

has been the application of a retention appliance after correction, (involving the thorough stretching or division of the contracted ligaments, fasciæ and tendons), until such time as is required for the formation of a new facet in the astragalus. Other treatment has been excision of the tarsus or removal of the astragalus. The former method of treatment is successful in a very large number of difficult cases. The latter method is also successful, and is without great danger, but both involve necessarily a considerable mutilation of the foot, which is to be avoided if possible.

The following method was tried in the accompanying case; namely, An open incision on the inner side of the foot, with division of the ligaments between the scaphoid, calcis and astragalus, also of the plantar fasciæ and a linear osteotomy of the neck of the astragalus. It is manifest that where the astragalus is distorted at its neck, if it is possible that the neck be so twisted that the facet should come facing forwards instead of sideways, that the danger of relapse to former deformity is diminished. McEwen and others have demonstrated the feasibility and utility of this method of correction in knock-knee, and also the freedom from risk. If the same method can be employed on the astragalus, it is evident that there is very slight subsequent distortion of the bone. It is manifest that beside osteotomy it is essential that all ligaments and tendons should be thoroughly divided. The dangers of suppuration are no greater than in excision of the tarsus and can be disregarded in severe cases where thorough asepticism is carried out.

CASE I. Boy aged seven, with congenital talipes varus of the right foot. After the usual precautions, an incision was made from a little way below the internal malleolus downwards and forwards, directly down to the bone, and extending to the head of the metacarpal bone of the great toe. The wound was held open by means of retractors, and using a long narrow knife the plantar fascia was thoroughly divided. The astragalo scaphoid, ligament and the fascia containing the insertion of the tibiales anticus and posticus were divided by direct incision. The scaphoid was found almost touching the top of the inner malleolus. On stretching the foot outwards the head of the astragalus could in part be seen. An osteotome was inserted and driven three-quarters through the neck of the astragalus transversely to its normal axis. The foot was then twisted outwards and a cracking sensation felt as the remainder of the astragalus was broken similar to that felt in MacEwen's operation for knock-knee. Tenotomy of the tendo Achillis was then done, the incision sewed up, the foot dressed with aseptic dressings, and held in an over-corrected position by means of a fixed bandage (plaster-of-Paris) applied over the whole dressing, the foot being held until the plaster was hard. This was removed in a fortnight, and the wound was found healed without having caused any constitutional disturbance. A Taylor's retention appliance was then used, although there was no tendency toward recurrence of the varus deformity. The boy was seen four months later, and there had not only been no return of the deformity, but it was found that there was a slight valgus of the foot, resulting from the over-correction.

It would be incorrect to infer that such an operative interference as the above is indicated in many, even of the severer cases of club-foot, as in by far the

larger number permanent cure can be accomplished by less radical means. The measures mentioned may, however, be advisable in the severest forms with much osseous deformity when a prolonged treatment is impracticable or where such treatment has not been successful.

The need of thorough asepticism is, of course, manifest, for although the articulations of the joint are not opened, yet prompt healing without suppuration is essential to a perfect and speedy cure.

Two difficulties in the procedure may be mentioned: (1) The difficulty of a proper insertion of the osteotome in the neck of the astragalus. (2) The difficulty of keeping the incision by the osteotome in the proper line nearly transverse to the axis of the corrected foot.

A dissection and performance of this procedure on a cadaver will demonstrate the fact that the main artery and the articulations of the foot can be avoided.

#### THE VALUE OF SO-CALLED DIABETIC FOODS.<sup>1</sup>

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It is not my intention to attempt in any way to discuss the etiology or pathology of diabetes mellitus, a disease little understood even by those of large clinical experience, but to confine myself strictly to a consideration of certain foods, which are recommended as valuable in the diabetic dietary. It is, I believe, undisputed, that a most important point in the treatment of the disease is the more or less complete elimination of sugar and starch from the diet, and it is a natural corollary that the ingestion of these substances except in very small amounts, is often equivalent to the administration of a poison. This deprivation is borne with great difficulty by the average patient, and consequently substitutes for the carbo-hydrates have been sought for, to satisfy the intense craving for the forbidden articles of food.

