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ON A CASE OF DIABETES MELLITUS, TREATED BY DR. CHAMPLIN'S MODE, WITH REMARKABLE RESULTS.

BY AUGUSTUS A. HAYES, M.D.

[Communicated for the Boston Medical and Surgical Journal.]

THE subject of disease in this case was a highly respectable, active gentleman, of middle age and full physical development. His own account follows:—

"Last May (1859), I had a severe attack of diabetes, the quantity of urine passed in twenty-four hours varying from five to eight quarts; specific gravity, 1.044 to 1.052. I was so much reduced, physically, by the 1st of July, that my physicians pronounced the case incurable. Dr. Meigs, of Philadelphia, recommended a trial of Dr. Champlin's bran cake (*Braithwaite's Retrospect*, No. 35, page 303), prepared from washed bran of wheat, ground fine, and made into a cake with eggs, butter and milk, as part of my diet.

"This course at once checked the disease, and since the 1st of August I have passed one quart, eleven ounces of urine, reduced sometimes to one pint, four ounces, per diem; specific gravity, 1.019 to 1.028."

A correspondence was commenced with this gentleman, and in reply to my questions further details were given, and six specimens of his urine, weighing about four ounces each, were carefully sealed, and sent to me in perfect condition, for chemical analysis.

"I voided during twenty-four hours (7, A.M. to 7, A.M.) 1 pint, 7½ ounces; it is seldom that more than two pints are passed, and for the last thirteen days the average is 1 pint, 8 ounces. The greatest quantity voided in twenty-four hours, since I have been eating bran cake, is 3 pints, 13 ounces, and that was only on one day, when the bran cake had been omitted for ten days. Four or five opium pills each day had been taken for three months, but now for nearly three weeks no opium has been required. On the day after passing the increased amount of urine, I re-commenced the use of bran cake, and the bulk was reduced to 1 pint, 6 ounces; specific gravity, 1.022. Both strength and general health have improved."

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As the details of daily observations would occupy some space, I have condensed them, by averaging the volume and specific gravity of the urine, and dividing into periods the time; in order to exhibit the influence of the bran cake, which formed a large part of the food taken at some meals, but was omitted on some days.

Before adopting the bran cake as a remedy, there are observations on the twelve preceding days, including the 7th of July, and the average quantity of urine passed daily was *nine pounds and six fluid ounces by measure, the specific gravity being a mean of 1.045.*

On the evening of the 7th of July, the first portion of bran cake was eaten, and on the 8th, after the lapse of only twenty-four hours, the marked effect was, a reduction of the volume of the excretion to only *two pounds, eight fluid ounces, the specific gravity being 1.030!*

During the following eleven days, the average amount of urine passed was two pounds, two fluid ounces, daily; specific gravity, 1.029. About thirty-six days ensuing were spent near the seashore, and no observations are recorded; but the beneficial effect of change and climate was rendered evident in increased strength.

On the 26th of August, the record indicates that the progress of the disease had been checked, and for six days, including the 31st, the volume of urine passed was two pounds, one and one half fluid ounces; mean specific gravity, 1.026.

In the month of September, a surgical operation, unconnected with the disease, was performed, and depression following, the patient remained in bed; the bran cake was not continuously used as food for eleven days. The average daily amount of urine for the whole month was two pounds, one and one tenth ounces.

About the 22d of September, being much improved in health, various articles of farinaceous food were taken, with beverages.

During the month of October, observations were continued on twenty-six days, and the mean volume of urine passed was *one pound, twelve fluid ounces; specific gravity, 1.281.*

The variations in quantity on different days of this and the preceding month, were not greater than we observe usually, where good health prevails.

On the 27th of October, my correspondent wrote, that he intended to state that his diet was not such as would be considered farinaceous. "I have not eaten any vegetables, excepting cabbage, beans and tomatoes two or three times, for three months. My diet is nearly all meat, for the bran cake is so tasteless I eat as little as possible of it, and then spread on butter to nearly the thickness of the cake. I also eat eggs freely, but avoid fruits and sugar."

Subsequently, I have learned that restoration to good health has followed, and that the patient is conducting his business travels, and is exposed to fatigue and irregularities, such as only persons enjoying good health could endure. **He eats the bran cake**

when any indication of disease appears, but at other times varied food, regularly or irregularly, without suffering.

The samples of urine received here, were carefully examined both as distinct specimens, and after being mixed in equal volumes, in order to increase the amount of fluid to be analyzed.

Analytical Trial.—(Sample No. 1.) Characters:—A clear fluid of the usual color of healthy urine, which had deposited a deep, nankin-colored precipitate as a fine powder. The fluid was decidedly acid, and when mixed with sulphuric acid in a diluted state, exhibited the darker brown tint ordinarily observed, when lithic acid is present. The deposit was lithate of soda, colored by the coloring matter of urine, and a small portion of phosphate of lime engaged with the lithate of soda, as is generally the case. Varied and numerous experiments demonstrated the absence of glucose or diabetic sugar, nor could any of that class of bodies be found. Specific gravity, 1.025 when voided. It was 1.038 at 60° Fah. In this connection, it may be stated that all the numbers representing the specific gravity as above given are doubtless erroneous in the same proportion; but as the additional amount of solid matter thus indicated, was present in the urine before the diet was changed, the relation relatively remains the same. In pursuing the inquiry into the chemical composition of the urine, it was found that the specimens differed no more than is usual in time divisions of that which is passed in twenty-four hours, and accordingly the analysis was performed on a mixed portion.

The first abnormal condition observed was that of an excessive amount of urea as a constituent. So large was the proportion of this body, that when pure concentrated nitric acid was added in quantity sufficient to form nitrate of urea, the bulky crystals produced in the lapse of an hour absorbed the fluid and permitted the vessel to be inverted without loss of its contents.

