on to the lower types of mammalia, we find the auricles continue to grow in size, that is, according to the physiognomical index; but when we measure these same auricles according to the morphological index, the reverse is found to be true, *i.e.*, that man has the widest auricles in relation to their length.

Variations in the Form of the Helix.—These are the following: the failure of its posterior or even of its superior

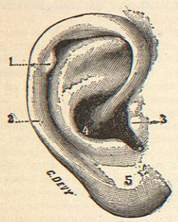

FIG. 442.—Tubercle of Darwin, Looking Forward and Downward, upon a Normally Involuted Helix—the Most Common Type.

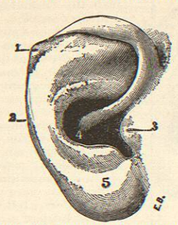

FIG. 443.—Tubercle of Darwin, Looking Backward and Upward upon a Helix Which is Imperfectly Involuted—Pointed Auricle.

FIGS. 442 AND 443.—1, Tubercle of Darwin; 2, posterior border of helix, normally involuted in Fig. 442, not involuted in Fig. 443; 3, tragus; 4, concha; 5, lobule. (After Testut.)

border to become inverted; the joining of the root of the helix with the antihelix; the division of the root of the helix into two or more branches.

Variations in the Antihelix.—Complete absence or greatly diminished size; an absence of its superior crus, or a doubling back of this crus and the consequent formation of an extra fossa.

Variations in the Tragus and Antitragus.—Attenuation or absence; division of antitragus into two tubercles.

Variations in the Lobe.—Very small size; adherence of its edge to the integument of the face; exaggerated vertical development; division into two parts, viz., an anterior and a posterior segment.

Tubercle of Darwin.—Of the many morphological anomalies, one of the most interesting is a projection, more or less marked, which appears on the free edge of the helix at the junction of its superior with its posterior border. It is sometimes found in the form of a simple tubercle or of a triangular plate. In the great majority of cases in which the helix is normally involuted, the Darwinian tip points downward and backward (Fig. 442); but when the posterior border of the helix is not involuted in consequence of arrested development it points upward and backward (Fig. 443), and the auricle terminates in a point as in those of animals. This last position indicates exactly its anatomical significance, but however it be placed on a helix that is involuted or upon one that is not, it is always homologous with the ear tip of animals. It is always to be found in the human embryo before the sixth month, at which time the helix begins to roll in.

Variations in the Inclination of the Auricles.—These may be, as noted above, an abnormal slanting auricle or an auricle in which the cephalo-auricular angle is over 50 degrees. All these variations from the normal are of interest to alienists and criminologists as they are to be found to a greater extent among the degenerate than among normally developed persons.

Physiological Function of the Auricle.—Darwin, Küpper, and others look upon the auricle as an appendage which has become useless in man. On the other hand, there are those who, like Gruber, believe that the auricle acts as a reflector and a conductor of sound waves toward the auditory canal. Weber believes it to be of service in locating the source of sound. Burnett considers that the auricle is a resonator; the region of the helix and its fossa resound to the deeper partial tones, the antihelix and its fossa to the intermediate partial tones, and the concha to the higher partial tones, and these tones are so blended by the auricle as to be received by the auditory nerve as a whole tone.

Robert Lewis, Jr.

The information furnished in the present article has been drawn largely from the following sources:—

L. Testut: Traité d'Anatomie Humaine. Paris, 1897. Third edition.

Karl von Bardeleben: Handbuch der Anatomie des Menschen, Jena, 1897. Das Aeussere Ohr, von G. Schwalbe.

AURORA SPRINGS.—Miller County, Missouri.

POST-OFFICE.—Aurora Springs.

ACCESS.—Viâ Jefferson City, Lebanon and Southwestern Railroad—a branch of the Missouri Pacific system—35 miles southeast from Jefferson City. Hotels.

