weeks. There is no doubt but that there are certain individuals on whom iso grafts will not take, the reason for which I am not yet prepared to say. On the other hand, I have seen individuals on whom iso grafts from a number of different people have taken without difficulty. Of course auto grafts are more likely to succeed, but a study of the results obtained by means of iso grafts at the Johns Hopkins Hospital, and also my own experience with these grafts, have convinced me that both thin and thick iso grafts are well worth trying, and that very good lasting results may be secured in some cases if the grafts are obtained and transplanted with the proper technic.

Even though an iso graft should not last more than three weeks, as Lexer claims, it has the power of markedly stimulating sluggish wound edges, and would be useful for this purpose alone.

In reviewing the first 550 cases grafted at the Johns Hopkins Hospital, there were 42 cases in which iso Thiersch grafts were applied.⁹ Twenty-one were complete takes, 16 partial takes, and 5 were total failures, thus showing that iso grafts are well worth trying.

When iso grafts are used it is of great importance that the individual from whom the grafts are obtained be healthy, as cases of syphilis, tuberculosis and smallpox have been reported as having been transmitted in this way.

Zoö grafts.—Both thin and thick zoö grafts have been used, and a number of successful cases have been reported in the literature. The skin of dogs, lambs, rabbits, guinea pigs, frogs, etc., has been used. The most uniformly successful reports seem to follow the use of skin from a young pig. My own results with zoö grafts have been disappointing. Most of the grafts would apparently take and would bleed when cut into, but within a few weeks they would melt away.

Changes in pigmentation.—It is interesting that grafts from a negro which have been successfully transplanted on to a white person gradually fade and assume the color of the host, and vice versa. This has been established by a number of observers, and has also been the experience at the Johns Hopkins Hospital.

It must be borne in mind that some auto white grafts become deeply pigmented during the process of healing, and this pigment remains in the grafted area. This fact must be remembered where pigmentation of white grafts on the negro takes place. In the few cases reported where black skin transplanted on to a white person remained pigmented, this same process might have occurred after the natural pigment had been disposed of.

From observation I am convinced that the actual change in the color occurs. There are several theories concerning these changes, but lack of time prevents their consideration here.

Vitality of grafts.—It is not necessary to apply grafts immediately after cutting, and grafts which are kept moist and cold can be transplanted after a number of days or weeks with as good results as when just cut. This is very important,

as grafts can be cut at the time of operation when the patient is under a general anesthetic, and applied later, if conditions for immediate grafting are not satisfactory.

REFERENCES.

- ¹ *Modified styrax ointment*: Olive oil, 100 gm.; liquid styrax, 50 gm.; rosin, 35 gm.; rosin elemi, 35 gm.; yellow wax, 44 gm. (Fouchard.)
- ² *Poly-antiseptic ointment*: Iodoform, 1 gm.; orthoform, 4 gr.; antipyrin, 5 gm.; salol, 3 gm.; ac. boric, 3 gm.; bichloride of mercury, .1 gm.; ac. carbol, .5 gm.; vaseline, 200 gm. (Besson.)
- ³ J.: Bull. et mém. Soc. de Chir. de Par., Dec. 8, 1869.
- ⁴ Verhandl. d. deutsch. Gesellsch. für Chir., Berlin, 1874, p. 69; 1886, p. 17; 1888, p. 66.
- ⁵ Ann. Surg., March, 1909, p. 417.
- ⁶ Gaz. des Hôp., 1872, nr. 7.
- ⁷ Brit. Med. Jour., Sept. 18, 1875, p. 360; Glasgow Med. Jour., July, 1876, p. 420.
- ⁸ Sammlung klin. Vorträge, 1896, n. 143.
- ⁹ Arch. für klin. Chir., heft 4, 1911, p. 827.
- ⁹ Johns Hopkins Hosp. Rep., vol. xv, p. 307.

(To be continued.)

CHRONIC INTERSTITIAL NEPHRITIS. ACUTE INDIGESTION AS AN IMPORTANT SYMPTOM.

BY MALCOLM SEYMOUR, M.D., BOSTON.

