculations of the bicarbonate of the blood in febrile conditions have exaggerated the decrement due to elevated temperature.

C. L. R.

FECAL pH AND RICKETS IN RATS

FRANKLIN C. BING, B.A.

In rats made rachitic by means of the high calcium-low phosphorus, vitamin D deficient diet of Zucher the feces were consistently alkaline (pH = 7.4). When cured by means of cod-liver oil the feces became acid (pH = 6.6). The diet of Steenbock and Black also caused the feces to become alkaline, but in these animals cod-liver oil did not induce a decided shift to the acid side, the feces becoming practically neutral. This may be due to the greater potential
alkalinity of the Steenbock diet as compared to that of Zucker. Irradiation of the food was followed by no change in the fecal reaction. When cure was effected by means of altering the Ca:P ratio of the diet so that the phosphorus was equal to or double the weight of the calcium, the reaction of the feces was shown to be dependent upon the acidity or alkalinity of the diet. When the diet was potentially acid, the feces were acid; when the diet was made neutral, the feces also became practically neutral. It is concluded, therefore, that, although the shift to the acid pH with Zucker's diet is of interest in the interpretation of the mechanism of the action of cod-liver oil, the cure of rickets in rats is not necessarily accompanied by an alteration in the fecal pH from alkaline to acid.

M. L.

THE APPLICATION OF EXPERIMENTAL METHODS TO MAMMALIAN EMBRYOS

JOHN S. NICHOLAS, PH.D.

In studies of experimental morphology three methods have been extensively employed: implantation, in which something is added to the fetus; transplantation, in which like structures of two fetuses are exchanged; and explantation, in which structures are excised. These methods have been extensively used in the invertebrate field of investigation, but have had practically no application in the field of mammalian embryology. In these experiments rats in which gestation had proceeded for two weeks were employed, because the fetus at this stage of gestation is fully developed, although still non-motile. In some instances the lower foreleg of the fetus was excised, in others it was ligated so as to cut off its blood supply, and in others the upper foreleg was cauterized to cut off the blood supply to the lower foreleg. At birth the humerus in the first instance had rounded over and had developed normally, in the second instance a true surgical stump had developed with a considerable increase in the bony, fibrous, and muscular elements proximal to the ligature, and in the third case the development of the limb had stopped at the stage when the cauterity had been performed, although the unaffected leg on the opposite side had developed to normal size. In experiments on the nervous system in which the spinal cord was either
divided or injured by cautery there was no trace of reconstruction histologically, although there was considerable movement in definite muscle areas at birth. Transplantation experiments where eyes were exchanged between two fetuses showed most of the sclerae absorbed, as well as a great deal of the retinal pigment, although the iris was practically intact. Two of the grafts showed evidence of growth for at least two days after the operation, and had become vascularized.

D. N. B.

RATE OF HEALING IN WOUNDS OF THE STOMACH OF THE RAT

SAMUEL C. HARVEY, M.D., AND EDWARD L. HOWES, M.D.

In studies on the rate of healing of wounds in the skin of dogs it was found that although the tensile strength machine lacked the sensitivity to measure low values, the data were sufficiently satisfactory to warrant further study. When the tensile strength in grams was plotted against the time in days, the curve started to rise at the end of the fourth day and reached a maximum in eleven days. This maximum did not change in thirty-one days. Similar results were obtained with muscle and with fascia.

In a second series of experiments rats have been used. Wounds of the stomach were sutured with No. 000 plain catgut, and the tensile strength was obtained by inflating the stomach to the bursting point. By means of a kymograph and mercury manometer sharp records of the air pressure necessary to burst the stomach were obtained. A study of the data showed a uniform strength for the first four days after the operation, with subsequent increases up to a constant maximum on the ninth day. The strength of the stomach at that time was practically that of the uninjured organ.

C. H. W.

HEALTH CENTER DEVELOPMENT IN LOS ANGELES COUNTY

IRA V. HISCOCK, M.A.