This resort is located on a spur of the Ozark Mountains, at an elevation of about 1,000 feet above the sea level. The climatic conditions here are of a most salubrious and attractive character and the scenic beauties are unsurpassed. It was a visit to this locality which led Bayard Taylor to remark: "I have travelled all over the world to find in the heart of Missouri the most magnificent scenery the human eye ever beheld." The country may be described as a succession of narrow ravines, and well-wooded, high, dividing ridges, running in a general east and west direction, with picturesque streams of clear water winding through and cutting the ridges at right angles, forming narrow gorges, which have, coursing down their sides, sparkling rivulets and saucy brooks, fed by springs situated on the hillsides. The springs are located under a magnesium limestone formation at the entrance to a charming park and near the headwaters of Saline Creek. The surrounding country slopes gradually to the southeast, and is protected from the winter winds by the higher ground to the north, while the cooler breezes of the summer come from the south and west—down the Osage valley. There are numerous springs in the neighborhood, the principal ones being known as the "Round," the "Bluff," the "Healing," and the "Bath" spring. A sulphur spring is located about seven miles farther down Saline Creek. The Round spring has been analyzed by Prof. Clifford B. Richardson, analytical chemist, Department of Agriculture, Washington, D. C., with the following result:

ONE UNITED STATES GALLON CONTAINS:

Solids.	Grains.
Calcium sulphate	2.42
Magnesium chloride	6.95
Sodium chloride	4.01
Ferrous carbonate	5.13
Ferrous oxide	0.93
Lithia	1.43
Total	20.87

This water is almost a pure chalybeate. It has a sharp tonic effect on the physical economy, bracing up the digestion, promoting the appetite, and inducing healthful sleep and rest. Its best effects have been observed in cases of dyspepsia, rheumatism, scrofulous complaints, and renal diseases, and in the debility resulting from nervous affections and uterine complaints. Visitors will find excellent hotel accommodations and all facilities for hot, cold, and steam baths. *James K. Crook.*

AUSCULTATION. See *Chest Diseases, Physical Diagnosis of.*

AUSTRALIA.—No exhaustive description of the climate of this great continental island, extending from 10° to 40° south latitude, will be attempted here, even if the data were at hand for so doing. The articles upon *Melbourne, New South Wales*, and *Victoria* in the following volumes of this HANDBOOK discuss the climatic conditions of those regions. In the present brief notice only those portions of Australia which are of interest to health seekers, and especially to those suffering from pulmonary tuberculosis, will be considered.

In the first place, it must be remembered that the voyage to Australia possesses considerable value as a health measure; less so now, it is true, than in the days when one had to depend entirely upon sailing vessels. Furthermore, since the high-altitude treatment of consumption has come into favor, the benefits of a sea voyage for this class of patients have been somewhat lost sight of. In those earlier days the voyage to Australia or to New Zealand, around the Cape of Good Hope, was generally selected on account of its length. According to Weber ("Climate and Sea Voyages in the Treatment of Tuberculosis," Boston *Medical and Surgical Journal*, June 8, 1899), the following characteristics are to be attributed to sea voyages: (1) Purity of air; (2) slight range of temperature; (3) abundance of light; (4) constant movement of the air; (5) mental rest.

As this author, however, wisely remarks: "If one examines the conditions of an ocean voyage more exactly, he finds that these advantages are not always completely presented." The purity of the air is wanting in the sleeping cabins and saloons; the heat of the tropics is oppressive; the treatment of a serious illness on a sea voyage is difficult; and there are the storms and calms. "From what I have observed," concludes Dr. Weber, "I would give it as my opinion that sea voyages can do good service in a certain number of tuberculous cases, but that in most such cases other climatic and hygienic methods of treatment exercise at least just as good an influence." "If, however," continues Weber, "persons of strong constitution, who like sea voyages, develop phthisis under the influence of overwork or mental worry, long sea voyages are to be preferred to all other methods of treatment." This statement, as it appears to the writer, can scarcely be accepted without further qualification. (For a further consideration of this subject the reader is referred to "Ocean Voyages in Phthisis," by Dr. Parkes Weber, in *The Practitioner*, June, 1898; and to "Aero-Therapeutics" by C. Theodore Williams, 1894.)

The climate of those portions of Australia which one is likely to visit presents the following general characteristics: In summer the heat is apt to be at times excessive, frequently exceeding 100° F. at Melbourne, Sydney, and Adelaide; but the air is so dry that one is not rendered particularly uncomfortable by it, nor is it enervating. The hot wind which, "arising in the great central Australian desert, sweeps across the pastoral plains, rises over the range of mountains, and descends with fury upon the coast," may raise the temperature to 110° F. These hot winds are often followed by cold blasts from the Antarctic Circle—blasts which lower the temperature thirty or forty degrees in as many minutes. That such hot winds are not very frequent may be judged from the fact that Melbourne, for instance, has only fourteen hot wind days annually. There is the usual amount of dust, that inseparable accompaniment of a hot and dry climate. "In no country in the world," says Lindsay, "is the sky so seldom overcast, or the interruptions to the pursuit of business or pleasure so few." The winters are mild; "snow and frost are rare upon the lowlands and coast of Australia, and in many places are quite unknown." Lindsay enumerates three climatic regions: (1) the Littoral; (2) the Highland, and (3) the region of the Inland Plains.

