

interesting in this connection is the fact that out of 169 cases in which the sex was noted, 126 were in women and 43 in men.

Atrophy of the gall-bladder is not infrequent, and may succeed hydrops vesicae felleae. Many gall-bladders do not hold more than a dram or two of bile, and sometimes there is a mere remnant left in the shape of a fibroid mass; at other times the shrunken bladder closely embraces a single gall-stone of large size. Gall-stones are occasionally found in diverticula of the gall-bladder. Suppurative phlebitis and abscess of the liver may also be due to gall-stones, causing a puriform thrombus in an adjacent branch of the portal vein.

In other instances the gall-stone is so large as to obstruct the bowel when discharged into it, although it may have passed through the natural channel, as evidenced by dilatation of the common duct. For the most part, however, such discharge is by ulceration into the intestinal tract.

It cannot be denied that associated cancers of the gall-bladder may have preceded the cholelithiasis, but there is at least as much reason to believe that they succeeded it. It is just as reasonable to suppose that had operation been performed earlier it would have been successful, and the cancer with its fatal terminations, prevented. The present state of operation on the gall-bladder is such that it is practically as free from danger to life as appendectomy if done early. The medical treatment is at best palliative, and it is not worth while to lose time with it. Nay, more: I believe that in doubtful cases exploratory operation is at times justified, and the more justified because if cholelithiasis is not found some other remedial state may be encountered which would otherwise be undiscovered.

I have said little about symptoms or diagnosis of cholelithiasis, because my object has been to call attention to the importance of early surgical treatment with a view to prevention of carcinoma and other dangerous complications, almost all of which can be averted by such treatment.

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A PHYSIOLOGIC TREATMENT OF CONGESTIVE DYSMENORRHEA AND KINDRED DISORDERS ASSOCIATED WITH THE MENSTRUAL FUNCTION

THIRD NOTE

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In 1911 I called attention¹ to certain factors which produce physical degeneration and increase the number of women suffering from dysmenorrhea, and suggested a method of treatment. The conclusions stated here and those of former papers as well are based on personal observation of several hundred average women during several thousand menstrual periods; they have been supplemented by experimental work in the physiologic

laboratories of Johns Hopkins and Stanford University and in Dr. Kelly's laboratory at Baltimore. These observations and experiments have been almost continuous through a period of twenty-two years.

In order to approach the subject of menstruation with a judicial mind it is necessary to discard preconceived ideas, sex traditions and individual experience—in short, to begin afresh, observing this function precisely in the same attitude of mind that one would observe other periodic functions, such as digestion, defecation, urination and sleep. With this dispassionate view we may be able to accept the definition here given.

Menstruation is, in fact, a periodic flow from the uterus of woman which occurs at fairly definite intervals in the same person. This interval is counted from the first day of the onset of the flow to the first day of the next onset. The duration of the flow, which varies in different persons, should be not more than two or three days. When normal, this function is not attended with pain or disability of any kind.

The functional dysmenorrhea so commonly observed is, in the larger number of cases, congestive in type, and is produced by: (1) the upright position (Moscati), (2) alteration of the normal type of respiration by disuse of the diaphragm and of the abdominal muscles; (3) the lack of general muscular development; (4) inactivity during the menstrual period; (5) psychic influences. In order to follow the relation between these causes of congestive dysmenorrhea and the physiologic treatment about to be suggested, it is necessary to have clearly in mind certain anatomic and physiologic facts concerning circulation.

The circulatory apparatus in human beings is not materially different from that in the higher mammals which go on all fours and thus carry the body in the horizontal instead of the upright position. The vena cava is without valves; and therefore, in the upright posture, a great column of blood must be sent back to the heart against the force of gravity. The chief factor in the return of the blood to the heart is the negative pressure in the thorax. "At each inspiration blood is 'sucked' from the extrathoracic into the intrathoracic veins."² The thoracic portion of the vena cava inferior which is under less pressure than the abdominal portion has this difference increased by the descent of the diaphragm and the contraction of the abdominal muscles.

