Condensation of six molecules of the aldehyde may then take place, as in plants, forming glucose

By urari, as I have already stated, we can put a stop to muscular contraction, that is, to the oxidation of the muscular elements and to formation of CO_2 when the muscular nerve is stimulated. If then the tissue be, so to speak, partially urarised, the aldehyde is not oxidised, but condenses into glucose. In urari poisoning, sugar appears in the urine, though "the exact way in which this form of diabetes is brought about has not yet been clearly made out."³³

Let me carry you one step further in the comparison between rheumatic fever and diabetes. If in rheumatic fever the central part of the nervous system connected with the muscular nerves be so enfeebled that there is complete dilatation of the vessels in the muscular area, and a falling asunder not only of the molecules $\text{CH}_2 \begin{cases} \text{OH} \\ \text{CN} \end{cases}$ but also of the molecules $\text{C}_2\text{H}_4 \begin{cases} \text{OH} \\ \text{CN} \end{cases}$ and $\text{C}_3\text{H}_6 \begin{cases} \text{OH} \\ \text{CN} \end{cases}$ then, by the hydration and oxidation of these, hyperpyrexia would, in some measure as I have suggested, be developed. But if the complete oxidation of these molecules were interfered with, the $\text{CH}_2 \begin{cases} \text{OH} \\ \text{CN} \end{cases}$ would give rise in the manner

above indicated to glucose. By hydration, $\text{C}_2\text{H}_4 \begin{cases} \text{OH} \\ \text{CN} \end{cases}$ would be converted into lactic acid, which, if not completely oxidised into carbonic acid and water, would be first oxidised into carbonic acid and aldehyde.

the aldehyde by condensation forming para-aldehyde, a remedy recently introduced as a hypnotic. Hence the commencing drowsiness in some stages of diabetes.

If the molecules fall still more completely asunder, and the molecule $\text{C}_3\text{H}_6 \begin{cases} \text{OH} \\ \text{CN} \end{cases}$ become detached and hydrated into oxybutyric acid, but only partially oxidised, then from one form of this acid, acetone would be formed

which appears in the urine towards the termination of the disease. So, then, in hyperpyrexia, there is detachment of the molecules from the benzene nucleus, with their hydration and rapid oxidation; whereas, in acetonaemia, there are detachment and hydration, but imperfect oxidation of the molecules. That is to say (if this theory is correct, and such experiments were possible), by urarising an individual suffering from rheumatism with pyrexia, the urine would become saccharine; if hyperpyrexia were present; by urari the disorder would be transformed into acetonaemia.

Now, you will find that, in some forms of diabetes, salicylic acid is of the greatest service; whereas, in others, no good results from its use.

Given in doses of from ten to twenty grains three times a day, I have frequently seen it produce marked improvement; and Dr. Holden, of Sudbury, has shown me notes of cases, about to be published, where rapid amelioration of the symptoms has resulted from its use.

The urine in these cases contains often, in addition to glucose, an excess of uric acid, and the patients suffer from neuralgic pains in the joints and limbs. It also, not unfrequently, contains some substance which dissolves cuprous oxide, and so more or less interferes with the application of Fehling's test. What this is, has not yet been determined. My friend, Mr. Pattison Muir, kindly examined some specimens, and made out that it is some substance which readily dissolves calcic phosphate. Possibly it may be glycollic or lactic acid. If further examination should prove this to be the case, it would go a long way to support my view of the origin of this form of diabetes.

I have thus endeavoured to indicate some of the changes in the nervous system, the blood, and the tissues, which may take place in diabetes, rheumatism, and gout, and to enlarge upon the text furnished by a far-seeing pathologist,³⁴ when he wrote: "Disturbance in the nervous system, in some part and form, may be regarded as a factor in every case of gout. There are reasons enough for thinking that changes in the nervous centre determine the locality of each gouty process, while changes in the blood and tissues determine its method and effects; and that thus we may explain the symmetries of disease in gout—sometimes bilateral, sometimes antero-posterior—and thus its metastases."

My task is done. It only remains for me to thank you, Mr. President, and the Censors, for giving me an opportunity of placing my views before the College; and to thank the distinguished Fellows and Members who have listened to me. I have brought together a number of facts, and endeavoured to draw certain inferences from them. The inferences may be wrong, but the facts remain; and I trust that in this way, at least, I may have helped to a better understanding of these disorders.

ON THE DIFFERENTIAL DIAGNOSIS OF DISTENSION OF THE FALLOPIAN TUBES.

By JOHN W. TAYLOR, F.R.C.S.,

Out-Patient Surgeon to the Birmingham and Midland Hospital for Women.

THE title of Dr. Horrock's paper "A Pelvic Tumour," seemed to invite friendly suggestion or criticism. But the further consideration of a particular case, the exact nature of which may probably never admit of absolute proof, will be unprofitable: while the broad question of the differential diagnosis of a distended Fallopian tube from uterine myoma is an important one, and its discussion may be eminently profitable.

