

## ABSTRACTS OF CURRENT LITERATURE

MOORE, J. E.; WOO, S. T.; ROBINSON, H. M. and GAY, L. N.: (1931)  
Reactions of the Skin Following the Intradermal Injection of Arsphenamine.  
*Arch. Derm. & Syph.* 23:74.

Intradermal tests with arsphenamine products have been carried out in four groups of persons: (1) thirty-six normal controls; (2) sixty-one patients with syphilis, most of whom had received therapeutic injections of arsphenamine without the occurrence of reactions of the dermatitis group; (3) nineteen patients with allergic instability (hay-fever), and (4) thirty-five patients who had suffered from postarsphenamine dermatitis.

In about 60 per cent of normal persons a delayed reaction—"flare-up"—developed at the site of intradermal injection after an incubation period of from three to four weeks. This was interpreted as evidence of sensitization of the skin to arsphenamine.

In a smaller proportion (44 per cent) of syphilitic patients under treatment similar reactions developed, which were less severe and extensive, and which appeared earlier (in from two to three weeks), than in normal controls. This reduction in incidence and severity and the shortening of the incubation period were attributed to the desensitizing effect of the previous or simultaneous intravenous administration of arsphenamine.

In all except one of nineteen patients with hay-fever tested, much more violent and severe reactions developed than in normal or syphilitic controls, and these reactions appeared earlier (in from one to two weeks) than in either of the control groups. This is interpreted, not as sensitization to arsphenamine, but as probably due to local auto-inoculation of the sensitized patient with his own antigen (pollen) in an inflamed area (Auer's phenomenon).

In the case of thirty-five patients with postarsphenamine dermatitis, strongly positive reactions, appearing much earlier (in from two to seven days) than in any of the other groups, occurred in 70 per cent of those who had had the exfoliative type of dermatitis and in only 11 per cent of those who had had other types of rashes.

A negative skin test in postarsphenamine dermatitis does not indicate the absence of hypersensitiveness to arsphenamine, since

negatively reacting patients often had repeated generalized rashes on attempts to administer therapeutic doses of these drugs.

These results and their interpretation are discussed in connection with similar studies carried out in human beings by Frei, and Nathan and Munk, and in animals by Frei and Sulzberger.—*A. L. Carrión.*

PARDO-CASTELLO, V. and CABALLERO, G. M.: (1931) *Lazarine Leprosy. A Peculiar Monosymptomatic Form of Leprosy.* Arch. Derm. & Syph. 23:1.

Twenty-three cases of lazarine leprosy are reported. The condition is characterized by erythematous patches, nodules or pachydermic edema, on which one or several bullae may develop, followed by sloughing, deep ulcerations and mutilations. The lesions appear mostly in the extremities. There were no other symptoms of leprosy.

Of the twenty-three patients, four died with symptoms of septicemia. Others were apparently cured after several months or a year, and of these five had relapses. In all of them Hansen's bacilli were recovered from the fluid of the bullae or from the secretions of the ulcers. In two instances the organisms were also found in the mucous membrane of the nose.—*A. L. Carrión.*

SENEAR, F. E. and OLIVER, E. A.: (1931) *Pityriasis Lichenoides et Varioliformis Acuta (Habermann).* Arch. Derm. Syph. 23:12.

The authors report three cases of pityriasis lichenoides et varioliformis acuta (Habermann) and have reviewed twenty additional cases. They believe that in all these cases there is represented a new clinical picture. In its clinical and pathological characteristics, it embodies many of the features of pityriasis lichenoides chronica. Almkvist believed that, just as syphilis assumed a variety of clinical forms, so may pityriasis lichenoides chronica, and, although an acute course and vesiculation are at variance with the usual conception of the latter disorder, the majority of observers who have encountered this disease have felt that the picture thus presented has conformed more closely to pityriasis lichenoides chronica than any other. This disease is a self-limiting disorder, usually running its course in from two to six months' time.

The outstanding feature is an eruption of generalized character, with varying eruptive manifestations the most characteristic of which

is a papular lesion with a tendency to crusting, necrosis and hemorrhage. Pigmentation and varioliform scarring follow the disappearance of some of the lesions. The general health of the patient is unaffected. No etiologic factors have as yet been determined and there is no evidence that the disease is contagious.