Whatever part of the body is functioning at any particular time has a larger supply of blood. Thus the uterus, during the menstrual period, has its blood-supply augmented and at the same time the general blood-pressure is lowered³ and the local blood-pressure raised. By the menstrual hemorrhage the excessive local blood-pressure is relieved. This blood, lost in the menstrual flow, is the same kind of blood as that used for mental or physical activity and represents, therefore, potential energy. In the intermenstrual period more energy of the person must be used to replace this loss. Normally, according to Cullen,⁴ Williams,⁵ Moericke and others, the epithelial lining of the uterus is not shed.

This periodic physiologic congestion of the uterus in woman, which occurs about the time of menstruation,³

2. Howell, W. H.: Text-Book of Physiology, p. 588.

3. Mosher, C. D.: Normal Menstruation and Some of the Factors Modifying It (preliminary note), Bull. Johns Hopkins Hosp., 1901, xii, 178.

4. Cullen, T. S.: Changes of the Endometrium at the Menstrual Period in "Cancer of the Uterus," pp. 25-26.

5. Williams, J. W.: Observations on the Mucosa during Menstruation (also quotes views of Moericke and others) Obstetrics, p. 75.

1. Mosher, Clelia Duel: Functional Periodicity in Women and Some of the Modifying Factors (Second Note), California State Jour. Med., January and February, 1911; reprinted in full in Woman's Medical Journal, Cincinnati, April, 1911; abstr., THE JOURNAL A. M. A., April 29, 1911, p. 1295; Sargent Normal School Association Proceedings, 1911, p. 14; American Physical Education Review, November, 1911, p. 493.

is frequently so excessive that it produces congestive dysmenorrhea. The upright position, lax abdominal muscles, costal instead of diaphragmatic breathing and constriction of the body by clothing which interferes with the use of the abdominal muscles and diaphragm—all combine to develop and promote this excessive pelvic congestion. As a result, there is pain at the menstrual period, prolonged hemorrhage and undue loss of blood.

In a large number of cases I have corrected these conditions by the following physiologic method: All tight clothing having been removed, the woman is placed on her back, on a level surface, in the horizontal position. The knees are flexed and the arms are placed at the sides to secure relaxation of the abdominal muscles. One hand is allowed to rest on the abdominal wall without exerting any pressure, to serve as an indicator of the amount of movement. The woman is then directed to see how high she can raise the hand by lifting the abdominal wall; then to see how far the hand will be lowered by the voluntary contraction of the abdominal muscles, the importance of this contraction being especially emphasized. This exercise is repeated ten times, night and morning, in a well-ventilated room, preferably while she is still in bed in her night-clothing. She is cautioned to avoid jerky movements and to strive for a smooth, rhythmical raising and lowering of the abdominal wall.

In many cases and particularly in those who most need the exercise, the voluntary contraction of the muscles will at first be very slight. Occasionally, the woman will complain of dizziness, and the exercise should be discontinued for that time; but she will be able at subsequent trials to increase the number of repetitions until she reaches the specified number. In a few cases some discomfort or slight pain has been experienced with the contraction of the abdominal muscles; nevertheless, if the exercise is gently continued, these symptoms are relieved and usually disappear entirely.

The result of the treatment has been that the pain has been lessened in many cases, and wholly removed in a large number. In women who are habitually free from pain at the menstrual period, but who, on account of some unfavorable condition, have suffered an attack, the pain has been stopped at its onset by these exercises. The exercises have been taught by the women under my care to others with the same satisfactory results as, for instance, in the following cases:

Patient A was a sister of woman under my observation. Symptoms were too abundant flow of too long duration (nine to fifteen days), headache, backache, cramps during the entire period; obliged to go to bed to control the flow. This woman has practiced these exercises daily for six months with the result that the headaches have almost disappeared, the backache and cramps are much less severe and she is able to be about on her feet instead of going to bed.

Patient B was the mother of woman under my observation. Menstruation was normal and without pain, but the patient has always suffered from severe constipation, which medical and osteopathic treatment has failed to relieve. Since she has been taught these exercises by her daughter the constipation has disappeared.