The *Littoral*, where the principal cities are located, consists of a narrow strip of country, from 30 to 150 miles in breadth, which lies between the ocean and the mountains. Owing to the variability of the climate, the winds above mentioned, the heat, and the dust, this region—with the exception, perhaps, of a few sheltered spots—is not to be recommended to invalids.

The *Highland region*, embracing the mountain range of the Australian Alps and the Blue Mountains, which vary in height from 3,000 to 7,000 feet, extends from Queensland to South Australia. Many varieties of climate are represented in this region, but as yet there are but two or three resorts where proper accommodations can be obtained. These are: Mount Macedon, in Victoria, where is an excellent sanitarium; Bræmar Woodend, situated upon a plateau at an elevation of 2,500 feet, and connected with Melbourne by rail, 44 miles distant; and Catoomba and Mount Victoria, in New South Wales. The latter, at an elevation of 3,490 feet, is 77 miles from Sydney, and has a mean annual temperature of 53° F.

The *region of the Inland Plains*, whose climate is characterized by heat, dryness, and sunshine, is divided into two districts: the Riverina in New South Wales, and the Darling Downs. The Riverina is the centre of the sheep-farming industry. It is bounded on the west by the Central Desert, on the south by the Murray River, on the north by Queensland, and on the east by the Darling Downs, the second district of this region. In the Riverina the summer heat is severe, the thermometer occasionally rising to 110° F., but, on account of the extreme dryness, it is not much felt. "Hot winds and dust storms are frequent, but days of still, cloudless sunshine form the rule in summer." "In winter there is a little morning frost, but the midday is always warm. Autumn and spring present an almost ideal perfection of climate." Accommodations are afforded in the towns, especially at Deniliguin, and "almost every squatter's house has, or has had, its invalid visitant," where the young man with incipient phthisis works out his cure by adopting a pastoral life. There is railroad connection with Sydney and Melbourne from this district.

The Darling Downs have an altitude of 2,000 feet, and are somewhat cooler and less exposed to the hot winds; otherwise the climatic characteristics are similar to those of the Riverina. Accommodations can be obtained at the towns of Toowomba and Warwick; the former is 102 miles west of Brisbane. Droughts are not infrequent in these inland plains, and Hann mentions the report of a reliable person that at a station in Darling it had not rained for thirty months. At times much suffering is caused by the drought.

"Unquestionably the inland climate of Australia is highly beneficial for early phthisis," says Williams, "and can be strongly recommended to more or less vigorous patients with pastoral tastes, who are prepared to spend years in the recovery of their health." It is well to bear in mind, if one contemplates a trip to Australia, that our winter is their summer, and it is strongly recommended that the invalid should plan to arrive there in the winter or early spring rather than in summer.

For the geological formation, vegetation, and scenery of Australia the reader is referred to the general description of the country in books of travel, etc. For the information given above the writer is chiefly indebted to Lindsay's "Climatic Treatment of Consumption," London, 1887, and Williams' "Aero-Therapeutics," London, 1894. *Edward O. Otis.*

AUTO-INTOXICATION.—To the writings of Bouchard and his pupils is due much of the wide interest which during the past decade has been aroused in the subject of auto-intoxication. Bouchard's views, indeed, have not all received acceptance from later investigators, and in many phases the subject is still only an attractive and plausible hypothesis; but with each year new facts are evolved, especially from the domains of physiological and pathological chemistry, which in one place or another furnish the needed link to the gradually forming chain of evidence.

Albu defines auto-intoxication as a poisoning of the organism by the products of its own metabolism, which products may be either normal in character but excessive in amount, or abnormal in character. Among the abnormal products are to be distinguished those which under normal conditions would promptly undergo further change, and those which in the healthy organism are never found or are present only in minute quantities.

The human body is, to quote Bouchard, both a receptacle and a laboratory of poisons. They are contained in the

food, they are formed in large quantity during the process of normal digestion, and they exist in the fluids and tissues of the body; and yet the healthy individual is not poisoned.