THAT gastro-intestinal disturbance in the course of chronic interstitial nephritis is not uncommon is evident not only from the number of cases which come to our attention, but also from the newspaper reports of similar cases.

Almost daily we read of the death from acute indigestion of some prominent public or private individual.

The cause of death here is evidently not indigestion in itself. There must be some underlying factor, and in a large majority of cases involvement of the kidneys will be found.

To be sure, not every case of gastric disturbance in the adult has a contracted kidney and uremia as a foundation, but if greater care be used in finding a cause of the indigestion or dyspepsia, attention will oftener be directed to the kidneys.

Many writers have called attention to our inability to make a correct intra-vitam diagnosis of chronic interstitial nephritis. This is due many times to careless history taking, hurried examinations, under-valuation of supposedly unimportant symptoms, and erroneous interpretation of urinary findings.

It is not my purpose to go into a lengthy discussion of chronic interstitial nephritis, but to direct attention to the too frequently overlooked evidences of renal involvement, with special reference to the altered digestive function and to the analysis of the urine.

Chronic interstitial nephritis is essentially intransient in its course. Its onset is masked by other deteriorative processes and compensatory changes. Once established, it is slow and persistent, spectacular signs and symptoms are usually lacking, and it is the apparent absence and meagerness of signs, especially in its earlier stages, which characterize the disease. This applies not only to the symptomatology and physical manifestations, but to the excretory function of the kidney.

Until we have more knowledge as to the cause of the disease, or until more light is thrown upon the processes of metabolism and elimination, we cannot understand its various phases. Why one individual with contracted kidneys can live a happy, active and useful life, and die in old age from an intercurrent disease, or why a youth will develop the affliction resulting in a more or less speedy termination, or why a person in middle age will, without warning, and while apparently enjoying perfect health, suddenly drop dead from uremic poisoning, we do not know. Also, we do not understand why uremia will develop regardless of any known cause, or without change in mode of living.

Hopeless as the problem may seem, there are many signs and symptoms which will aid us in arriving at a correct diagnosis if proper interpretation is made of, and due importance given to, supposedly unimportant features. The diagnosis is comparatively simple where we have evidences of enlargement of the heart, dyspnea, headache, muscular weakness, increased arterial tension and symptoms of toxemia, with an overwhelming uremia, but in the earlier stages, where many of these symptoms are lacking, the diagnosis is not so simple. One of the most important symptoms in the earlier stages, before compensatory changes have taken place, are those of the gastro-enteric system, and present themselves in a mild form of uremia.

These mild symptoms of uremia or toxemia, probably resulting from retained poisons due to faulty metabolic changes, may be so slight, and the increase in severity so slow, that the individual does not think his condition serious. He considers himself a chronic dyspeptic. He frequently complains of nausea, has aversion for food, especially for meat; in fact, he has a poor appetite. He takes bicarbonate of soda after his meals. After no indiscretion in eating or drinking, and after no change in his mode of living, he occasionally has what he terms a "frightful bilious headache," accompanied by nausea and vomiting, and severe *epigastric pain*. This sudden onset of epigastric pain, nausea and vomiting is often termed "ptomaine poisoning," and similar mistakes in diagnosis are altogether too frequently made. The trouble may clear up in a few hours, or two or three days, and the patient may go on for weeks or months without a return of any alarming symptoms, or, as is often the case, his condition becomes more serious. The nausea, vomiting, headache and severe epigastric pain continue, the mental state becomes more involved, coma develops and death follows in a few hours.

Occasionally, even after the development of coma, we see a patient recover and, in the course of a week or so, he may be able to get about and lead his usual life, apparently none the worse for having passed through so distressing and alarming a sickness. The prognosis, therefore, is notoriously uncertain.

There is probably no disease of the kidneys where so little is found in the urine which may be

termed striking. In a case of uncomplicated chronic interstitial nephritis, it is the absence of urinary findings that is diagnostic. Many cases show not even the slightest possible trace of albumin on the most careful analysis, and the amount rarely goes above a slight trace, with the nitric acid contact test.