The health center now plays an important rôle in the development of preventive medicine. Through district health centers in Los Angeles County an effort is being made to secure the mainten-
ance and improvement of clinics and conferences, the use of well equipped laboratories, the direction and promotion of public health, and the elimination of duplication and overlapping of community service by coordinating health, relief, and welfare agencies.

Until the time of the completion of the first major health center at San Fernando in December, 1925, there was actually no local provision for medical institutional care outside of the larger municipalities. The general hospital received all of the indigent sick of the County and became greatly overcrowded. Distances of outlying territories from Los Angeles are so great that the “poor” cannot afford transportation or cannot afford to “lay off” from work to come to the metropolis for “out-patient” care.

Two organizations are necessary in order that the health center may properly function: (1) a hospital and clinic staff and (2) a local health center association. Each health center and local health district (now four in number) is in charge of a representative of the health department who is known as a medical director or local district health officer. He is responsible to the County Health Officer for the execution of all regulations laid down for the management both of the health center and the field work of the department. He is a member of the local medical staff and a member of the health center association, and it is his duty to correlate as far as possible the activities of all agencies functioning in the building. The Outdoor Relief Department, a separate County department, does not come under the direct jurisdiction of the health officer, but it cooperates with the health department.

The service rendered is very complete. There is a dental clinic, a tuberculosis clinic, child welfare conferences, and certain special clinics, such as venereal disease, immunization of patients against communicable disease, and other special services, including laboratory, X-ray, operating room, emergency hospital, ambulance, and physiotherapy. That these facilities are widely used is shown by the fact that in 1927 there were over 1,500 individuals who visited the two major health centers then in operation. In all, 12,751 visits were made.

Many benefits are derived from a central health building, adequate for different types of prevention and treatment activities. This brings health services near to the people who need them, and exercises an important educational influence on the community.

L. G.
The Yale Medical Society was addressed on December 5 by Dr. Frank G. Boudreau, member of the Secretariat of the League of Nations. His subject was "The Health Work of the League of Nations."

Some twenty years ago, health officers of the Far East were persistent in their pleas for the organization of a bureau to give an effective unity to their work. In 1923, the Japanese director of public health asked the League for a commission to analyze conditions and to recommend an effective health program for that section of the world. As a part of the League, a bureau was organized which receives reports from 140 ports in the Far East with respect to the spread of disease. Special attention is given to those diseases which are frequent offenders in epidemics and pandemics. Information bearing on these subjects is broadcast through eight private or government stations.

At Geneva the bureau receives information by mail from various health centers in Europe. This information is analyzed, coordinated, and published in weekly, monthly, or periodic subject bulletins. Both of these bureaus are successful in providing and distributing, internationally, public health information. The Health Division of the League of Nations is made up of three divisions: the first, the Permanent Committee, or Privy Council of the League, is made up of 46 representatives; the second, the Health Committee of 24 members, each an expert in the field of public health, is to advise the council and assembly; the third, the Health Section of the League, has 15 members.

J. M. B.

A meeting of the Yale Medical Society held on December 12 was addressed by Francis G. Benedict, Director, Nutrition Laboratory, Carnegie Institution, Washington, D. C. Dr. Benedict spoke upon "Comparative Physiology in the Study of Human Nutrition."

Studies made some years ago at Springfield College upon a group of students fed upon an insufficient although normally balanced diet showed that the blood pressure, pulse rate, and weight all manifested a considerable decrease. When full rations were restored the blood pressure and pulse rate returned to normal, while
the body weight increased more in proportion than did that of other students living under like conditions but with no change in rations.

Attempts were made to substantiate these findings upon animals which could be subjected to further experimental procedures. At New Hampshire State University normal steers were placed on a reduced diet, normal in every way except in quantity. Instead of becoming weak, the steers remained active, although they lost considerable weight and the blood pressure and pulse rates were diminished.