In different cases, and at different times in a single case, the eruption has borne a striking resemblance to that of papular syphilis and pityriasis lichenoides chronica, while in some instances it has simulated varicella, pityriasis rosea, psoriasis and lichen planus. While the exact nosologic position of the disorder cannot be determined at present, the authors believe the name suggested by Habermann should be retained.—*A. L. Carrión.*

SCHMIDT, E. G. and CAREY, T. N.: (1931) Terminal Hypoglycemia. Arch. Inter. Med. 47:128.

Blood chemistry determinations have been made before, at and one hour after death, on thirty-three nondiabetic patients dying in the hospital. Among these unselected cases, twelve cases, or 36 per cent, showed low terminal blood or plasma sugars, ranging from 28 to 75 mg. per hundred cubic centimeters at the moment of death. In a number of cases it was demonstrated that this pronounced and suggestive hypoglycemia existed before death as well as at death. Only a slight decrease was noted in the blood sugar during the hour immediately following death, although there were two noteworthy exceptions in which the sugar of the heart blood decreased from 154 to 50 and from 166 to 32 mg. during the first postmortem hour.

The blood urea frequently increased rapidly just prior to death, but little change took place after death. Frequently there was a terminal rise in amino-acid nitrogen, which continued to increase somewhat after death. The carbon dioxide combining power of the plasma decreased somewhat shortly after death, but the chlorides remained unchanged.—*A. L. Carrión.*

MATZNER, M. J. and GRAY, I.: (1931) The Comparative Changes in Gastric Acidity and Urinary Reaction After the Injection of Histamine. Arch. Inter. Med. 47:202.

This is a discussion of the advantages of a test combining gastric analysis and estimation of urinary acidity (alkaline tide).

The authors employed histamine as the gastric stimulant. Not

more than 50 per cent of the patients in whose gastric extractions free hydrochloric acid could be demonstrated after the injection of histamine, had a definite urinary alkaline tide.

The use of histamine as the gastric stimulant has been discontinued and the authors promise to report more favorable experiences with Steero bouillon as the gastric stimulant in a subsequent paper.  
—A. L. Carrión.

WILKINSON, J. F.: (1931) Treatment of Pernicious Anemia with Hog's Stomach. *Brit. Med. Jour.* 1:85.

The earlier observations upon the value of hog's stomach have been extended to 108 cases of pernicious anemia, and the results are here discussed. Treatment has been described using fresh and desiccated preparations of hog's stomach tissue. The dose and administration have been indicated.

This new form of treatment for pernicious anemia with active preparations of hog's stomach has given highly satisfactory results—undoubtedly better than with liver, while the relative effective dose is less than the liver dose. More than 92 per cent of the patients treated with hog's stomach are perfectly well, and the majority are doing their full-time work. A further 6 per cent are much improved, but still suffer from varying degrees of nervous impairment. Hog's stomach therapy is superior to liver diet in the speed of remission of the condition, the erythrocytes and haemoglobin increasing 157 per cent and 94 per cent, respectively, compared with 90 per cent and 77 per cent, respectively, with liver under comparable conditions.

Hog's stomach therapy has qualitative effects on the blood picture similar to those of liver, but the erythrocytes and haemoglobin increase in a characteristic step-like manner in many cases. The color index varies inversely with the red cell count. Eosinophilia is frequently seen, but not in every case.

Clinically, the immediate results are similar to those obtained with liver. They are more prompt and, ultimately, the normal health is reached more quickly; work is resumed sooner, and all the gastro-intestinal symptoms appear to be relieved. This is not always the case with liver treatment, hydrochloric acid and pepsin being frequently required in addition to relieve the indigestion, flatulence, and occasional sore tongue. Achylia gastrica persists despite the treatment. Hydrochloric acid and pepsin do not appear to be necessary for the relief of symptoms with this form of treatment.

There is a minimum dose of hog's stomach to maintain the normal health of each patient. Regular blood counts are essential for the control of this dose, owing to seasonal variations and the profound effects of even minor infections. Hog's stomach in normal doses readily produces an excessive erythrocytic response, approaching polycythaemia, and several cases with counts over 6 million are now under observation. Fresh hog's stomach can be taken in adequate doses for a few days every three to four weeks with a maintenance of normal health.