Constipation, which is so frequently a factor in producing mechanical dysmenorrhea, may be corrected in a certain number of cases by the massage of the intestines, which is brought about by the contraction of the abdominal muscles and the descent of the diaphragm in these exercises. The correction of constipation in cases in

which it exists is also a factor in the improvement as well as the correction of the excessive uterine congestion. A general improved condition of the organism is, of course, induced by proper elimination.

The effect of such exercises in limiting the duration and amount of the flow is shown in such an instance as Case 180 T, in which the patient menstruated regularly every twenty-eight days, the entire period lasting eight days and the main flow four days. Usually much abdominal pain was felt on the first day, though sometimes—as three months ago—she had no pain. Though she did not go to bed she had to rest the whole first day. She is of a temperament that worries about everything. She discovered for herself that walking at the menstrual period relieved the pain; after taking regular gymnastics and these exercises for several months she had gained in weight, there was no pain at the menstrual period and its duration was reduced to five days. She reported that she went to two dancing parties on successive nights during a menstrual period without suffering any undesirable results.

Patient V 53 had no pain, but the period lasted eight to nine days, the main flow only three days. After she has practiced these exercises daily the duration is reduced to five and the main flow to two days, and she is in much better general condition than formerly. Many women who have taken these exercises regularly, report periods shortened and some that the amount of the flow is less. In some cases it has been necessary to continue the exercises for some time before any marked change in length and amount of flow has been accomplished.

Two patients have corrected the symptoms of nausea and vomiting during menstruation by these special exercises and the morning sickness, which often accompanies pregnancy, has been completely corrected by Patient 51 M. She was pregnant about three and a half months and was in the habit of waking about 4 o'clock in the morning with severe nausea and retching. By practicing these exercises she obtained immediate relief and repeating them several times a day she has stopped not only these attacks, but also relieved the sense of weight and of pressure in the legs. These exercises have been continued through the later months of pregnancy for this latter symptom, and she has found them helpful in producing sleep.

In simple and uncomplicated cases it should be possible to control hemorrhage at the menopause as in Patient C (mother of woman under my observation), whose symptoms were severe headache, excessive flow and constipation. She takes the exercises twice daily during the month with the result that her headaches have almost disappeared, the flow is already reduced to reasonable amount and the constipation is definitely less.

It is well known that many women have pimples at or near the time of menstruation. Careful observation has shown that they sometimes come before, sometimes during and sometimes after the period. This variation corresponds to the drop in the sexual blood-pressure, a rhythm which bears the same variable relation to the menstrual flow. May not the appearance of these pimples be due to the drafting off of too much blood from the general circulation to the pelvis, thus leaving the digestion a little less perfect? The skin may suffer as well from depleted circulation—a woman is often noticeably paler at the menstrual period. The unfavorable condition may be further increased by the omission

to bathe, a habit which is traditional among women. It is not strange that the organism should work less perfectly when all its activities are so sharply altered as has become habitual among a large number of women at the menstrual period.

The desirability of more activity during menstruation is illustrated by Case D (not under my observation). A robust young woman suffered with too abundant flow which came every three weeks and then every two weeks. She was in the habit of always resting at the menstrual period. All medical care failed to relieve this too abundant and too frequent hemorrhage. She took an office position which required her to be indoors all the week except Saturday afternoon. In order to get some outdoor life she made it a practice to take a long walk of from 6 to 10 miles on her half holiday. She did this every week even if menstruation came at the time. Her periods promptly improved. She is now perfectly well with a period coming every twenty-eight days and with a reasonable flow.

While ordinary activity during the menstrual period is desirable, a word of warning is needed in this relation. Although some women may be able to carry on all their usual physical work, it would be a dangerous experiment to permit pupils in the secondary schools especially or even women in college to continue all their regular gymnastics and athletics. Many of the more mature women may be able to go on with safety, but it is impossible to draw the line between those who are and those who are not able to do violent exercise at this time. The individual judgment must be sufficiently developed after proper training in physiology and hygiene to assume the responsibility for the degree of activity desirable during the menstrual period.