Urate of soda was present as an acid salt; the indications of free uric acid did not demonstrate its presence.

1000 parts, by weight, of the urine afforded solid matter, which, dried at 212° Fah., weighed 71.62 parts.

1000 parts, by weight, consisted of

Water obtained	929.412
Urea	52.000
Urate of soda	1.650
Phosphoric acid	3.617
Sulphuric acid	2.884
Chlorine	3.697
Soda and potash	2.920
Lime and magnesia	1.610
Undetermined animal extract	2.210
Total	1000.000

70.588 parts of dry matter were obtained in the analysis; a mere trace of ammonia was detected, besides the bodies named. The animal extract was colored, freely soluble in water, which it

rendered consistent without being gummy, and it resembled generally the mixed product of the decomposition of gelatinous tissues by putrefaction. I have often found the same substance in urine containing urate of soda in excess of the normal amount.

In the case here presented, there are two features which are worthy the attention of the physiologist:—

1st. The extraordinary rapidity of action induced in the system by a substance (washed bran) in which chemists have not detected any active principle; resembling, in this respect, the influence of powerful medicaments, and yet, so far as is known, acting as an absorbent slowly.

2d. A chemical change in the nature of the constituents of the urine, denoting that disease in rapid progress was arrested, and the excretory matter (glucose) usually found, replaced by a substance of animal organic composition; indeed, most highly azotized.

The beneficial effects of Dr. Champlin's mode of treatment have been fully developed in this case, and if the hitherto incurable attacks of diabetes can be prevented by so simple means as he has pointed out, he has not only conferred a great boon on suffering humanity, but opened a new field of research to the pathologist and physiologist.

16 *Boylston Street*, 5th March, 1861.

MESSRS. EDITORS,—To the above very important case, reported by the patient with unusual detail and accuracy, with the comments by Dr. Hayes, which he has furnished at my request, I would add, briefly, the following, which was treated by me at the Massachusetts General Hospital.

Yours, &c.

Boston, March, 1861.

AUGUSTUS A. GOULD.

J. G., plasterer, æt. 36. Jan. 14, 1860. Always well and hearty. A year ago noticed that he was very thirsty, had pains in loins on exercise, and restless nights. Mouth parched, skin dry, not perspiring on hard work; has lost much flesh and strength; drinks from one to two pailsful of water daily, and thinks he passes about the same quantity of light-colored urine; appetite ravenous.

He was put upon a diet of meat and ship bread, had a vapor bath twice a week, and sundry tonics and laxatives, as occasion required, were given. He generally sweat after bath, and the thirst was somewhat diminished. The report of Feb. 8th was, "drank O.xij. and passed about O.xij. of urine." On the 11th, it was stated that the urine gave a good deal of sugar; on the 22d, that he had drunk 7 quarts and passed 8 to 10 quarts; 28th, in bed, much disquieted, nausea, weakness of knees and pain in lumbar region; some difficulty of vision. March 12th, reports 6 quarts of urine in twenty-four hours; drink about the same; 16th, no marked change. 28th, urine nearly colorless, acid, sp. gr. 1.036; a small deposit of torula; sugar in tolerably large amount.

April 6th.—Began the bran cake, which he was to use exclu-

sively as a vegetable, with meat at pleasure. Urine, specific gravity, 1.036; quantity, 5 quarts. At the end of twenty-four hours, specific gravity, 1.030; quantity, 3 quarts; drank 3 quarts. April 16th.—Sugar, 4 per cent., or 301 grains to the pint.

A regular daily account of the drink and urine, with the specific gravity, was kept from April 6th to 28th. The card bearing the record of quantities was unfortunately lost; but the record states, in general, that the amount of drink and urine was nearly the same, and was usually 3 or 4 pints in twenty-four hours; on the last day it was reported $1\frac{3}{4}$ quarts. The specific gravity for the five days previous to the diet averaged 1.034; for the next eight, 1.028; for the remaining fourteen, 1.033. The patient rarely rose in the night, there was no more than ordinary thirst, and he gained flesh and strength rapidly. After the first fortnight he was not overscrupulous about his diet, and was often known to partake of bread puddings and other tempting dishes. This, no doubt, accounts for the increased density of the urine at this latter period. At last he became so insubordinate that he was reprimanded, and absconded May 6th.

Incomplete as the case is, and unreliable as the patient was, the influence of the bran cake was very decided; and in connection with other reported cases, affords encouragement under this treatment, or treatment based upon the same principle.

SOME INQUIRIES INTO THE PATHOLOGICAL CONDITIONS OF THE CHEST THAT YIELD TYMPANITIC PERCUSSION SOUNDS.

BY D. D. HANSON, M.D., HARTFORD, CT.

[Communicated for the Boston Medical and Surgical Journal.]

THE question involved in these inquiries does not relate to the pathognomonic resonance of pneumothorax and pulmonary cavity, but to a more sharp and metallic percussion sound sometimes detected when symptoms of pneumonia, pleurisy, or both, are manifest. Whether such sounds can be communicated in any stage of these complaints, has not been so fully discussed as to give a well-defined conviction in the minds of the profession, and, when they occur in these complications, cannot fail to perplex and confuse the diagnosis. In giving the physical signs of these two diseases, standard authors teach us to expect dulness over the affected part, in pneumonia, which increases to complete flatness, as infiltration goes on, from partial to complete consolidation; in pleurisy, after effusion commences, the region occupied by the fluid yields the same dulness, increasing to complete deadness as the effusion advances. In the one case, the lung is presumed to become consolidated from infiltration within its tissues; in the other, the organ is supposed to collapse from the pressure of the effusion from without. In both cases, the percussion dulness advances to flatness, *pari passu*, with

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