Glycerine and the newly-discovered saccharin are said to satisfy in a measure the longing for sweets, but a perfectly satisfactory harmless substitute for starch has been more difficult of attainment. Various diabetic flours and biscuits have been prepared, and are widely advertised as being non-starchy, and as giving complete satisfaction to the patient. Having examined occasional specimens of biscuits and bread made from these flours brought me by physicians, and having never obtained any very satisfactory evidence of their value, I determined to secure as many different diabetic foods as possible, make analyses of them, and report the results, good or bad, to the profession. I have succeeded in obtaining eleven different kinds of flour and biscuit, advertised or recommended as substitutes for starchy foods; have examined them, and have now the honor to report the results to the Society. The foods, the claims that are made for them, and the results of examination, are as follows:

(1) Gluten Flour: Farwell & Rhines, Watertown, N. Y. This and the next-mentioned are quite extensively advertised as particularly adapted to the dietary of diabetics and dyspeptics. The circulars describe it as "substantially free from starch which is like poison

<sup>1</sup> Read at the Boston Society for Medical Improvement, February 27, 1888.

to the diabetic, and produces acidity, flatulence, and indigestion in dyspeptics." "It is as nearly free from starch as practicable to make a flour suited to general daily use." "The majority of diabetics find it just what they need." Examination shows moisture (at 100° C) = 8.69%, starch = 67.17%, which will produce sugar = 74.63%. A bread of this flour with the usual amount of moisture would contain over 30% of starch, or the equivalent of 35% of sugar.

(2) Special Diabetic Foods: Farwell & Rhines, Watertown, New York. This, according to the circular "is a flour for extreme cases of diabetes, a more crude gluten, pronounced by the highest authority to contain much less starch than the gluten imported from Paris at great cost." "As a diabetic flour it defies competition in this country or Europe." "Beware of hurtful imitations." The name of the "highest authority" is not given, nor is the amount of starch in the foreign gluten with which the comparison is made. Moisture = 8.10%, starch = 68.18%, which will produce sugar = 75.76%. Its bread would contain about 35% of starch, which will produce 40% of sugar.

(3) Health Flour. This brand was recommended very highly as a diabetic flour by a wholesaler, who claimed for it a great superiority over all others. It is not, I understand, very extensively advertised. Moisture = 8.03%, starch = 72.00%, which will produce sugar = 80.00%. Its bread would contain about 40% of starch, which would yield over 44% of sugar.

(4) Gluten Flour. New York Health Food Company. The company assert that "the foreign gluteins are found to contain a larger percentage of starch;" that "the gluteins offered by many millers, bakers and dealers, is simply ground bran and impure middlings, a sort of fine feed or offal of very small nutritive value aside from the liberal percentage of starch and the trifling proportion of gluten which it contains." It is further asserted that "the gluten manufactured by the Health Food Company is commended by the medical faculty as almost the only allowable and palatable bread food for the diabetic." Examination shows moisture = 9.30%, starch 66.18%, which will yield sugar = 73.53%. Its bread would contain about 35% of starch, which would produce about 38.5% of sugar.

(5) Gluten Wafers (plain). These were purchased at the agency of the same company and were guaranteed by the salesman to contain no starch, or at most, only the merest accidental trace. The same guarantee was given for the Gluten Flour (No. 4), and for No. 6. Moisture = 8.10%, starch = 66.96%, which will yield sugar = 74.40%.

(6) Gluten Wafers (butter). These biscuits were represented as similar to No. 5, with the exception that they are made with butter, which proved to be the case. They are much more palatable than the plain biscuits. Moisture = 7.74%, butter not estimated, starch = 51.14%, which will yield sugar = 56.82%.

(7) Dr. Johnson's Educators. These biscuits are recommended very strongly by the seller, who assured me that they are absolutely free from starch. Moisture = 5.44%, starch = 71.43%, which will yield sugar = 79.37%.