Psychic Influences: The first step in the physical regeneration of women is to alter their habits of mind in regard to bodily functions. They now accept periodic disability as inevitable. The terms "sick time," "unwell," etc., for the function of menstruation and the mental acceptance of disability is so firmly fixed in traditional thinking that it is difficult to get a woman even to try to be perfectly well, however simple the method of relief offered to her. In answer to any suggestion I am met with such statements as: "I have so much less trouble than my friends that it does not seem worth bothering about"; or, "Everyone has more or less trouble," or "I can't remember to do the exercises"; the implication always being that such trouble is inevitable to woman. One young woman under observation gave this account of her experience:

I had never had a period without terrible pain since I was 13 years old. I always went to bed, at least for the first day. My mother has taken me to every kind of a doctor, even osteopath and chiropract, and none of them did me any good. I didn't believe in your exercises, but after talking with you I did them for two weeks twice a day, and two or three days before my period, for three times a day. When I felt that it was coming on I did two hours of my class-work and telephoned my mother to have hot-water bottles and my bed ready when I should come home. I was so sure that I would have the customary pain that I lay down and waited for it to begin. But it did not begin. Then I got up and went out to gather some greens for decorations for a dance which was to be given that night. I fell over a fence and then I was sure I would have a terrible time. But as the pain still did not come on I stayed around till dinner-time and afterward dressed and went to the party. On the second day I was on my feet all day and did much heavy lifting so that I was very tired and felt a sense of weight (in the pelvis) but I had no pain, cramps or any bad effects.

The lassitude, headache and nervous irritability which it has been customary to associate with the menstrual function, may readily be explained by (1) the lowered general blood-pressure and the excessive congestion of the uterus which causes the lack of a proper blood-supply in other organs, and (2) an inactivity which brings about both a lessened oxygen intake and a decreased carbon dioxide elimination, thus favoring the development of these undesirable symptoms. To these factors must be added the normal stimulation of the sex centers at this time, which may express itself in nervous irritability and depression. The traditional treatment of rest in bed, keeping the patient very warm, directing the attention solely to the sex zone of the body, and the accepted theory that it is an inevitable "illness" while at the same time the mind is without wholesome occupation, produces a morbid attitude and favors the development and exaggeration of whatever symptoms there may be.

From these cases and their response to these regular exercises it becomes evident that the definition of menstruation should be restated more accurately: menstruation is a hemorrhage from the uterus of a woman which occurs at regular intervals. It is Nature's effort to relieve the undue congestion of the uterus which has been induced (1) by the upright position and (2) by interference with the normal physiologic return of the blood to the heart which should be accomplished by the action of the diaphragm and the abdominal muscles. The undue congestion is most frequently the cause of pain at the beginning of the menstrual period, and this pain disappears as soon as the flow is well established.

Additional evidence that the menstrual pain is caused by this excessive congestion is furnished by Dr. Esther Rosencrantz of San Francisco. In a recent conversation she stated that she frequently prescribed to her patients two hot tub baths a day to relieve the pain at the onset of menstruation. The hot bathing would, of course, divert the blood from the overcongested uterus to the skin.

The periodic raising of the local blood-pressure and the lowering of the general blood-pressure has been grossly exaggerated in the woman by her physical inactivity and by her constricting dress and unhealthful habits. The hemorrhage is brought about probably by Nature's usual method—diapedesis⁶—and there is no shedding of the epithelium in preparation for the reception of the fertilized ovum as was formerly supposed. Does not Loeb's work,⁶ showing the sensitizing of the uterine mucosa by the secretion of the corpus luteum so that it reacts to the normal stimulus of the fertilized ovum, do away with any theoretical necessity for a new surface?