Several cases with early postero-lateral involvement of the spinal cord have shown remarkable improvement, and paraesthesiae of hands and feet (without alteration of reflexes) have been almost completely cured in nearly every case. These have always been the symptoms most resistant to treatment.—*A. L. Carrion.*

LOW, G. C. and FAIRLEY, N. H.: (1931) Observations on Laboratory and Hospital Infections with Yellow Fever in England. *Brit. Med. Jour.* 1:125.

Three cases of direct infection with a Brazilian strain of yellow fever are recorded in laboratory workers in London. Two of these patients never came into contact, either directly or indirectly, with infected monkeys; they acquired the disease during routine hospital examinations, one in making blood slides and performing a white cell count, the other in doing routine biochemistry on a specimen of blood sent to the laboratory. The incubation period in both cases was ten days.

Monkey inoculation showed that the blood of one case was infective for at least 89 $\frac{1}{4}$  hours after the onset of fever, despite the earlier injection of immune convalescent serum.

The hitherto little appreciated danger of routine blood examination in cases of yellow fever during the first four days' illness, and probably also in the incubation period is emphasized.

It is strongly urged that in endemic areas when yellow fever is prevalent gloves should invariably be worn when taking blood, whether the case is suspected of being yellow fever or not.—*A. L. Carrion.*

HACKETT, L. W. and MISSIROLI, A.: (1931) The Natural Disappearance of Malaria in Certain Regions of Europe. *Amer. Jour. Hyg.*, 18:57.

Most of the data presented deal with conditions in Italy where in certain localities malaria has disappeared almost spontaneously in

spite of the much greater abundance of *Anopheles maculipennis* in such areas as contrasted with those in which the disease still prevails. Development of immunity to infection by local arthropod carriers failed to explain the phenomenon since when permitted to engorge on gamete carriers they became infected as readily as *Anopheles maculipennis* from other regions. Resistance on the part of the human population fails as an explanation: as does improvement in living conditions, especially as it relates to housing. In the areas where malaria has disappeared agriculture has been intensified, this change being correlated with a great increase in stabled animals near dwellings, notably cattle. A zoophilic race of *A. maculipennis* has increased while that preferring human blood has decreased, and in some instances has become practically non-existent. Under such conditions the arrival of individuals from other sections harboring gametes does not result in an epidemic.—*W. A. Hoffman.*

FEG, L. C.: (1931) Studies on Tissue Lesions Produced by Helminths. *Arch. f. Schiffs-u. Trop. Hyg.*, 35:1.

Tissues infected with helminthic parasites were studied to determine the types of lesion resulting from helminthic invasions. Hosts in all but one instance were non-domestic animals. In two cases where the hedgehog and Chinese hamsters harbored adult cestodes of the genus *Hymenolepis*, only superficial mechanical destruction of mucous membrane of the small intestine occurred. There was no infiltration in the vicinity of any of the tapeworm scolices. On the other hand *Railletina echinobothrida* infestation of the small intestine often caused the death of fowls. This cestode perforated through the mucosa and submucosa to fix itself within the muscular layers against the peritoneal surface. A nodule containing degenerated tissue and coagulated serum with many eosinophiles accompanied the invasion. In addition caseous homogenic masses associated with giant cells were also present. It is believed that peritonitis may occur.

Beyond the presence of mononuclear cells forming in great part the inner layer of the surrounding capsule, the outer layer consisting of loose fibrous tissue, no change could be noted in heart muscle of a fish whose heart muscle contained plerocercoides of *Diophyllobothrium latum*.

Two trematode species of the genus *Cotylurus* in the alimentary canal of different avian hosts act in essentially the same manner. The lateral suckers of the parasite grasp the host tissue so tightly that it becomes difficult to point out the line of demarcation between host and parasite tissues. The pressure evolved in this operation causes the rupture of small blood vessels. The host tissue adjacent to that of the trematode shows evidence of the digestive action. Another fluke of the genus *Chaunocephalus* embedded in nodules in the intestine of the normal *Cicoma* sp. produces no extra intestinal digestion as did the others. It apparently feeds on body cells and tissues.

The nematode *Physaloptera caucasica* in the small intestine of the monkey *Hamadryas hamadryas* penetrates deeply into the mucosa, which undergoes some liquefaction.—*W. A. Hoffman.*

GRIFFITHS, W. J. and KAYE, G.: A Study of the Bile Pigments in Relation to the Van Den Bergh Reaction. *Bioch. Jour.* 24:1400.