These and other experiments have revealed many facts which show that the present methods of determining basal metabolic rates do not take into consideration many vital factors. The formula in current use for determining the surface area of the animal body is \( S = K \times \text{Body Weight}^{2/3} \), and a series of values for \( K \) have been determined for various animals. It has been found, however, that the relation between the body surface and body weight is not a constant but varies as much as 20 to 30 per cent under different environmental and nutritional conditions, for example, the metabolism of animals while standing may be ten per cent greater than that while recumbent. Likewise, the environmental temperature is an important factor, as is the type of body integument and the normal pulse rate. A difference of 27 per cent was found between a group of Indians and white men living under similar conditions.

Manifestly, clinicians must be more conservative in their interpretation of metabolic determinations in view of the fact that the factors of age, sex, race, psychic state, and nutritional condition all play a rôle in the establishment of the normal for any given individual.

V. W. L.

A lecture on the subject of Endocrine Research was given at the Sterling Chemistry Laboratory on November 23 by Dr. Oliver Kamm, Research Director of the Parke-Davis Company, Detroit, Michigan.

Following a discussion of the general problems involved in research upon the endocrine glands, the speaker discussed in detail the properties of the posterior lobe of the pituitary. Extracts of the pituitary exhibit several distinct properties: the oxytocic, the pressor and diuretic, and the antidiuretic, each having its specific application,
as in obstetrics, in surgical shock, and in the treatment of diabetes. Apparently the pituitary principle, with a molecular weight of 600, is of the nature of a complex polypeptide, of which at least two distinct components are known and are susceptible to isolation as the alpha hormone (oxytotic) and the beta hormone (pressor and anti-diuretic). Individuals vary in their sensitivity to the action of the hormone of the beta type.

D. K.

In an address given on December 11 at the Sterling Chemistry Laboratory, DR. ELLICE MCDONALD of the Cancer Research Laboratory, University of Pennsylvania School of Medicine, discussed "Chemical Aspects of Cell Division in Relation to Cancer."

The cancer problem must be approached from the physico-chemical angle. To do this, the mechanism of the normal living cell, under varying conditions, must be studied. It is known that variations in the pH of the medium in which cells grow result in changes in the rate of division. Cancer cells differ from normal cells in that the balance and rhythm of two phenomena, glycolysis and oxidation, have been upset. The glycolytic enzyme is extremely active in malignant tissues, and cell division occurs with greater frequency. Thus it is that lawless growth becomes the outstanding feature. Irradiation of both normal and cancerous tissues not only alters the colloidal character of the cell, but inhibits division, and changes the pH of the surrounding medium. In malignancy before treatment with radium or X-rays, the pH of the blood plasma is above the normal value, but after clinically effective irradiation the pH falls to the normal level. Moving pictures of periosteal tissue from the chick embryo and tissue cultures of the Jensen rat sarcoma reveal in a striking fashion the cellular changes associated with growth and clearly indicate the retarding effect of irradiation.

L. M. G.

Speaking before the Yale Chapter of the Society of Sigma Xi on November 14, 1928, PROFESSOR GEORGE E. NICHOLS considered the characteristics of "North American Arctic-Alpine Vegetation."

The changes in the vegetation of the North American continent as one travels in a northerly direction are striking. The common
flora in the north temperate zone is of a mixed deciduous and evergreen nature. Farther north the broadleaf trees gradually diminish in numbers until there remain but a few specimens of a limited number of species. When the snow belt is reached there are found but a few scrub trees whose roots are protected from freezing by the snow blanket, and the remaining flora, both on mountainous slopes and in arctic climates, consists of a large number of perennial plants, beautifully colored, but greatly diminished in size.

L. G.

Dr. J. S. Boyce, Director of the Northeastern Forest Experiment Station, addressed the December meeting of the Research Club in Plant Sciences. His talk, abstracted below, dealt with "Decay in Douglas Fir as Related to Forest Management."

A survey in 1923 showed that approximately one-fourth of the standing timber in the United States consisted of the valuable western conifer, the Douglas fir (Pseudotsuga Douglasii). Throughout its range this tree is attacked by the ring-scale fungus, *Trametes pini*. The fungus causes a destructive honey-comb or conk-rot of the heartwood, thereby rendering the tree worthless for commercial purposes.