I believe that menstruation represents, not a supplemental wave of nutrition (Jacobi⁷), but rather a waste of potential energy in the form of blood which might be used in productive work when not required for the development of the embryo. No physiologic purpose is served by the excessive congestion of the uterus and adnexa so frequently found in women. No harm can possibly come from bringing about a better circulation of the blood through the generative organs by the physiologic method here suggested. The healthy functioning

6. Loeb, Leo: Experimental Production of the Maternal Placenta and Function of the Corpus Luteum, *THE JOURNAL A. M. A.*, Oct. 30, 1909, p. 1471. See also editorial, Function of Corpus Luteum, *THE JOURNAL A. M. A.*, Feb. 25, 1911, p. 59.

7. Jacobi, Mary Putnam: The Question of Rest for Women, p. 168.

of any organ is dependent on perfect circulation which brings oxygen and nutritive material to its cells and carries away its waste products, not on being overfilled by a sluggish blood-flow. In this overcongestion, often unduly prolonged, have we not a condition favoring the development of pathologic conditions?

It is generally believed that primitive and savage women have a very scanty menstrual flow. That a flow of short duration and limited quantity is not abnormal even among civilized women is shown in the following case.

The menstrual history of Patient 47 M began at 16 and was well established at 18; regular every twenty-eight days; flows scanty, duration three days, first day being slight colored flow, second day a little flow of decided color, third day lessened color; no pain. There was complete amenorrhea during the patient's first year in college; prompt return of normal periods during vacation; on reentering college the second year, amenorrhea again. At the end of this year she was advised by the college physician not to continue her course because of the amenorrhea. Soon after leaving college she was married and has borne eight vigorous, perfect children, and has normal sexual instinct.

Women have been taught to fear every variation in the menstrual function, but they are often quite ignorant of the origin of this unnecessary terror of even slight variations. This has come possibly from the fact that amenorrhea may be a symptom of pregnancy. Is it not probable that the amenorrhea induced by change of climate is an indication of increased rather than diminished vigor, when it is not associated with undesirable symptoms? Excessive work in college, usually social as well as mental, occasionally gives rise to a temporary amenorrhea—a mere colorless show appearing at the regular period. I have pointed out to such young women the relation between the extra strain and the absence of the usual hemorrhage—they had nothing to waste. If they were not anemic or otherwise in poor condition, the assurance that the flow would return when they ceased to work so hard would set their minds at rest. If they had been encouraged to worry about it, psychic influences might have induced more serious symptoms. Again, the menstrual period occasionally is skipped once or twice; it returns, no harm has been done, apparently—any more than in Patient 47 M already quoted, in which the college career was cut short unnecessarily, through fear, although the young woman was splendidly well in every other particular.

There is, however, some danger of confusing cases of amenorrhea, lessened flow and colorless flow which are due to lowered vitality, to anemia or to other serious disturbances, with the normal shortening of flow and lessening of amount in vigorous women produced by the more perfect circulation induced by the exercises already described, and it is obvious that careful discrimination must be made.

For twenty years I have been asking myself the question: "Why are some weak women free from menstrual disability while some strong ones suffer much pain?" The answer has been given to me every time I suggested these abdominal exercises to a woman who had never had any pain. She said: "I always breathe this way." In other words, normal women who have the diaphragmatic type of respiration have no menstrual pain. This does not prevent them, however, from having too long periods nor from undue loss of blood. In order

to change these conditions the abdominal muscles must be exercised definitely and regularly.

Constrictive dress and inactivity interfere more with the abdominal muscles than with the diaphragm. The degree to which they induce menstrual pain may be suggested by a comparison of observations made in 1893-6 with others made in 1910-14. In 1893-6 a larger proportion of the women had pain and discomfort of severe type and of relatively long duration. In 1910-14 the larger number of cases have no disability and such pain as the remainder have is rarely severe and of short duration. In 1893-6 the average width of skirts worn by 98 young women was 13.5 feet—the widest 15 and the narrowest 9 feet. The weight of the outside skirt alone was often nearly as much as the weight of the entire clothing worn by a modern girl. At that period, too, every woman must have a wasp-like waist and several under petticoats were also carried from the waist. It is certainly not difficult to understand why so many women had menstrual pain at that period.