In 1923 Van Den Bergh discovered that in a course of study of the bilirubin content of blood-serum, two forms of bilirubin were to be met with, being distinguished by their behaviour towards Ehrlich's diazo-reagent.

Pure bilirubin, when suspended in blood-serum, does not give a prompt direct Van Den Bergh reaction; serum containing bilirubin does, however, give the indirect reaction.

Davies and Dodds (1927) and Newman (1928) stated that bilirubin prepared from gallstones, or from bile dissolves in serum to give a solution giving a prompt direct diazo-reaction.

Direct-reaction pigment is not bilirubin or one of the ordinary salts of bilirubin, it differs from bilirubin in its physico-chemical properties and in respect to the conditions under which it will couple with diazo-reagent.

The authors reached the conclusion that "direct reaction" pigment of bile is present in those icteric sera which give a direct Van Den Bergh reaction.—*L. G. Hernández.*

NARASIMHAMURTY, N. and SRENIVASAYA, M.: Determination of Maltose in Plant Extracts by Maltase. *Bioch. Jour.* 24:1734.

In this paper a suitable method for the estimation of maltose in mixtures of sugars occurring in plant extracts and tissue fluids has

been described and enzyme extract rich in both maltose and invertase has been used as the hydrolysing agent. The method is selective in its action and completely eliminates the errors inherent in the method of acid hydrolysis.—*L. G. Hernández.*

GALINSKY, A.: The Effect of Light and Salts on Gelatin. *Bioch. Jour.* 24:1706.

After a thorough study of the effect of light and salts in gelatin, the following conclusions were reached: When gelatin is made insoluble by treatment with dichromate and exposure to light, a change in the protein, allied to denaturation, first takes place but this involves no change in the Hausmann numbers of the digestibility of the protein. Chromium is then fixed in the form of the sesquioxide but a definite compound is not involved. The reaction does not proceed to completion and is probably reversible, equilibrium being attained when 90 per cent of the gelatin has become insoluble. The reaction is catalysed by the insoluble gelatin. From the preparation of the insoluble ash-free gelatin, it can be clearly seen that coagulation is preceded by a change which produces no alteration in the physical state of the solution. This confirms the suggestion first made by Hardy(1899) and supported by Chick and Martin(1910) that coagulation takes place in two stages, the first being a chemical reaction, called by Chick and Martin "denaturation", and the latter, which produces the coagulation, merely physical. In the case of gelatin the denaturated protein can be definitely and completely isolated from the coagulated product, and the existence of such a form in the case of gelatin does much to support the theory of denaturation in other proteins.—*L. G. Hernández.*

SYM, E. A.: Lipase and Its Action. I The Synthetic Action of Pancreatic Lipase in the System: Oleic Acid-Glycerol-Water-Dissolved Lipase. *Bioch. Jour.* 24:1265.

The writer obtained the following results from an examination of the system oleic acid-glycerol-pancreatic lipase:

That lipase undergoes a sorption at the oil-glycerol interface in two ways: The first is a process of asorption which is completed within a few minutes, and the velocity of which is independent of temperature. The second process consists in the formation of a membrane at the phase interface; this process takes place five times



as rapidly at 38° as at 18°. The whole of the lipase remaining in solution after the completion of the first rapid process of sorption is concentrated in this membrane by the end of a few days. The membrane gives the Millon and the biuret reactions as well as a feeble Molisch reaction.

The absorption of lipase on oelic acid is partly reversible. Only lipase present at the phase interface is active; for this reason, in systems in which the phase interface is smaller than the necessary to remove the entire lipase present by the first process of adsorption, the velocity of reaction is to a certain extent proportional to the area of the phase.—*L. G. Hernández.*

MORGAN, L. S.: Neostibosan in the Treatment of Kala-Azar. *China Med. Jour.* 45:24.

Ten cases of advanced kala-azar were chosen and were treated with neostibosan. Several hundred patients were treated also and they had great improvement. Neostibosan is less toxic, more effective and much speedier than any other treatment used.