When I was a medical student, the teaching in the medical schools was to the effect that where there was no albumin there could be no casts, and thus no disease of the kidneys. This of course is not so.

Frequently, I have seen assistants in clinics, and also the "busy practitioner," take a more or less cloudy and unfiltered urine and carelessly pour in nitric acid, hurriedly hold the urine-glass against the sleeve, and say, with apparent satisfaction: "The urine is all right; no albumin, no Bright's."

To be sure, the casts — which are of the clear hyaline type, long or short, broad or thin — are few, and may be absent, but a careful search of the centrifugalized sediment of a twenty-four-hour output of urine will often show them in considerable numbers, and even in greater numbers if a freshly passed specimen is centrifugalized. A few small, round cells are usually present. There may be a rare red blood corpuscle.

(In one of my recent cases, during a uremic seizure, the urine was decreased to 250 ccm. in twenty-four hours. The following day the output rose rapidly, the gravity fell to 1015, the color was pale, the albumin amounted to the slightest possible trace with nitric acid. Eight hours later, a single 240 ccm. specimen was passed, blood-red in color, with abundant sediment of 5 ccm., consisting principally of blood. The next day the urine was pale straw in color and the blood had almost disappeared.)

The color is usually pale and the reaction decidedly acid.

A single specimen, taken at random, may show a specific gravity of 1020, or higher, whereas in a specimen from a carefully collected twenty-four-hour output, the specific gravity is usually between 1005 and 1015. This low gravity, then, is of the greatest importance.

Ordinarily, the twenty-four-hour excretion will be found to be increased, and will amount to between 2000 and 4000 ccm.

Unfortunately at present the determination of the nitrogen content as a routine procedure for the busy general practitioner is impossible. Primarily, the proteid intake must be carefully computed, and the resulting nitrogenous output as carefully measured. This involves a more or less complicated computation of food values, which must be considered in the final nitrogen determination, and the latter is only possible to those who are in easy reach of a chemical laboratory. The older methods of determining the urea content as a measure of renal functioning are worthless. The same applies to the ammonia, chlorides, sulphates and phosphates, unless done in a well-equipped laboratory.

CASE 1. M. T., age fifty-two, married; family and past history negative. An active man, in the retail trade, his business requiring moderately long hours, but careful attention to detail. Unusually busy at certain seasons, especially during the holidays.

Present illness.—For the past two or three years he has had three or four attacks of indigestion, lasting for a few hours, occasionally for a day or so. These attacks would usually follow no indiscretion in diet, and he obtained relief after using bicarbonate of sodium and catharsis. A mild headache usually accompanied the indigestion. On Dec. 31, following his busy holiday trade, he came home from business suffering with severe epigastric pain. He had eaten nothing which he thought might have been the cause of this attack. He vomited, and went to bed. He complained of severe, blinding headache, not confined to any part of the head. The pain in his epigastrium was almost unbearable.

Physical examination (two hours later).—A well-developed man, slightly overweight, mental state showed slow cerebration, but he could be aroused. He answered questions with difficulty. The answers were delayed. The speech was thick. The pupils were of normal size and reacted to light. The tongue was protruded slowly, in the middle line. The radial pulses were equal and skipped a beat once or twice during a minute. The systolic blood pressure was 130 mm. The heart was considerably enlarged, downward and to the left. The action was slow, — 64, — and there were no murmurs. The temperature was slightly elevated, — 100° F. The physical examination was otherwise negative. A specimen of urine which was passed with some difficulty showed a specific gravity of 1022. The color was rather high. There was a large trace of albumin, sugar was absent, the sediment showed abundant, clear, hyaline, fine and coarsely granular casts. There were a number of red blood-corpuscles.

Jan. 1, 1912: He felt much better. His mental condition had improved, but the speech was still thick. There had been no further vomiting. He had very little appetite and complained of a slight headache. Systolic blood pressure was 170 mm. He had passed 300 ccm. of urine in the twenty-four hours. The color was still slightly high, the specific gravity 1018. There was the slightest trace of albumin; sugar was absent. The sediment showed a few clear hyaline and finely granular casts, and a few red blood-corpuscles.