In 1917 the Forest Service of the United States Department of Agriculture began an investigation of the causes, symptoms, and extent of decay in Douglas fir in the Pacific Northwest. The decay was found to be prevalent to an equal degree in all types of locations and was found in all places where the Douglas fir occurred. No decay was found in stands up to 50 years of age. Stands 100 years of age were found to be 1.2 per cent infected. At 150 years the number of decayed trees was found to comprise 4.2 per cent of the entire stand. When the trees became 200 years old 8 per cent were decayed, and after this period decay became rapid, resulting frequently in a 40 per cent loss in stands 350 years old. The maximum age at which the average stand is free from serious decay by the conk-rot fungus was found to be 110 years. At present most stands of Douglas fir are cut after an actual growing period of 50 to 60 years.

Infection of living trees by *Trametes pini* takes place mostly through dead knots. Reliable evidence of a decayed tree is given by the presence of sporophores of the fungus on the trunk, by a large number of dead limbs, and by swollen knots. The common silv-
cultural practice is to allow the partially decayed timber to remain standing after logging operations as seed trees. The seed from such trees are not believed to be affected by the presence of the fungus in the heart wood.

A. A. D.

"The Treatment of Syphilis, with Special Reference to the Use of Malaria and the Results of Certain Experiments Relating Thereto." Upon this subject Dr. J. Frank Schamberg, of Philadelphia, addressed the New Haven Medical Society on November 7.

No definite therapeutic formula for the treatment of syphilis can be expressed, but there is a certain agreement regarding the main points. In the treatment of early cases, bismuth is combined with neoarsphenamine, the bismuth being given first, but there can be no question but that as a therapeutic agent the arsenicals are superior to bismuth.

Treatment should not be rigidly guided by the Wassermann reaction. A patient in the early stages of syphilis must receive an irreducible amount of treatment, irrespective of the Wassermann outcome. In patients with tertiary syphilis, or with strongly positive Wassermann reactions in the later years of life, the securing of a negative Wassermann reaction is a secondary consideration; the primary objective being to remove syphilitic manifestations and to prevent recurrences. Too much stress is laid on medication in these cases and too little attention is paid to raising the patient's resistance to the parasite. Conservative treatment is also indicated in visceral syphilis, where the secret of success lies in rotating drugs in very small amounts. Arsenicals may here be used.

In general, one-third of the patients with paresis evidence a complete remission with adequate treatment. Malarial treatment gives striking results in locomotor ataxia, but it is less effective than in paresis. After malarial treatment a regression of the lesions, with a disappearance of spirochetes takes place. The therapeutic mechanism of this treatment is unknown.

The value of hot baths in the treatment of syphilis is traditional, and experiment has shown that baths a few degrees above body temperature will cause the primary and secondary lesions of rabbits to disappear. In human beings a disappearance of the chancre, a fading of early eruptions, and the regression of early tertiary lesions
have been effected by hot immersion baths. Hot baths, associated with other treatment, are recommended for all patients with syphilis.

W. F. R.

On November 21, at the New Haven Medical Society, Dr. Rolph Floyd, of New York City, discussed "The Nature of Arteriosclerosis." Attention was called to the following points.

In any consideration of arteriosclerosis, it must be remembered that this condition is present to some degree in everyone before the age of fifty, and that it involves the left coronary artery of most people before the age of thirty. Such changes influence the amount of blood flowing through the vessels, predispose to thrombosis and occlusion, cause ulceration, and result in a failure of mental and physical powers in the later decades of life. Vessels show evidence of sclerotic changes by their lengthening, by their tortuosity, by deposits of amorphous material within their walls, and by ulceration, but it is when these factors are affecting the circulation of the heart, kidneys, spleen, pancreas, and brain that we see the striking pictures of disease.