While certain organs are occupied in manufacturing poisons, certain others are busily engaged in arresting these poisons and excreting them, or in converting them into useful or harmless bodies. Upon these "organs of defence," then, rests the responsibility of so disposing of the constantly forming poisons of the body that the latter is protected from their deleterious effects. And this these defensive organs are capable of doing when all the bodily functions are acting normally and when no excess of noxious matter is introduced from without. The adjustment, however, is so delicate that a functional derangement of any one of the organs may suffice to permit of the accumulation in the blood of enough toxic material to give rise to systemic disturbances of an acute or chronic nature—in other words, to auto-intoxication.

These organs of defence are of two kinds: 1. Organs of transformation or arrest, *i.e.*, liver, gastro-intestinal mucous membrane, spleen, lymph nodes, adrenal bodies, thyroid gland, etc. These organs possess the power of checking different poisonous bodies brought to them by the blood or lymph, and of converting them into non-toxic and assimilable substances, or of filtering out and rejecting them entirely, as is the case with the liver and its excretory product the bile. 2. Organs of elimination, such as kidneys, lungs, skin, and intestines, whose duty it is to remove from the circulating fluids such toxic substances as either escape the organs of arrest or are formed later in the other tissues, *e.g.*, the muscles.

Such, in brief, are the essential points of the present theory of auto-intoxication, and certainly they supply at least a most tempting hypothesis for the explanation of a vast number of otherwise inexplicable conditions. It remains to see what proofs can be offered in support of the theory.

It is at once evident from the complex and unstable character of many of the poisons that to obtain such direct proof as the isolation of the toxic matters from the blood or tissues, and the induction of symptoms of poisoning by their injection into animals, must be in many cases a task beset with great difficulties or even impossible of accomplishment.

It happens, therefore, that for many of the individual intoxications only indirect proofs or inferences have been supplied. These have been furnished in many ways: by the study of the physiology of the glandular organs; of the toxicity of the excretions, and in particular of the urine; of the anatomical changes and clinical pictures as compared with those produced by known poisons; of the etiology, and of the results of treatment.

In studying the character of the different poisons of the body a distinction should be made between those resulting from intra-cellular changes within the organism and those which arise from the action of saprophytic bacteria inhabiting the stomach and intestines.

Among the former are to be classed the leucomaïns, "those basic substances which result from tissue metabolism" (Vaughan).

Since the hydrocyanic acid radical is a frequent constituent of leucomaïns, it is not surprising that some of these are known to be intensely poisonous.

The name "ptomaïn" was given by Selmi to certain organic compounds, basic in character, which are formed by the action of bacteria upon nitrogenous matter. These all contain nitrogen as an essential part of their basic character and have been called putrefactive alkaloids. Not all ptomaïns are poisonous; indeed, many of them seem to be quite inert. Brieger restricts the term ptomaïn to the non-poisonous basic products, and to the poisonous ones gives the name of "toxin." The name "toxalbumin" he has reserved for certain powerful non-basic poisons whose chemical nature is still in doubt

These obscure nitrogenous bodies, however, comprise only a very small part of the sum of the chemical substances found in the gastro-intestinal canal and in the interior of the body which may, under the proper conditions and when in sufficient quantity, prove toxic to the organism. Many of these bodies will be referred to later in discussing the individual intoxications.

Classification.—A comprehensive and satisfactory classification of the different auto-intoxications in the present state of our knowledge of the subject is hardly to be expected. Perhaps the most satisfactory is that of Albu, which is here given:

1. *Auto-Intoxication Caused by Failure of Function of Definite Organs.*—These are gland affections with or without anatomical changes. Of the former class that of simple atrophy seems to be much the most frequent condition. To this category belong myxœdema and cachexia strumipriva, pancreatic diabetes, acute yellow atrophy of the liver, and perhaps also Addison's disease. These are all diseases which owe their existence to the failure of function of those organs to which modern physiology ascribes the destruction of the toxic products of metabolism which are constantly formed in the organism.

2. *Auto-Intoxication by General Anomalies of Metabolism without Evident Localization.*—These are diseases in which the intermediate products of metabolism and the products of retrograde metamorphosis reach the general circulation. To this class belong diabetes in general, oxaluria, gout, etc.

3. *Auto-Intoxication through Retention of the Physiological Products of Metabolic Action in the Different Organs.*—In this group are included the severe manifestations after extensive burns of the skin, the CO_2 poisoning in conditions of dyspnœa, urœmia, etc.