Jan. 6, 1912: He felt as well as ever. Systolic blood pressure, 185 mm. The heart action was regular; size of the heart as before. Twenty-four-hour amount of the urine was 2000 ccm., the color was pale, with specific gravity of 1010. The albumin amounted to the slightest possible trace, with heat, but was absent with the nitric acid contact test. The sediment showed a rare clear hyaline cast. There was no blood.

Jan. 8: He returned to business, and said that he felt as well as he did before this last attack.

This case well illustrates many of the important characteristics of the disease, and shows the ease with which it might be mistaken for acute indigestion, ptomaine poisoning, etc. The sudden onset, the nausea and vomiting and severe epigastric pain, the alarming mental condition (the latter especially trying to his family), all pointed to gastric involvement. The superimposed acute process on the chronic condition, shown by the decreased amount of urine, the presence of a larger quantity of albumin, and the character of the sediment, together with the increase in specific gravity, were very typical.

CASE 2.¹ An individual was taken ill in the street. He went into a chemist's shop and received a draught. He immediately fell dead on the threshold, as if struck by lightning. The passers-by fancied that the man had been poisoned by the chemist, so they set to work and smashed everything in his shop. An autopsy showed markedly contracted kidneys and hypertrophy of the left ventricle of the heart.

CASE 3. (Kindly submitted to me by Dr. Geo. B. Tuttle, Medical Reserve Corps, Fort Columbia, Wash.) Private G. W. L., age thirty-five, single; Coast Artillery Corps, Fort Columbia, Wash. Sept. 13, 1910. Family history negative.

Past history.—Never any serious illness. Has had indigestion to a slight extent at different times.

Present illness.—Is slightly anemic; temperature normal; pulse 78; respiration 18; slightly constipated; urine 1012, slightly acid, no sugar nor albumin, clear and of a straw color. He was returned to duty on Sept. 24, 1910, very much improved. On Oct. 10, 1910, he again came on sick report and was admitted to the hospital, in about the same condition as before. The urine was normal. He complained of slight pain in the upper left quadrant of the epigastric region, increased after eating; belching and burning sensation in the throat. Temperature normal; pulse 82; respiration 18; bowels sluggish. The urine was not examined at this time. He was given 200 mgm. of calomel, and 375 mgm. of soda bicarb., in broken doses, and this was followed by 30 ccm. sat. solution of magnesia sulphate. After the bowels were cleaned out he was put on hydrochloric acid, dilute, before meals, and sodamint tablets after meals; diet of milk and toast.

Oct. 5: A bronchitis developed, which responded to treatment in five days.

Oct. 25: The urine was examined. It was clear, no sediment, specific gravity 1010, no albumin and no sugar. The microscopical examination was not made.

Oct. 27: He vomited his breakfast, but said he had eaten one or two pancakes and the vomiting was attributed to this. He was put on a diet of soft boiled eggs and milk toast, with some improvement in his indigestion, but still complained of some pain in the left upper quadrant of the epigastrium.

Nov. 1: He had permission to take a walk and after about one hour returned, feeling slightly fatigued.

Nov. 2: His urine was examined, and albumin was present, and a diagnosis of chronic parenchymatous nephritis was made and he was started on Basham's mixture.

He now became rapidly worse, and on Nov. 5 sank into a coma about 6 p.m., which continued about thirty-eight hours, till death at 2.30 p.m. on the 7th.

Marked and increasing dyspnea was present during this state of coma, but no convulsions at any time. He was catheterized every six hours at this time, the urine showing one half of 1% albumin. He was bled at 11 o'clock a.m. on the 7th of November, and about 500 ccm. of blood was withdrawn. There was no edema at any time, not even a slight puffiness of the face. The age of the patient, thirty-five, was not such as to lead one to suspect a lesion of the kidneys, and the absence of albumin in the urine was also misleading.

The history was merely one of indigestion. A post-mortem was held, and granular kidneys were found. There were no cysts, the color was dark red, and on section, tough. There was increased fat in the pelvis. There were no other remarkable pathological findings.