And because I do not quite agree with Dr. Horrocks in the leading features of this differential diagnosis, I desire to point out what, in my experience, are the chief marks of similarity and difference between the two diseases.

1. Menorrhagia may be common to both diseases, but in uterine myoma it is painless, in tubal disease it is very painful.

2. Moderate enlargement of the uterus (from 3 to 3½ inches) is present in tubal distension accompanied by hæmorrhage (as in most cases where metrorrhagia is a prominent symptom); an enlargement beyond this may generally be expected in myoma.

3. The tumour formed by distension of the Fallopian tube is always single or double, and is always posterior to the uterus; nodular myoma is usually multiple, and the situation of the outgrowths variable.

4. The tumour formed by a distended tube, even when chronic and quiescent, is always very tender to touch, whether that touch be from the examining finger of the surgeon, or from the passage of scybala through the rectum; a myomatous nodule, unless inflamed, is comparatively insensitive. Probably, for a similar reason, dyspareunia is a very general symptom of tubal disease, but is almost unknown in myoma.

5. The outline or shape of a distended tube is fairly constant, in possessing a longer and a shorter axis; that of nodular myoma is round or quite irregular.

6. The tumour caused by a distended tube varies in its firmness or consistency, and at some time or other will show signs of elasticity or fluctuation; that of nodular myoma remains hard.

7. Both a distended tube and myoma of the posterior uterine wall may sink lower in the pelvis by causing retroflexion of the uterus; but, apart from this, the former, although adherent, tends to sink slowly by its own weight; the latter reaches a lower point only by increased growth.

8. When pregnancy occurs, the uterine enlargement being caused chiefly by the development of the muscular tissue of the uterus, a myoma of this tissue will be much more likely to be raised by the growing uterus than a distended tube, which is only adherent, and often but lightly, to its peritoneal investment.

In the case referred to in my paper of March 20th, the tube has remained in its original position during the progress of the pregnancy.

The only other condition that is likely to be confounded with distension of the Fallopian tube is cyst or abscess of the ovary. A special form of cystic disease of the ovary is often, perhaps generally, combined with occlusion and distension of the tubes; and if the latter

³³ Foster's *Physiology*, 4th edition, p. 425.

³⁴ Sir James Paget, *Clinical Lectures and Essays*, 1879, p. 332.

be correctly diagnosed in these cases, this is sufficient for every practical purpose. But ovarian abscess or cystoma of the ovary in an early stage, the associated tube remaining normal, needs rather careful differential diagnosis from a distended tube. I have found the chief point of difference to be this; that, in cyst or abscess of the ovary, a space can be found between the tumour and the uterus unoccupied by any swelling; in distension of the Fallopian tube, the tumour is continuous with the uterus. By this means I have on two or three occasions diagnosed a cystic condition of the ovary only, when tubal disease has been expected: a diagnosis which has been confirmed by operation.

THE IMMEDIATE REDUCTION OF DEFORMITIES.

By NOBLE SMITH, F.R.C.S. Ed.,
Surgeon to All Saints' Children's Hospital.

IN the JOURNAL of April 10th, reference is made to experiments lately performed, as proving that "the rapid method of treatment of orthopaedic deformities" will be followed by good results. I am able to verify the fact, inasmuch as I have adopted this plan of treatment, in operating upon patients for the last five years, and have, upon several occasions, advocated the complete, or nearly complete, restoration of the parts to their normal position, directly after subcutaneous tenotomy.

This plan not only simplifies the after-treatment, to an immense extent, but the results are more satisfactory. For instance, I have not met with a single case of relapse, a result which not unfrequently occurs when the usual plan of allowing the tendon to unite, while the parts remain in the deformed, or nearly deformed, position is followed. The apparatus for after-treatment, in cases thus dealt with, need not be so complicated or expensive as is usually thought requisite, and, in most cases of wryneck, no apparatus whatever, except a stiff collar, is required.

Caution, however, is necessary that actual union is obtained. Care must be taken not to apply too much pressure upon the place of separation, and the tendon must be examined from time to time, and the parts brought nearer together, if the separation seem too wide. This supervision cannot take place when plaster-of-Paris bandage is used, and I have seen disastrous results from thus fixing the foot in the natural position, after tenotomy for talipes equinus. Severe talipes calcaneus resulted from excessive lengthening of the tendo Achillis. There need be no fear of such an unfortunate effect, if moveable splints be used, and the progress carefully watched.

This plan of immediate reduction of deformity, after tenotomy, is surely deserving of much greater attention than it has at present received. The results are excellent, and, in cases of club-foot and wryneck, the tediousness of after-treatment is very materially lessened, or entirely removed.

A CASE OF IMPERFECT ABORTION: SAPRÆMIA: RECOVERY.