In the general process of senescence there are adaptive changes in the intima in response to diminished blood flow, weakened arterial walls, or increased blood flow. A pure form of elastic hyperplasia, manifest in the renal arteriolar walls, is encountered in early as well as late years as a response to renal damage.

Another series of changes, apparently of elemental importance in this condition, are fatty deposits, which are present in every instance of arteriosclerotic change and must, therefore, be considered an essential factor. Hyalinization, or a protein deposition with coagulation, which may or may not result in calcification, is also common and should be considered a basic component. Mucin is found in abnormally large quantities in vessels undergoing sclerotic changes. Occasionally a round-cell infiltration is encountered, but this can not be considered an essential factor.

Virchow recognized the condition as a response to injury, Cohnheim as a mere abnormal overgrowth, Delafield as a chronic response to injury. Thoma expressed the theory of compensatory development and did not believe arteriosclerosis to be primary. Aschoff recognized three periods in human life: the first twenty years with its increase in elastic tissue, the second twenty or the stationary
period, and finally a period of fibrination, with sclerosis beginning when fat is added to the fibrous replacement of the elastic tissue.

Although the primary cause is obscure, it may be postulated that arteriosclerosis is the result of certain mechanical and nutritional factors which give rise to fatty changes, with a hyperplasia and a fibrosis.

C. A. B.

DR. HENRY A. CHRISTIAN, of Boston, Mass., presented a paper on "Myocardial Disturbances Due to Abnormal Thyroid Function and Their Management" before the New Haven Medical Society on December 5. A summary of his discussion follows.

The cardiac symptoms associated with hyperfunction or with hypofunction of the thyroid can not be differentiated. And yet it is of the utmost importance that these two conditions be distinguished in order that proper therapy can be instituted. Although the pathological physiology underlying the two conditions is not well understood, it is known that in the case of hyperthyroidism the myocardium is laboring under an increased burden due to oversecretion of the thyroid gland and to some toxic factor not related to thyroid activity, while in hypothyroidism the increased myocardial burden is the result of a decrease in the thyroid secretion, complicated in many cases by a coronary arteriosclerosis. Whenever cardiac failure is present without sufficient cause as revealed by physical examination of the heart, hyperthyroidism should be suspected. A decompen-sated heart in such a case does not contraindicate surgery. The patient should be put at rest and given digitalis and iodine therapy. When an optimum condition of health is attained a subtotal thyroidectomy should be performed. Cases of hypothyroidism fall into two classes: those with decompen-sated heart, but no other symptoms, and those with a decompen-sated heart and anginal attacks. The first respond readily to thyroid extract but not to digitalis therapy. Thyroid extract is also indicated in the second class, but the amounts administered must be carefully adjusted for an excess will precipitate an anginal attack. Furthermore, myxedematous individuals respond maximally to smaller doses of extract than do normal persons. The problem is to find the balance of thyroid necessary to relieve the myxedema and at the same time fail to excite an anginal attack.

C. C. B.
“Schizophrenia”: A lecture delivered at the Psychiatry Conference, November 1, by DR. HARRY S. SULLIVAN, Medical Director of the Shepherd and Enoch Pratt Hospital.

Schizophrenia, a convenient abstraction referring to a group of mental processes in persons not adjusted, can usually be related to a maladjustment of the heterosexual sex life. The characteristic feature of schizophrenia is the prolonged loss or serious distortion of normal control of fantasy. The mental processes do not differ qualitatively from those of sleep or extreme fatigue.

There are three main theories with reference to the nature of schizophrenia: first, that it is entirely hereditary; second, that it is totally environmental, and, third, that it is due to a combination of both factors. The latter theory is the most plausible. Heredity probably does no more than produce a tendency toward the psychosis. Environment, on the other hand, is most significant and may quite definitely determine the limitation of growth of the personality. The nucleus of the problem in schizophrenic personalities is a defect of their acceptance of others and of others’ acceptance of them. They become very indirect, always allowing a great margin of safety in their speech and actions. They leave loopholes so that they may easily reverse their course and get out of any possible difficult situation. This arises from their uncertainty and their lack of knowledge of what other persons are likely to do, or think, or feel.