(8) Boston Health Food Company's Diabetic Flour. No. 1. This flour and the next succeeding, (No. 9),

were sold as absolutely non-starchy, and in every way superior to all others for diabetics. Examination shows moisture = 8.13%, starch = 62.94%, which will yield sugar = 69.93%. Its bread would contain about 30% of starch, or the equivalent of 33.33% of sugar.

(9) Diabetic Flour, No. 2, (same company). Moisture = 7.66%, starch = 54.83%, which will produce sugar = 60.98%. Its bread would contain about 23% of starch, or the equivalent of 25.55% of sugar.

(10) Flour of Bran. This is sold as a pure bran flour devoid of starch and very valuable as a food. Examination shows it to be as nearly free from starch as possible, there being but a mere trace present. It seems to be a finely-ground washed bran. As to the claim that it is of value as a food, it may be said to be about as nutritious and palatable as exhausted sawdust.

(11) Carlsbad Wafers. These, I am informed by one of our prominent practitioners, are held in high favor by ladies of gouty diathesis, diabetics, and persons avoiding sugar on account of increasing portliness, by reason of a popular idea that they are made of white of egg and glycerine, to the latter of which ingredients they are supposed to owe their sweet taste. I very much doubt that a wafer of this degree of dryness could be made of these two substances, and I do not know that the manufacturers claim that they are so made, or that they are free from carbo-hydrates. However that may be, it is very easy to demonstrate that sugar enters very largely into their composition. They are made in three thin layers, the middle one consisting wholly of white sugar.

For purposes of comparison I have made three additional examinations of bread foods of acknowledged richness in starch, in order to determine whether it would not be as well, or better, in case a bread or biscuit must be given to satisfy the craving for starch, to allow a small amount of palatable ordinary bread or biscuit daily, rather than the more or less unpalatable and fraudulent substitutes.

As a fair example of palatable crackers, I chose Graham Wafers; the other bread foods were ordinary home-made white bread, and corn-cake made with "white meal." Graham Wafer, moisture = 3.94%, starch = 58.45%, (sugar = 64.94%).

Compared with the diabetic biscuits above mentioned, the Graham Wafer may be almost regarded as a superior form of diabetic food. It contains a smaller percentage of starch than the Educator with its 71.43% and the Gluten Wafer (plain) with its 66.96%, and but little more than the Gluten Wafer (butter) with its 51.14%. It is in addition a remarkably palatable food, while the other three are anything but pleasant to the taste, according to my own view and that of others who have tried them at my request. Moreover, the Graham Wafer is honest, while the others are fraudulent. Home-made Bread, moisture = 37.25%, starch = 44.99%, sugar = 49.55%. Corn Cake (white meal), moisture = 44.62%, starch = 38.04%, sugar = 42.37%.

In making my estimates of the amount of starch in breads made with the diabetic flours, I have supposed them to contain about the usual 40% (or thereabouts) of moisture. Comparing the estimated figures with the amounts of starch in the two ordinary breads, it is observed that the difference is but slightly in favor of the diabetic breads, whereas according to the claims

made by the manufacturers and retailers, the difference should be overwhelming. But the item of palatability is something to be considered, and the slight difference in the percentage of starch might well be waived in favor of the great difference in taste.

There is another and more serious side to this question of diabetic foods. That they are in the highest degree fraudulent has, I consider, been proved. They are in addition a positive danger, for the diabetic accepting as truth the assertions that they are non-starchy, takes into his system that which even the circulars of the manufacturers admit to be virtually a poison in its effect on the course of the disease, and thus innocently more than counteracts the benefit which he otherwise would derive from his medical adviser. In conclusion, I have to express the hope that every practitioner will do his utmost to discourage the use of these fraudulent and dangerous foods, and to drive them out of the market.