Kala-azar has serious complications: Cough, extremely distressing, stomatitis and coma so often fatal, intractable epistaxis, pneumonia and also other serious complicating diseases such as amoebic dysentery, nephritis, streptococcic infections, diphtheria and anemia of severe type. All of these diseases were found absent under the neostibosan treatment.—*L. G. Hernández.*

CHOPRA, R. N.; CHOUDHURY, S. G. and RAO, S. S.: Studies in the Physical Properties of Different Blood Sera. *Indian Jour. Med. Research* 18:27.

In order to investigate the changes in the sera from the blood of filariasis patients and from those of normal healthy individuals; viscosity, density, surface tension and buffer action of sera from both were determined. The results showed that the blood of filariasis patients differs only slightly from those of normal persons with regard to some of their physical properties.

Surface tension and buffer action of filariasis sera are somewhat diminished, while density and viscosity are not changed at all.—*L. G. Hernández.*

CHOPRA, R. N. and KNOWLES, B.: The Action of Opium and Narcotine in Malaria. *Indian Jour. Med. Research* 18:5.

In 1896 the Opium Commission rendered a report stating that the habit of taking opium prevailed among the population of low-

lying, damp and malarious districts of India and it was thought that this drug had an anti-malarial action. In determining the question from a scientific point of view as to what extent opium has the power to cure and prevent malaria fever, Dr. Roberts pointed out that the abundant alkaloid present in opium are morphia and narcotine; morphia representing the anodyne and hyponotic properties of the drug and narcotine possessing tonic and anti-periodic properties. But it has been shown that alkaloid narcotine even in such large doses as 10 to 15 grains daily has no effect on the parasites of any form of malaria.

So far as the action of opium in malaria is concerned, it ameliorates the symptoms produced by malaria, but has neither a prophylactic nor a curative action in the disease.—*L. G. Hernández.*

WOLMAN, ABEL and GORMAN, A. E.: (1931) Water-Borne typhoid fever still a menace. *Am. Jour. of P. H.*, 21:115.

A careful analysis is presented of data obtained from 47 states in the United States and six provinces in Canada concerning the prevalence of water-borne typhoid fever during the years 1920-29 inclusive. The study showed that 64.9 per cent of the outbreaks in the United States and 77.5 per cent of those in Canada developed in communities with a population of 5,000 or less. It further revealed that contamination occurring in the collection, delivery or storage of water was responsible for 44.7 per cent of 228 outbreaks studied.

Unprotected cross-connections between polluted fire supplies and public-water systems was the most important single cause contributing to water-borne outbreaks during the period covered by the study.—*E. Garrido Morales.*

PENA, A.; SERPA, R. and BEVIER, G.: (1930) Yellow Fever in Colombia with special reference to the epidemic in Socorro in 1929. *Jour. of Prev. Med.* 4:417.

The authors discuss the history of yellow fever in Colombia since 1509 and state that there has been no epidemic of the disease on the Caribbean Coast of Colombia since Havana and Panama were cleared up or on the Pacific Coast since the Sanitation of Guayaquil.

Some of the cases which occurred during the epidemic of influenza

in Guadalupe during January and February, 1929 are reported as cases of undoubted yellow fever. An epidemic of the disease is reported in the town of Socorro situated near Guadalupe from April, 1929 to July of the same year.

Serological tests made from persons attacked during the Socorro epidemic confirmed the clinical diagnosis. Serum from persons who had suffered in two other previous outbreaks also showed positive results.

The authors conclude that the virus responsible for the 1929 outbreaks at Socorro and Guadalupe was not imported but that the disease had been endemic in these districts and kept active by mild unrecognized cases.—*E. Garrido Morales.*

DANY, G.: Quelques considerations sur l'epidemie de peste du Sous (1929). *Rev. de Med. et d'Hyg. Trop.*, 22:261.

The author reports 357 cases of bubonic plague in 28 villages. The epidemic began with a mortality of 90 to 95 per cent and without vaccination or treatment, diminished to 40 per cent. In the majority of the fatal cases there were no abscesses as suppuration occurred on the third to fifth day and death usually occurred before that time. All who recovered had suppurative processes in the affected glands, save as below. The cicatrices, after weeks of added infection and continued suppuration, were soft, pliable, very little pigmented, if at all, and not much retracted, at times perfectly smooth. A number of cases had a rapidly fatal, hyperemic course, with polyadenitis and, in reality, no buboes. Toward the end of the epidemic appeared *formes frustes* in which the bubo never suppurated, taking as long to resolve as if it had broken down. In such cases the fever was of short duration and the patients generally eluded sanitary vigilance. A case of bubonic plague is reported terminating in an extreme enlargement of the liver with ascites.—*B. K. Ashford.*

PARSONS, L. G.: Coeliac Disease. *Lancet*, 220:61.