¹ Alfred Fournier: Des Formes de l'Urémie.
P. Brouardel, 1897: "Death and Sudden Death."

CONCLUSIONS.

1. Loose diagnostic terms, as "acute indigestion," "ptomaine poisoning," and their like, should be avoided.
2. More care should be used in finding a possible cause of gastro-enteric disturbances, especially indigestion and dyspepsia.
3. Carelessness in urinalysis may be dangerous, — both to the physician and to the patient.
4. "No albumin" does not mean "no nephritis."
5. Increased twenty-four-hour output of urine with persistent low gravity, associated with gastric disturbances, should strongly suggest involvement of the kidneys.

POST-TYPHOID DYSPEPSIA.*

BY ANTHONY BASSLER, M.D., NEW YORK.

SINCE the time that typhoid was separated from typhus fever, the medical world has been littered with a consideration of this protean disease. The contributions on typhoid fever from American sources alone comprise one of the instructive eras in the development of medicine in America. Judging from the very thorough knowledge that we have of this disease in the way of the bacillus typhosus, the modes of infection, pathology, symptomatology, complications, sequelæ, prophylaxis and treatment, it would seem as if the last words have been said. And still, within recent years, new facts pertaining to the disease have

* Read before the New York Academy of Medicine, April 16, 1912.

been pointed out, among which are states of a chronic type following the acute course of the infection, most notably metastatic deposits, chronic gall-bladder infections, and to which the general term of the "typhoid-carrier" has been given.

It occurred to me several years ago that in the histories of patients mentioning states of chronic disturbances in the digestive tract there presented a history of a previous typhoid fever in more or less association with the beginning of the dyspeptic symptoms in a considerable proportion. In this connection, the recent advances drawing attention to the persistency of the typhoid bacillus in stools and urines of patients who had been infected, led to the analyses of the histories of 472 cases taken serially among those I saw in private practice, and the making of stool and urine examinations of those in whom it seemed warranted to assume that the typhoid fever had to do with the dyspepsia then present; and also to a comparing of the number of instances of typhoid fever with the two commoner diagnoses presented in the past histories of the cases, namely, appendicitis and pneumonia. In these 472 cases, there were 132 instances in which various diseases and conditions were connected with the history in certain suggestive, causative ways. Of these, there were 24 instances of typhoid fever; 17 who had had appendicitis, and 10 who had had pneumonia. There were 4 who had had typhoid, appendicitis and pneumonia closely enough associated that differentiation was not possible; and 76 cases with other states not considered in this article.

In 472 case histories:

TYPHOID FEVER.

Case Number.	How long ago contracted.	Dyspeptic symptoms begun.	Age now.	Typhoid bacilli in stools.
1.	21 years.	11 years after.	40	None, 3 examinations.
2.	24 "	11 years after.	40	None, 5 "
3.	10 "	1 year after.	29	None, 7 "
4.	7 "	Continuous.	36	Present periodically, 13 "
5.	4 "	2 years after.	28	Present periodically, 9 "
6.	22 "	1 year after.	49	None, 6 "
7.	13 "	5 years after.	36	None, 5 "
8.	20 "	1 year after.	42	None, 3 "
9.	11 "	1 year after.	23	Present periodically, 9 "
10.	13 "	9 years after.	28	None, 5 "
11.	36 "	Continuous.	50	Present constantly, 11 "
12.	16 "	Continuous.	32	None, 6 "
13.	2 "	1 year after.	36	Present periodically, 14 "
14.	14 "	10 years after.	24	None, 4 "
15.	21 "	18 years after.	54	None, 5 "
16.	2 "	6 months after.	22	Present constantly, 7 "
17.	19 "	1 year after.	29	None, 5 "
18.	5 "	Continuous.	26	Present periodically, 10 "
19.	35 "	8 years after.	44	None, 7 "
20.	27 "	5 years after second.	38	None, 15 "
21.	15 "			
22.	16 "	13 years after.	30	None, 3 "
23.	10 "	1 year after.	48	None, 8 "
24.	16 "	Continuous.	51	Present constantly, 8 "
		Continuous.	35	Present periodically, 16 "