The modern girl with her large normal waist may in some cases have her narrow skirt criticized on the ground of modesty, but from the point of view of health we should rejoice in her freedom. The only other factor which is tolerably constant in the two groups compared above is that of exercise. In some measure the greater activity of modern girls, made possible by lighter and looser clothing, has undoubtedly assisted, when the skirt is not narrow enough to be a limitation to lessen the menstrual hemorrhage, its duration and the associated pain.

Under normal conditions there should be no more women suffering with disorders of the generative organs than with disturbances of the digestion or respiration or heart. But it is still very difficult for us to lend an open mind to any theory which opposes the accepted one of inevitable menstrual disability among women. An English writer,⁸ who quotes my experiments on women, ignores the corresponding set of experiments on men, thus deducing quite false conclusions. He sets aside the statements that the blood-pressure rhythm cannot be a menstrual rhythm since it is found in men as well as women; and that the coincident functional disturbances in other organs are probably due to the lowered general blood-pressure.³ Mr. Havelock Ellis disposes of the subject as follows:

Suffering occurring at the menstrual period, whether directly or indirectly due to the menstrual process, is quite properly described as menstrual suffering.

In regard to menstruation we have too long confused cause and effect: the menstrual hemorrhage is not the cause of the blood-pressure rhythm, but an exaggerated result of interference with normal circulation.

The economic loss to the individual woman who has to earn her living and is yet periodically incapacitated more or less is very great; and even to the married woman the loss in time and working capacity is considerable. But these losses are relatively small as compared with the inability of the periodically depleted woman, to be a vigorous mother to the race.

The first of these remedies is the removal of the factors which are producing the disability—constrictive clothing and the inactivity of the muscles of the abdomen and the diaphragm. But more important even than this is an alteration of the morbid attitude of women themselves toward this function, and almost

8. Ellis, Havelock: *Man and Woman*, 1913, pp. 287, 291, 298.

equally essential is a fundamental change in the habit of mind on our part as physicians; for do we not tend to translate too much the whole of a woman's life into terms of menstruation? If every young girl was taught that menstruation is not normally a "bad time" and that pain or incapacity at that period is as discreditable and unnecessary as bad breath due to decaying teeth, we might almost look for a revolution in the physical life of women.

At present all the evidence points to the menstrual hemorrhage as a secondary matter more or less fixed by the upright position. It is unnecessary and undesirable that it should be of more than brief duration or of more than slight amount. Pain and discomfort, where no organic lesion exists, are readily controllable by the physiologic regulation of the circulation from the abdomen and pelvis back to the heart by the restoration of the tone and action of the abdominal muscles and diaphragm. The coincident functional disturbances in other organs are a result, directly or indirectly, of the undue congestion in the pelvis which has drafted off too much blood from the general circulation leaving other parts, as the digestive area or skin, too depleted to function properly. The congestive headaches, whether they occur at the menstrual or the intermenstrual period, are relieved by the equalizing of the circulation by these exercises.

A CASE OF SO-CALLED "RENAL DIABETES," POSSIBLY TRAUMATIC IN ORIGIN*

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The relations between the kidney and sugar excretion form interesting chapters in the study of diabetes and of less well-known glycosurias. The general conception that the kidney is practically passive in diabetes has been disputed. In 1897 Lépine¹ reported the case of a woman dying in coma, whose blood contained 1.6 per cent. sugar and whose kidneys were enormous and showed a high grade of interstitial inflammation. Richter,² in 1900, in a critical review of the relation between kidney and glycosuria, concluded that renal diseases may have a favorable effect on glycosuria, and that in kidney diseases the permeability of the renal filter to sugar seemed diminished. Von Noorden³ also considers that a diseased kidney shows a diminished permeability to sugar.