Schizophrenia very often starts with marked manifestations of fear or panic, but occasionally the element of ecstatic pleasure predominates. In the treatment of schizophrenia the first procedure is the isolation of the patient from the group of persons that is the focus of his stress. The use of a personality with a native sympathy for the patient is often beneficial. An extravert, well adjusted person may not be able to help the patient, while a person who himself has found life somewhat complex may succeed. Since schizophrenic patients are very sensitive to criticism and judgment it is advisable to enforce only those rules which are absolutely necessary, such as those to prevent danger to other patients. In prolonged, stationary cases the prognosis, ordinarily poor, may be considerably improved if the equilibrium of the patient’s mind can be disturbed by the use of certain drugs.

G. S. G.
Of the fifteen papers presented at the fourth annual Clinical Congress of the Connecticut State Medical Society, abstracts of eight appeared in the first number of the Journal. Abstracts of the remaining seven follow.

MEDICAL AND SURGICAL PROBLEMS IN PROSTATIC OBSTRUCTION

HUGH H. YOUNG, M.D., BALTIMORE

Micturition is an active process in which the trigonal muscle takes the part of opening the internal sphincter; hence the hypertrophy of the trigone in the presence of median bar obstruction. The punch operation for median bar obstruction is simple, and loss of blood can be reduced by the use of the electric cautery, but this operation should not be used for advanced hypertrophy of the prostate. It may be applied very effectively in infants with congenital valves of the urethra and associated enlargement of the ureters, and hydronephrosis.

Carcinoma and prostatic hypertrophy are found side by side in 10 per cent of the cases. Carcinoma should be suspected when a hard prostate is found, and the radical operation performed. The perineal operation with an inverted “V” incision is preferable to the suprapubic method. If the radical operation is done, complete urinary control may be retained by anastomosing the bladder with the stump of the urethra and carefully preserving the nerves to the triangular ligament, so that the external sphincter remains intact. The use of sacral or caudal anesthesia is recommended. Of 27 cases in which the radical operation was performed, 62 per cent are living and without recurrences five years after operation.

Drainage is essential in the preoperative treatment of patients with prostatic obstruction. It improves kidney function remarkably. Phthalein excretion may increase from as low as 16 per cent to 40 per cent within a few days, with a rapid drop in the non-protein nitrogen of the blood. A mercury manometer device, by which the bladder is drained against a gradually reducing pressure, avoids the shock that may follow too rapid drainage after catheterization.

Infections, either local or ascending, are the greatest factor in the mortality of patients with prostatic obstruction. Intravenous mercuriochrome has been found highly effective in combating these as well as many other types of infections. Except in acute cases the
amount given is smaller than formerly: 1 per cent aqueous solution, 10 cc. per 100 pounds of body weight, is the usual dosage.

W. F. R.

SERUM SICKNESS AND SERUM ACCIDENTS

GEORGE M. MAC KENZIE, COOPERSTOWN, N. Y.

Serum disease is a clinical reaction induced by serum in individuals not previously hypersensitive. Individual and racial susceptibility, the quality, and, most important, the quantity of serum injected are the determining factors. Serum accidents are the sudden, often fatal, reactions of individuals already hypersensitive.

The clinical picture in serum disease indicates that the body begins the formation of precipitin for horse serum at the time of injection, and that in reactive individuals enough precipitin is formed after about nine days to produce the characteristic reaction of urticaria with erythema, fever, and edema. It is possible that this is a reaction to the serum globulin while the secondary rise of temperature, seen after an interval of recovery from the first attack, is a reaction to the serum albumin. Individuals capable of producing a high titre of serum within a short time are apt to have serum disease. Those not sensitive form precipitin slowly; there is no reaction, and horse serum may remain in the circulation for many months after injection.