By W. S. A. GRIFFITH, M.B., F.R.C.S.,
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THE following case illustrates the dangers of imperfect abortion, and the satisfactory results to be obtained when the usual method of treatment is thoroughly carried out.

M. A., aged 45, the mother of thirteen children, the last five years old, came to the out-patient room at the Samaritan Hospital, complaining that she had not been well since her last miscarriage, twelve months previously; since then, she had suffered from profuse menorrhagia, and, for the last two months, a continuous bloody discharge, now fetid, with bearing-down pains, which had obliged her to give up work, much against her will.

On vaginal examination, the uterus was found much enlarged, retroflexed, and the cavity so open as easily to admit a finger to the fundus. The cavity was occupied by blood-clot and a mass of decidua, which was adherent only to the anterior wall and the fundus. The hæmorrhage after this examination was so considerable, that it was determined to remove the mass immediately; and, without much difficulty, this was done, the anterior lip of the cervix being seized by a vulsellum-forceps. The uterus was then gently irrigated with hot water, to which a little tincture of iodine was added, and the patient sent to the ward at the Dorset House branch.

Two hours later, the patient, who had had rigors, was found to have

a temperature of 105°, and a large-volumed pulse of 128; the skin was very hot, and she complained of intense thirst.

The uterus was still patulous, and contained blood-clot, which, with two minute fragments of decidua, was removed; the uterus was again thoroughly irrigated, and a tampon of wool, smeared with iodiform and eucalyptus-vaseline, inserted into it. Six grains of quinine were given; and a draught containing a drachm of the liquid extract of ergot, and two grains of quinine, was ordered to be given twice that evening, and three times a day afterwards. Two hours later, the temperature had fallen to 102°, and, an hour after, to 101°, and the pulse to 100; she was sweating profusely, and was much more comfortable.

The following morning the temperature was 99°, and the pulse 84; the tampon was removed from the uterus, and another inserted into the vagina.

From this time, convalescence proceeded uninterruptedly, and involution of the uterus, which had been delayed for twelve months, rapidly took place; the uterus became rigid, and was no longer retroflexed, and, on the fourth day, its cavity measured barely three inches. There was no hæmorrhage after the uterus was once completely emptied.

The rapidity with which involution took place precludes the probability of there having been any chronic metritis set up by the prolonged retention of decidua; and, except at the seat of attachment, the mucous membrane of the uterus appeared to be natural, and free from inflammation.

Sapræmia is believed to be a septic condition produced by the absorption of septic material, which, unlike that causing septicæmia or pyæmia, has no power of growth and propagation in the blood, and, therefore, produces effects only in proportion to its amount; and when, as in this case, its source is easily within reach, and the septic matter can be readily and completely removed, it is most amenable to antiseptic treatment.

PHYSIOLOGICAL MEMORANDA.

THE VOICE AS A STRINGED INSTRUMENT.

To Mr. Stoker belongs the merit of having restated the theory put forth by Ferrein, in 1741, and since refuted and exploded by the most eminent investigators, that the human vocal organ is a stringed instrument.

The "reasons—anatomical, pathological, and vocal"—which Mr. Stoker adduces in support of his opinion, are all exceedingly weak. It will be sufficient to contravene a few of them under each of his headings.

ANATOMICAL.—"The vocal cords are two strings of yellow elastic tissue, etc."

Answer.—The vocal cords—otherwise called vocal bands, lips, or ligaments—are not of the nature of strings at all, in the general acceptation of the word, that is, slender cords or ropes, attached, in the case of a violin, at each end, and free all round; but, as every student should know, they are triangular ledges attached, not only at each end, but exteriorly, where they are broadest, to the thyroid cartilage, along their whole length, and free only at their thin inner and approximating edges.

2. "They are covered with extremely fine and closely adherent mucous membrane, without any submucous tissue, and which is incapable of being thrown into wrinkles or folds, that would interfere with perfect vibration."

Answer to this "reason" is best afforded by asking, What would become of the vibrations of the string of a violin or violoncello if it were brought into contact along the whole of its length with some substance, as is the free inner edge of the vocal ligament with the thyroarytænoideus muscle?

PATHOLOGICAL.—1. "When the cords cannot approximate from the interposition of mucus, tumours, etc., huskiness or loss of voice ensues; it is analogous to pressing the fiddle-string with the finger, without applying the bow."

Answer.—It appears almost needless to point out that the "huskiness, or loss of voice," in such a case, is not apparent until, and in spite of, application of the motive power, that is, the breath; on the others hand, "pressing the fiddle-string with the finger," does not in the least interfere with the production of tone, so soon as the motive power thereof—the bow, is applied; it merely affects the pitch.

Again: "In case of paralysis of one cord, there is loss of volume or power, though weak notes can be correctly produced."

Answer.—While absolutely denying the accuracy of this statement, as applied to musical voice, I would ask, where, if true, is the