4. *Auto-Intoxication through Excessive Production of Physiological and Pathological Products of the Organism, e.g.*, Hydrothionœmia, acetonuria, diaceturia, cystinuria, diabetic coma, coma carcinomatosum, etc.

Between the third and fourth groups, and perhaps belonging to both, stand most of the auto-intoxications which arise from the gastro-intestinal tract and which follow the most various acute and chronic digestive derangements: Gastric and intestinal vertigo; asthma dyspepticum; those irritative and paralytic manifestations of the central nervous system which develop in the course of chronic constipation; dilatation of the stomach, strangulated hernia, etc.; various skin affections and many functional diseases such as tetany, Thomsen's disease, infantile eclampsia, etc.

In addition to the list of diseases already mentioned it seems quite possible that later developments may show that to the auto-intoxications must be added also many anomalies of nutrition and blood dyscrasias such as chlorosis, pernicious anæmia, leucœmia, the cachexia of cancer, and perhaps, too, scorbutus, purpura, hæmophilia, etc.

Auto-Intoxications of the Gastro-Intestinal Tract.—The auto-intoxications which apparently have their origin in the gastro-intestinal canal are not only the most frequent, but include also some of the most important and typical examples.

It is by no means easy, in attempting to differentiate between auto-intoxications and those intoxications not of autogenous nature, to say in every case just where the line shall be drawn.

Those intoxications which develop as a result of failure of function of the organs of defence, and when no toxic matters have been introduced from without, are clearly auto-intoxications. On the other hand, poisoning resulting from the ingestion of noxious matters generated in tainted meat, ice cream, etc., or that resulting from the accumulation in the body of toxins formed by bacteria not normally found there, *e.g.*, the diphtheria or tetanus bacillus, are manifestly not auto-intoxications.

It is possible that certain diseases may be the result of intoxications which are of both autogenous and exogenous character. Bouchard so regards typhoid fever. In addition to the infection of the body by the pathogenic bacterium and its toxins, he believes that the intestinal ulcerations may be the cause of an auto-intoxication either

by increasing normal fermentation or by inducing abnormal fermentative processes.

The Poisons of the Gastro-Intestinal Canal.—Most of the auto-intoxications of the gastro-intestinal tract are caused not by the generation of foreign poisonous substances, but by the development in excessive quantities of those toxic bodies which, in small amount, are a part of the normal digestive processes. Among the abnormal toxic substances occasionally formed are to be mentioned chiefly β-oxybutyric acid, tetra- and penta-methylendiamin, and the so-called alcaptan.

There are chiefly two processes which lead to the production, in the gastro-intestinal canal, of injurious substances in large quantities—fermentation and putrefaction.

These are both processes without which the normal course of digestion could hardly be conceived and which do not cease even in prolonged hunger. Fermentation has its seat chiefly in the stomach and involves chiefly the carbohydrates. Putrefaction, on the other hand, is almost altogether an intestinal process and affects especially the albuminoids.

These catabolic processes are produced by micro-organisms which are introduced with the food or are swallowed with the saliva. Miller has found a lactic-acid-forming bacillus in the saliva of the mouth. Unfortunately, up to the present time only a few of the bacteria of the several processes of fermentation and putrefaction are known.

The carbohydrates may undergo any one of four different forms of fermentation—the lactic acid, the butyric acid, the acetic acid, and the yeast fermentation,—each of which is produced by its specific bacterium. The acids are in part further transformed into certain gases, especially hydrogen and carbon dioxide.

The products of the putrefaction of albuminoids differ greatly from those of the fermentation of the carbohydrates. They may be divided into several groups:

1. NH_3, N, CO_2, H_2S, methylmercaptan and cystin.
2. Substances from the amido-acid series, of which leucin is a type.
3. Substances from the group of aromatic bodies which are the derivatives of benzol, *e.g.*, phenol, cresol, indol, skatol, tyrosin, and alcaptan.

Aceton is still another product of the putrefaction of proteids which has been found in both gastric and intestinal contents.

Hydrogen sulphide is believed not to be a product of normal putrefaction in the intestine. It is found, however, under many pathological conditions not only in the intestines, but also in the stomach. When in large quantities it may reach the blood and produce typical H_2S poisoning such as occurs in certain occupations. This H_2S poisoning, which occurs in certain acute gastro-intestinal disturbances, is termed hydrothionœmia and is a good example of a pure gastro-intestinal auto-intoxication. All these above-mentioned substances, except perhaps H_2S, are, in greater or less quantity, products of normal digestive chemistry.