Serum accidents are not due to any specific antitoxin, but to horse serum itself. They occur in two groups of people, the spontaneously hypersensitive and the artificially sensitized. The latter, as a group, are much less sensitive than the former. The prevention of serum accidents depends upon the identification of sensitive individuals and the practice of desensitization. Horse serum should never be injected unless a skin test has been done and adrenalin is at hand.

A fairly safe program for desensitization is to give horse serum in successive injections of .025 cc., .05 cc., .1 cc., .4 cc., .8 cc., and 1 cc. subcutaneously, followed by .1 cc., .2 cc., .4 cc., 1 cc., 2 cc., 4 cc., 8 cc., and 16 cc. intravenously, allowing 30 minutes between injections. Care is necessary in this procedure, since death from attempted desensitization has been reported.

W. F. R.
VARICOSE VEINS AND VARICOSE ULCERS

JOHN HOMANS, M.D., BOSTON, MASS.

Attention has been focussed on mechanical short cuts to the cure of varicose veins and too little consideration given to the anatomy of the condition. As long as the deep veins and the communicating system function properly, the poorly supported superficial system fails to present symptoms other than a degree of stasis; but when either of the other two systems fail, varicose veins result. They are not always recognized. The Trendelenburg test, or the palpation of the lump over the saphenous opening, permits a diagnosis.

Of operations for varicose veins, the radical operation is the one of choice, since recurrences are common after other procedures. Treatment by local operation on leg veins inevitably fails. In the radical operation the important part is the obliteration of all connections with the femoral vein in the saphenous region. If only a partial operation can be done, this is the part that should be done. While varicose ulcers due to stasis alone are automatically cured by removal of the varicose veins, those in which there are additional etiological factors require radical excision. Skin grafts may be necessary.

Palliative measures for varicose veins and ulcers may be employed. Ordinary bandaging can be made very effective. The method of obliterating veins by the injection of sodium salicylate, mercury salts, etc., is open to criticism. It is only palliative, as the vessels in the thigh cannot be reached. In addition, if any of the strong solutions reach the surrounding tissues there is danger of sloughing. The recent enthusiasm over this procedure seems to result from a desire to dodge the radical treatment. Physicians should not fear the field of varicose vein operations as forbidden ground. Embolism results only from poor technic. The mortality from the radical operation is just about the same as that from pelvic operations.

W. F. R.
GLAUCOMA

GEORGE S. DERBY, BOSTON, MASS.

Glaucoma, which causes between one-fourth and one-third of the blindness in people past middle age, should be recognized and treated early. The chronic simple variety of glaucoma, not easily recognized until far advanced, is therefore more dangerous than the acute congestive type. The increased pressure of the intraocular fluid in glaucoma is due to the blocking of the anterior drainage region by adhesions of the iris to the posterior surface of the cornea. Cupping of the optic nerve head results, presenting the characteristic ophthalmoscopic picture.

The tonometer permits accurate measurement of the corneal tension and has done much to place the study of glaucoma on a scientific basis, but examination of the visual fields is the most valuable procedure in the diagnosis of glaucoma. It shows two characteristic changes early in the disease: a scotoma, extending from the blind spot along the course of the arcuate fibres, and the so-called “nasal step.” Symptoms of glaucoma are sometimes not noticed by the patient until they are far advanced, because of the fact that central vision is retained until the final stages of the disease.

The treatment of glaucoma is both medical and surgical. Myotics are used in cases where surgery is not justified and palliative measures indicated, but they cannot be relied upon to keep the intraocular pressure from increasing. Surgical treatment is based on decompression. Trephine operations give very good results; 75 per cent to 80 per cent are successful if done early, before pathological changes have taken place in the retina.

W. F. R.

COLON IRRIGATIONS

WALTER A. BASTEDO, M.D., NEW YORK

The object of the enema is to stimulate defecation, that of the colon irrigation is to cleanse regions higher than the defecation area of the left colon. For an irrigation to be successful the bowels must have been moved beforehand, the defecation reflexes must be quiescent, the irrigation fluid should be at about body temperature and
passed into the colon gently. Rectal irritation may be allayed by a suppository of codeine and atropine inserted an hour earlier. The double tube method of irrigation is preferable to the single tube method. From five to nine gallons of plain water are used for an irrigation and it is allowed to run in slowly, under low pressure.