The disease was first described by Gee in 1888. It is found in children from nine months to two years of age and so insidiously that it is often not recognized until they are five to six years old. It may develop acutely. The leading characteristics of the disease are (1) Large, pale, offensive stools with abnormally high fat content

(40 to 60 per cent of dried feces), 25 per cent of which is in the form of neutral fat. (2) Wasting. (3) Abdominal distension. (4) Anorexia. The high fat in stools is accompanied by a marked demineralization and a low blood calcium and phosphorus. Stunting, which is apt to be permanent after cure, and infantilism are common. There is nervous irritability and emotionalism. The anemia is usually secondary but severe anemia as in sprue has once or twice been observed. The author lays considerable stress upon the presence of rickets in these cases. Mild scurvy often occurs, the result of a restricted dietary. Edema often is a feature, and may be due to deficiency in B substance. Stunting may be due to deficiency in A substance as may be an increased tendency to coryza and parenteral infective diarrhea. At times tetany is seen. Death from uncomplicated coeliac disease is relatively rare but serious defects in development are noted; only one case is cited in which the disease extended into adult life. There are no histological signs of enteritis by which it may be differentiated from sprue. The disease is not due to obstruction of the lacteals and there is no reason to attribute it to bacterial infection. Many of the symptoms seem to be due to avitaminosis. Hypolipemia was found in 31 cases, due to faulty fat absorption. The author places coeliac disease among the functional diseases. The treatment is along the lines practised in this School and Hospital: High nitrogen, low carbohydrate diet.—*B. K. Ashford.*

MARINUS, C. J. and KIMBALL, O. P.: Endocrine dysfunction in retarded children and their response to treatment. *Endocrinology*, 14:309.

In Detroit all children with an intelligence quotient of less than 80 and more than 47 are placed in special classes. In diagnosis the pineal, thymus, gonads, and suprarenals were excluded for lack of exact methods and efficient therapeutics. Definite signs and potent gland extracts were available for disturbances of the thyroid and pituitary glands. Three groups of thyroid deficiency were recognized: (1) clinical hyperthyroidism with cretinoid facies, obesity, stubby fingers, undergrowth, subnormal temperature, dry skin, anemia, and a low basal rate; (2) congenital hypothyroidism diagnosed on the basis of family history and a characteristic failure of physical development with poorly developed skeletons, carious teeth, overgrowth of long bones, unstable nervous system, malnutrition, and with a normal or high basal rate at first test (*forme fruste*); (3)

congenital goiter diagnosed on family history and presence of nodules of a persistent pyramidal thyroid lobe, with or without symptoms.

There were two recognized pituitary disfunctions: (1) Bilobar pituitary deficiency (Froerlich's syndrome); (2) Anterior lobe deficiency. The anterior lobe deficiency was difficult to diagnose from the *forme fruste* of hypothyroidism and was chiefly characterized by lack of skeleton and muscle development with retention of infantile body proportions and general hypoplasia. For thyroid insufficiency, desiccated thyroid substance was given until evidence of overdose and then reduced so that the basal rate was kept at less than plus 5. For pituitary insufficiency, 15 grains of desiccated anterior lobe were given. Of 3,585 children, 667, or 18.6 per cent showed definite endocrine disturbance, of which two-thirds were thyroid cases. In untreated cases of thyroid deficiency, over half showed failing intelligence and lack of improvement. Improvement from treatment was noted by Binet tests but "in no single instance was a marked increase in intelligence noted, but there is a significant tendency to prevent the expected fall in intelligence." In the case of pituitary deficiency, only 27 per cent showed a fall in intelligence quotients, but "no change is noted in the percentages after treatment". The conclusion is that in the case of thyroid deficiency, the real treatment should be preventive and be applied to the mother.—*B. K. Ashford.*

POLLAND, W. S.: The effect of atropine upon gastric secretion after histamine stimulation. *Jour. Clin. Invest.*, 9:319.