There are still to be mentioned those foreign poisonous bodies which are formed from the albuminoids in certain abnormal putrefactive processes. To these belong the ptomaïns, toxins, toxalbumins, etc. Neither their mode of formation nor their grouping is well understood. It is possible that they may be formed in minute quantities during normal digestion.

Doubtless the stagnation and decomposition of the gastro-intestinal contents favor their development; so they exist by preference in the contents of dilated stomachs and in the retained fæces of intestinal obstruction, constipation, etc.

Three varieties can be recognized:

1. Alkaloid-like bodies of the constitution of the pyridins or the chinolins, such as Bouchard found in normal fæces.
2. Diamins; in particular tetra-methlyendiamin (putrescin) and penta-methylendiamin (cadaverin), which are found in cystinuria, severe diarrhœas, etc.
3. Toxalbumins; unknown poisonous, nitrogenous bodies.

Auto-Intoxications of Gastric Origin.—The results of absorption of the normal products of gastric digestion in excessive amount, or of the toxic products of abnormal digestive processes, may manifest themselves in symptoms of the most varying kind and degree of severity. Brunton suggests that the lassitude and drowsiness which are so apt to follow a full meal may depend upon the absorption of an excess of the normal digestive products, and so be a mild manifestation of auto-intoxication.

Most of the severe constitutional disturbances associated with gastric disorders in childhood are believed by Heubner to be due to auto-intoxication. Of the chronic intoxications of gastric origin those associated with dilatation of the stomach deserve especial mention. In this condition there exists every favorable condition for the formation of fermentative and putrefactive products and for their absorption. These intoxications accompanying gastric dilatation are especially characterized by the periodicity of the appearance of the symptoms.

Among other chronic auto-intoxications should be mentioned migraine, certain other periodic headaches and neuralgias, and possibly, too, the gastric crises of tabes dorsalis.

Positive evidence that migraine should be classed with the auto-intoxications is still quite lacking, but there can be no question that in some cases at least there exists a very close relation between the periodic manifestations and gastric derangements.

Tetany.—This disease, says Albu, furnishes the most brilliant example of a gastro-intestinal auto-intoxication. Most of the cases are now known to be associated with some form of gastro-intestinal disturbance, *e.g.*, acute and chronic gastritis, dyspepsia, hypersecretion, dilatation of the stomach, intestinal worms, etc. Of these, dilatation of the stomach is the condition most frequently found. Of the three theories offered to explain the close relation of tetany to stomach diseases, that of auto-intoxication has now been very generally accepted. Various toxic substances have been isolated from the dilated stomachs of such cases, but none has yet been proven to be the cause. A study of the urine, however, has given better results. Albu obtained from the urine in one case a metallic salt of an alkaloid-like body which was constantly present during the tetany attacks and never during the free periods.

Many of the clinical phenomena are best explained upon the theory of auto-intoxication. Finally, in animals an artificial tetany can be produced by the injection of chloroform and ergotin.

Copræmia.—It has long been recognized that chronic constipation is apt to be associated with such symptoms as dizziness, headache, lassitude, insomnia, hypochondriasis, and even migraine, neuralgia, etc. To explain these effects two theories have been offered: 1. That of reflex action due to the irritant effects of the hardened fecal masses upon the nerves of the intestine; and 2. That of the absorption, from the intestine, of the putrefactive products of the retained fæces. Of these, the latter seems in every respect the more plausible, and has received indirect substantiation in the discovery that in obstinate constipation there is almost always an increased transfer of the products of putrefaction from intestines to urine. The nature of the absorbed products is unknown. It seems probable that they are for the most part bodies belonging to the group of aromatic substances such as phenol, indol, skatol, etc. For this speaks the fact that in constipation there is frequently an increase in the execretion, by the urine, of indican and also of the ethereal sulphates. Bouchard is inclined to believe that the poisons of the fæces are alkaloidai bodies belonging to the ptomaïn group. His view that many of the constitutional symptoms in intestinal obstruction and allied conditions were due to the absorption of poisons from the retained fluid fæces, has received support from the apparently toxic nature of the nephritis which not infrequently develops in the course of these affections. Bou-