Weiland⁴ has shown that in cases of acute nephritis the blood-sugar level is low, and in chronic interstitial nephritis it reaches the upper limits of normal, while in outspoken uremia there is usually hyperglycemia. He, too, thinks that the development of albuminuria in a diabetic usually has the effect of diminishing the excretion of sugar, on account of diminished permeability of the renal filter. Likewise the low excretion of sugar seen in diabetic coma is frequently associated with a very high increase in blood-sugar, an interrelation which

strongly suggests that the low excretion is due to the inability of the kidney to excrete accumulated sugar. It must be assumed, then, that a relation may exist between glycosuria and the kidney, independent of a true metabolic disturbance. The name "renal diabetes" would imply a disorder involving the kidney, and Lühje⁵ cites a case-report to show that glycosuria developed after the appearance of a kidney lesion.

Richter⁶ and subsequent workers do not consider active renal disease necessary for the conception of this type of glycosuria, although, according to the theories advanced by Lépine⁷ and by Frank,⁸ the absence of resorption of sugar by the kidney canaliculae may account for the anomaly. Renal diabetes is "glycosuria without hyperglycemia," analogous in many ways to the toxic glycosuria produced by chromium, uranium or phloridzin (Frank). In fact, Lépine⁷ and recently Garrod⁹ have proposed that the term "renal diabetes" be dropped and that the phrase "glycosuria without hyperglycemia" be employed in its stead.

Clinically, the condition as reported in the literature is an anomaly, differentiated from true diabetes mellitus by (a) the excretion of sugar being entirely or practically entirely independent of carbohydrate intake; (b) the blood-sugar being normal or decreased, and (c) the clinical course. Early cases of diabetes may not show an interdependence of diet and sugar excretion, so that from a diagnostic point of view the greatest emphasis is to be laid on the blood-sugar determinations. Such determinations have always been considered unsatisfactory, and reports from different clinics or different laboratories have not been comparable because of different techniques employed. Therefore, the third element, the clinical course, must also be properly weighed.

In the analysis of cases of so-called renal diabetes in the literature one is struck by the many temporary derangements classified under this head, which to us seems like an unjustifiable neglect of the clinical possibilities. Since so little is known of the early course of orthodox diabetes mellitus, it would seem necessary to prove that a given condition is not true diabetes before labeling it with the name of a distinct entity of unknown etiology and pathology.

Therefore, unless one is willing to accept the term renal diabetes to mean merely a *state* of glycosuria without hyperglycemia, many of the cases described in the literature cannot be considered to prove the existence of a separate disease. Undoubted cases which have conformed to the standards just laid down have been reported. Bönninger's¹⁰ patient was under observation three-quarters of a year, and had had glycosuria for three years. There were none of the usual symptoms of diabetes; the excretion of sugar was practically constant (from 2 to 25 gm.), and was independent of carbohydrate intake; the blood-sugar was normal.

Lühje's⁵ patient was under observation for six months, and had the other characteristics of the condition. Only one of Weiland's⁴ three patients was watched long enough to rule out the subsequent development of a true diabetes, although he precludes this possibility on theoretical grounds. Garrod⁹ has followed two cases for six and two years, respectively. Buber and Kolisch¹¹ watched their patient for six months, but the constant

* From the Department of Clinical Research, Michael Reese Hospital.

1. Lépine: *Rev. de méd.*, 1897, xvii, 832.

2. Richter: *Deutsch. Arch. f. klin. Med.*, 1900, xli, 160.

3. Von Noorden: *Metabolism and Practical Medicine*, 1907, iii, 529.

4. Weiland: *Deutsch. Arch. f. klin. Med.*, 1911, cii, 167.

5. Lühje: *München. med. Wchnschr.*, 1901, xlviii, 1471.

6. Richter: *Deutsch. med. Wchnschr.*, 1889, xxv, 840.

7. Lépine: *Semaine méd.*, 1913, xxxiii, 457.

8. Frank: *Arch. f. exper. Path. u. Pharmacol.*, 1913, lxxii, 387.

9. Garrod: *Brit. Med. Jour.*, 1913, ii, 850.

10. Bönninger: *Deutsch. med. Wchnschr.*, 1908, xxxiv, 780.

11. Buber and Kolisch: *Wien. klin. Wchnschr.*, 1897, x, 553.