#### A CASE OF MACEWEN'S OPERATION FOR THE RADICAL CURE OF INGUINAL HERNIA IN A WOMAN SIXTY-THREE YEARS OF AGE.<sup>1</sup>

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THE patient was admitted to the Carney Hospital on October 1, 1887, at a time when I was temporarily in charge of the surgical wards. She was small in stature, but well nourished and in remarkable good physical condition for one of her years. She could not remember that she had ever been sick in bed before.

She attributed the hernia from which she suffered to a fall about six years previously, shortly after which she experienced occasional "sickening pains" in the lower part of the abdomen, on the left side. The left labium became gradually enlarged, and there was pain in that region more or less constant, particularly severe during defecation. The patient had been advised to wear a truss, but she stated that with the use of one she had never been able to satisfactorily control the rupture. Eventually, the swelling became so large and troublesome that she was unable to get about. Being at this time in no condition to help herself, and becoming more and more a burden to her family and friends, she came to the Hospital, fully resolved to have anything done which offered a chance of cure.

An examination showed the existence of an inguinal hernia on the left side, of the size and shape of a large pear, the body occupying the left labium, and the neck extending to the external ring. The ring was so large that three fingers could be inserted without difficulty. The hernia was readily reducible.

Dr. A. T. Cabot saw the case in consultation, and, under the circumstances, advised operation. On October 12th, after the patient had been properly prepared, ether was given and the operation was carried out with thorough antiseptic precautions, Drs. Whitman and Monro kindly assisting.

The parts were shaved and rendered aseptic by washing with ether, and then with corrosive sublimate solution, with soap. A straight incision was made from the region of the ring to the lower extremity of the hernial protrusion, and this was deepened until

the sac was reached. The sac, which was unusually adherent, was then separated as carefully as possible from the adjacent tissues, partly by cutting and partly by tearing. The index finger introduced into the canal freed the neck of the sac.

It was then possible to separate with the finger-tip the peritoneum from the abdominal margins of the internal ring. The sac was now puckered up by a continuous suture of stout chromicized catgut, in the manner recommended by MacEwen, and the needle was pushed through the abdominal wall from behind forwards. On drawing upon this suture, the puckered sac was with the assistance of the finger made to occupy a position within the abdomen, where it considerably overlapped the margins of the inner ring. The suture, thus drawn tight, was made fast in the muscles of the abdomen. The walls of the canal were now drawn together with chromicized gut, so that the conjoined tendon and Poupart's ligament should be approximated as closely as possible. It was now evident that it would be impossible, on account of the size of the cavity left after removal of the sac, to sew up the wound in the ordinary way without leaving pockets. A large number of sutures of fine catgut were, therefore, buried, and the margins of the wound brought together with a continuous silk suture. No drainage was used. Iodoform was sprinkled on the wound, and flexible collodion, layer after layer, with strips of cotton. This was covered with a large pad of absorbent cotton kept in place by a firm T-bandage.

The patient rallied from the immediate effects of the operation, but the recovery was complicated by a failure of the wound to unite in that part superficial to the external ring. It is difficult to say whether this was due to some defect in the antiseptic precautions or to the age of the patient, which was certainly unfavorable for rapid repair. The deep sutures apparently held the walls of the inguinal canal in perfect apposition. The condition of the parts gradually improved by the free use of antiseptic solutions, and the wound slowly healed by granulation. The patient now sits up a few hours each day.

There has never been any sign of a recurrence, though no bandage or pad of any kind has been used since the first few days succeeding the operation.

I report this case as interesting on account of the age of the patient, but am well aware that no case should be considered cured until a period of, at least, one year has passed without recurrence, during which time no artificial support of any kind has been worn. It certainly does not seem to be advisable to attempt a radical cure in old persons, except in such cases as insist upon an operation, after they have been made acquainted with the dangers, as well as with the chances of recovery and of a permanent cure.

#### A CASE OF MACEWEN'S OPERATION FOR THE RADICAL CURE OF CONGENITAL INGUINAL HERNIA IN A BOY.<sup>1</sup>

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THE patient, a boy eleven years of age, was brought to me with a left scrotal hernia, which had existed since birth. Various trusses had been applied with

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