Pure water is better than saline or soda as a routine irrigation fluid. Except for a few drugs with specific affinities for certain organisms, antiseptics are not used. Large quantities of fluid are necessary to lavage the colon thoroughly and loosen tenacious mucus, also to promote relaxation of the ileocolic sphincter and the descent of putrefying material from the lower end of the small intestine.

The term “high irrigation,” as formerly used, is fallacious, for X-rays show that a tube inserted beyond six inches coils up in the rectal ampulla. However, if defecation reflexes are not set up, a tube inserted only two or three inches will pass to the caecum within two to three minutes.

Colon irrigations are of definite value in mucous colitis, in acute food poisoning, acute dysentery, and acute septic conditions. With hot liquids they allay acute abdominal pain, and with cold liquids they are useful in febrile states.

W. F. R.

MODERN SURGICAL TREATMENT OF TRIGEMINAL NEURALGIA
BYRON STOOKEY, M.D., NEW YORK

Major trigeminal neuralgia is a disease in which the pathology is unknown, and the diagnosis is of necessity based on the patient’s story. It must be distinguished from geniculate ganglion neuralgia, neuralgia of the glosso-pharyngeal nerve, sphenopalatine ganglion neuralgia (Sluder’s syndrome), pain caused by inflammatory processes in the masseter or temporal muscles, and, finally, from the large group of atypical neuralgias, commonly called psychogenic, in which the pain is constant, bilateral, and often referred to a tooth. Certain definitely organic conditions may cause trigeminal pain; e.g., cerebello-pontine angle tumor, true trigeminal neuritis, diabetes, and some other systemic diseases.

In major trigeminal neuralgia the pain is characteristic; it is uni-lateral, referred to the peripheral distribution of the nerve, and con-
fined to the trigeminal area; it comes in attacks, is initiated or
aggravated by peripheral stimulation, is not relieved by drugs, and
causes a characteristic facies in the patient.

Modern surgical treatment effects a physiological extirpation of
the gasserian ganglion by section of the dorsal root of the fifth nerve.
A differential section is done, only the sensory fibres supplying the
affected areas are cut, and the motor division of the nerve preserved.
The operation is not disfiguring. The mortality is less than 1 per
cent, as compared with 14 per cent for the operation for complete
removal of the gasserian ganglion. Alcohol injections may be em-
ployed to clinch the diagnosis, but once this is established differential
section is the treatment of choice.

W. F. R.

SHOULDER PAIN

MATHER CLEVELAND, M.D., NEW YORK

An understanding of the causes of shoulder pain depends on a
thorough knowledge of the anatomy and physiology of the shoulder
joint. This joint is of the enarthrodial type, with a very shallow
socket, loose capsule, and wide range of mobility. The stability of
the joint depends to a large extent on the musculature.

Bursitis, especially of the subacromial, subcoracoid, and subscapu-
lar bursae, is one of the common causes of shoulder pain. Pain from
lesions elsewhere in the body may be referred to this joint. Lesions
in the pleura, mediastinum, or abdomen that may send stimuli by
the phrenic nerve, or neurological conditions involving the fifth and
sixth cervical nerves are common sources of pain referred to the
shoulder.

Pain originating in the shoulder itself may be due to dislocation,
fracture of the anatomical neck of the humerus, bursitis, neuritis,
myositis, osteomyelitis of the humerus, arthritis, or specific chronic
infections, e.g. tuberculosis. In diagnosis a negative X-ray is of
little value in ruling out lesions of the soft parts. Subdeltoid bur-
sitis is characterized by pain on abduction, as the bursa rolls under
the acromion. In the treatment of bursitis, foci of infection should
be taken care of; symptomatic treatment is preferable to operation.

W. F. R.