This study embraces seven cases; three of duodenal ulcer, and four normal. The amount of histamine injected was 0.1 mgm. per 10 kilos of body weight; of atropine, 2.2 mgm. in same weight proportion. The latter drug produced physiological effects. The volume of secretion was smaller after histamine and atropine than after histamine alone. The titratable acidity rose considerably after histamine and atropine, while the volume fell to very low levels. Hence, this dissociation of the usual coordinated response to histamine seems to show that water and acid are secreted by different mechanisms. But the total amount of acid is really reduced after atropine, as the high titratable acid is due to concentration; hence atropine really depresses acid secretion. The secretion of pepsin has no relation to the secretion of acid.—*B. K. Ashford.*

NEALE, A. V. and KLUMPP, T. G.: The action of histamine on the pancreas. *Jour. Clin. Invest.*, 9:197.

There are two methods of pancreatic stimulation: (1) by the vagus, (2) by the specie hormone. Vagal juice is small in volume but rich in protein and enzymes. Secretion juice is copious but poor in proteins and enzymes although definitely alkaline. Histamine is a specific stimulant to the gastric secretory mechanism and is a direct one to the glands as atropine fails to affect it. Histamine has no stimulative action on the pancreas. In fact, the pancreatic secretion is diminished as the acid secretion of the stomach, stimulated by histamine, rises. Both, amount of pancreatic secretion and enzyme content are so depressed.—*B. K. Ashford.*

MATZNER, M. J. and GRAY, I.: A critique of present methods for the study of gastric acidity. *Archiv. Int. Med.*, 47:58.

Stimulation of gastric secretion by ordinary test meals is fallacious, owing to the psychic element, speed of eating, and quantity of saliva. A meal does not always afford a maximum stimulus. Buffer substances in a meal may combine with a significant amount of free hydrochloric acid. Regurgitation of alkaline intestinal secretion may give a mistaken diagnosis of achlorhydria. Neutral red, excreted into the stomach in two hours indicates true achlorhydria but a neutral red is also eliminated throughout the whole of the small bowel, the finding of neutral red in the stomach contents is vitiated by duodenal regurgitation. Estimation of the inorganic chlorides has been advocated as the most reliable index of gastric acidity; i. e., the only real measure of the amount of gastric acid produced is the curve of the total chlorides. But it has been asserted on grounds that the chloride concentration of the duodenal contents and of the bile is as high or higher than that of the stomach contents, hence, in case of intestinal regurgitation, an appreciable error would be introduced. The histamine test for gastric secretion shows not only the degree of acidity but also the volumetric estimate of gastric secretion. But the latter is endangered by the possibility of duodenal regurgitation, hence the method is impractical. There is an indirect test for gastric acid based on the determination of the carbon dioxide tension of the expired air, but it is exposed to error, as it is complicated. The principle that persons with a relatively normal gastric secretion are apt to have less acid urine (the so-called "alkaline tide"), induced the writers to use histamine as a stim-

ulant of gastric secretion and simultaneously estimate the hydrogen-ion concentration of the urine. But a definite alkaline tide was found in only 50 per cent of their patients who developed free acid after injection of histamine, hence this substance cannot be used as the ideal gastric stimulant. They are now experimenting with other test meals.—*B. K. Ashford.*

**IDEM:** The comparative changes in gastric acidity and urinary reaction after the injection of histamine. *Archiv. Int. Med.*, 47:202.

There is a relative fixation of the urinary reaction in true achlorhydria. Histamine was employed as the gastric stimulant in 25 cases. The urine hydrogen-ion concentration was determined at 8:30 A. M., and at 9 A. M. the residual gastric secretion was examined for free and total hydrochloric acid. The stomach was now washed clean and 0.25 to 0.50 mgm. of histamine was injected subcutaneously. Gastric extraction was accomplished hourly for three to five hours thereafter. The bladder was completely emptied at each urination. Gastric specimens were analyzed for free and total acidity. The pH of the urine was determined by the Hellige comparator (Eimer and Amend). A change of pH of 1.0 in one specimen or of 0.5 in two specimens was interpreted as an alkaline tide. The inapplicability of histamine as a gastric stimulant in this test has been stated in the previous paper. Steero bouillon cubes in a cup of worm water yield better results.—*B. K. Ashford.*

**LEVINE, M.:** (1931) Studies in the cytology of cancer. *Amer. Jour. Cancer*, 15:144.

In a careful study of a case of a large fungoid carcinoma of the lip which had never been irradiated or treated, the predominating small cells were not to be differentiated from normal epithelial cells save by their abnormal orientation and arrangement. Normal mitotic figures were formed and the number of chromosomes (47 to 48) was normal for man. Frequently these small, apparently normal cells formed tripolar and quadripolar division figures. The early workers (Hansemann *et al.*) considered the appearance of these multipolar spindles as significantly diagnostic of cancer, but lately, and in Levine's own experience, multipolar spindles have been found in normal tissues. Levine found them in normal germinal epithelial cells of the mouse. Hansemann claimed as a characteristic of cancer

cells the existence of hyperchromatic and hypochromatic cells. He found as many as forty and as few as seven chromosomes. Levine finds the diploid number in small cancer cells normal for man 46-48 in a preponderance of cases, but in some where the mass of chromosomes in the equatorial plate stage is much smaller than would be expected, the number of chromosomes (26-28) is approximately half the somatic number. In slightly larger cells, from 65 to 75 chromosomes have been counted; such cells are hyperdiploid. In semi-giant cells, he has counted 94 to 96 chromosomes, a tetraploid, or four times the haploid number. Such cells may be found anywhere in the tumor, and in the midst of apparently normally dividing cells. Hence there are cells of two principal sizes: those with a diploid number of chromosomes and those with a double or tetraploid number. The presence of numerous tetraploid cells is suggestive of nuclear division without cell division.

The giant cells have very large numbers of chromosomes. The origin of these cells has not been made clear, but Levine states that they are not due to fusion with leucocytes, nor to asymmetrical division, nor to better local nutritive conditions, nor to multiple division. Under special physical and chemical conditions, cell fusions do occur, but such cells are foreign body giant cells and should not be confused with tumor giant cells. These latter may have a single giant nucleus or be multinucleated with four to six nuclei. The aberrant mitotic division found in these giant cells occurs in those with irregularly shaped nuclei. But whether uninuclear, multinucleated or multilobulate the giant nuclei divide mitotically. In such, the number of chromosomes is large, frequently even octoploid or eight times the haploid number. Levine has found one uninuclear giant cell with a total of 135-136 chromosomes and one with a lobulated nucleus possessing over 300 chromosomes. In the latter cell, these chromosomes appear to be grouped about certain unstainable centers, but no evidence of centrosomes or spindle fibers was found. He suggests that the chromosomes may divide irrespective of nuclear organization or spindle formation and diffuse out into the cytoplasm. Ultimately, these chromosomes may be liberated into the cell spaces where they stimulate other cells to divide. Rous chicken sarcoma is strictly a malignant spindle-celled tumor. Not only can it be transplanted into other fowls but it can be produced in them by a cell-free extract of the growth. The tumor may be killed by heat, by glycerin, or by repeated freezing and thawing and still be capable of producing the neoplasm. It will not produce the neoplasm in



pigeons, ducks, rats, mice and guinea pigs, and when transplanted in susceptible animals always grows to type. Carrel claims that infected macrophages become strongly malignant sarcomatous cells, by receiving the virus, protecting it against the body serum, and permitting its multiplication.

Levine finds the three types of cells described for human cancer in these tumors; the small size with a normal diploid number; the semi-giant cells with a tetraploid, subtetraploid, or hypertetraploid number, and the giant cell with a comparatively large number of chromosomes. The number of chromosomes in the primary spermatocytes of the barred Plymouth Rock cockerel, the breed most susceptible to this virus, was found on polar view to be from eight to nine; in secondary spermatocytes this number was reduced to from four to five. In addition to the manifest chromosomes, there are fine granular bodies which some observers have counted as chromosomes but which Levine evidently did not so consider; such bodies were found in the chicken tumor cells. These tumor cells were divided, as were those in human cancer, into small, semi-giant, and giant cells and the same proportion of chromosomes was found in each variety although the diploid number corresponded with the normal for these birds. In the Rous sarcoma, a number of giant cells were encountered with a surprisingly small number of chromosomes; this seemed to be due to degeneration of chromosomes.—

*B. K. Ashford.*