should be constructed which will accurately fit the posterior part of the remaining perforation of the palate and thus prevent it being drawn forwards by any resulting scar tissue. It is essential that this appliance should be constructed as far as possible before the operation, as it is necessary that it should be inserted immediately after the appliance holding the skin graft in position has been removed. In cases where it is necessary to stretch the new soft palate in a backward direction advantage is taken of the fact that the combined action of the muscles of the soft palate is in a backward and upward direction. A prosthetic appliance is constructed which will cause gradual pressure to be made upon the anterior portion of the new palate, thus stretching the soft tissues uniting the hard palate to the soft palate, and allowing the muscles to carry the soft palate as a whole in a backward and upward direction. The appliance should be continued in use until the soft palate is able to make contact with the posterior wall of the pharynx when in contraction, as this state is essential for perfect function of speech. - Fig. 3, d, shows the main features of a type of appliance which may be used for this purpose, the details of which vary according to the age of the patient and the number of teeth present.

4. *To Construct a Permanent Prosthetic Appliance to Restore the Loss of the Hard Palate.*—The permanent appliance merely consists of a dental plate which covers over the remaining perforation of the hard palate, except at its posterior border, where it should penetrate slightly into the cavity, thus making sure contact between the soft palate and the prosthetic hard palate, and at the same time preventing contraction of the soft palate. When it is necessary to restore by prosthetic means the anterior portion of the soft palate, this should be done by means of velum rubber, otherwise the whole appliance can be made in hard rubber or a combination of gold and hard rubber.

From the above brief description it will be noted that the permanent appliance necessary in this combined surgical and prosthetic treatment is of very simple construction and of a permanent nature, thus obviating continual dental treatment in after-life.

THE TREATMENT OF SPRUE BY MASSIVE DOSES OF SODIUM BICARBONATE.

BY

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IN carrying out, some time ago, certain researches on sprue, I noticed that to render strongly alkaline the urine of patients suffering from this malady it was necessary in most cases to give sodium bicarbonate in much larger doses and for much longer periods than in normal individuals or patients suffering from certain other diseases; the alkali tolerance was therefore increased. During this investigation I noticed that the administration of massive doses of bicarbonate, instead of the usual small or moderate doses so often given in the malady, had frequently a most beneficial effect, especially as regards improvement in the intestinal symptoms, and seemed to help greatly the action of the dietetic treatment.

The routine method of treatment I now use in sprue is generally the following: The patient is kept at complete rest in bed and is placed at first on a strict milk diet. The mouth is kept scrupulously clean by using a diluted aluminum-carbolic mouth-wash.

[illegible]

One teaspoonful to a tumbler of water.

And when painful patches on the tongue are present, a cocaine-carbolic mouth-wash will be found useful.

Cocain	...	...	...	...	...	...	gr.v
Ac. carbol.	...	...	...	...	...	...	3j
Glycer. borac.	...	...	...	...	...	...	3vj
Aq. rosae	...	...	...	...	...	ad	3iv

Half to one teaspoonful to a tumbler of water.

A mild alkaline tooth paste should be used to brush the teeth with several times daily. Quite a number of private

patients I see come to me toothless; apparently the first advice most of them had received on arriving in Europe was to have all their teeth extracted. I have never seen, in cases of genuine sprue, the course of the disease arrested by such a procedure, and I strongly deprecate it, except in those cases in which the sprue condition of the mouth is complicated by true severe pyorrhoea. If there is history of recent amoebic dysentery—and this is in my experience very often the case—I give at once a course of six or twelve emetine injections.

In addition to these measures, the patient is placed on an intensive alkaline treatment, which is carried out (a) by giving very large doses of sodium bicarbonate by the mouth, and (b) by intravenous injections of a 2 or 4 per cent. bicarbonate solution.

In a number of cases the administration of large doses of bicarbonate by the mouth is sufficient. It is given in drachm doses, 1 drachm three times daily for the first three days; 2 drachms three times daily for eight or ten days, and afterwards 3 drachms or more three times daily for several weeks. No untoward effects are noticed, but not rarely the patient feels and looks somewhat drowsy for a few days. If the drowsiness becomes marked the dose should be decreased. Papain, takadiastase, pancreatin, etc., may be added to the bicarbonate, but the effect of these digestive drugs is not very brilliant in the acute stage of the malady, and I generally omit them altogether during the first weeks of the treatment; later, such preparations, and especially pancreatic extracts as emphasized by Brown, are useful. When the diarrhoea is very severe 5 to 10 grains of salol may be added to the bicarbonate, but powerful astringents should always be avoided. The addition of a little salol to the powders is also useful when the urine becomes too strongly alkaline. In those rare cases in which there is constipation, magnesium carbonate gr. x-xx may be substituted for salol.

The standard formula of the powders is:

Pulv. cinnamom.	...	...	...	...	...	gr.ss
Pulv. ipecac.	...	...	...	...	...	gr.ss
Pancreatin, papain, or takadiastase	...	...	...	...	...	gr.ijj
Salol	...	...	...	...	...	gr.v
Sod. bicarb.	...	...	...	...	...	3ijj

The powders should be given in half a tumbler of water. The amount of the ingredients should be varied according to the symptoms presented by the patient, as already stated, and some of the drugs (cinnamon, ipecacuanha, pancreatin, salol) may beleft out altogether. At times in conjunction with the powders I have found it useful to administer bile salts (sodium taurocholate gr. ij in cachets t.d.).

In certain peculiar cases of sprue characterized by severe asthenia and a distinct hyperpigmentation of the skin, in addition to the bicarbonate treatment, I have given adrenalin with good results.

I have used intravenous injections of sodium bicarbonate so far in six cases, always in combination with the internal administration of large doses of bicarbonate as described above. Ten to twenty ounces of a 2 or 4 per cent. solution of bicarbonate is given slowly every day or every other day until twelve injections have been given; then the patient has a rest, but the intensive alkaline treatment by the mouth is continued. After an interval of one or two weeks another course of injections is given, and a third course may be necessary after a further interval. The intravenous injection should be given preferably by the gravitation method, observing all the precautions commonly used in intravenous therapy. In the sterilization of the solution care should be taken to prevent any excessive formation of the carbonate, and this end is best achieved by taking the precautions suggested by Sellard—namely, the bicarbonate solution should be put in strong narrow-mouthed bottles which are filled almost full in order to reduce the air space to a minimum, tightly-fitting stoppers being used. As an additional precaution, these bottles can be sterilized in an atmosphere of carbon dioxide; this can be easily obtained by raising the autoclave to the boiling temperature, while water at the boiling point is provided at the bottom of the autoclave, and a handful of bicarbonate is thrown into the hot water.

I have used the bicarbonate treatment here described in a large number of cases, and in 11, most of them private patients, I have been able to follow the course closely. My experience has been that sprue cases having this treatment, in addition to the usual dietetic measures, improve more rapidly than patients having only the

dietetic treatment, though of course there are exceptions. It is interesting to note that the intestinal symptoms seem to be much more beneficially influenced than the mouth symptoms.

As regards the mode of action of the intensive bicarbonate treatment, I have very few remarks to offer. At one time I believed that large doses of bicarbonate by decreasing the acidity of the intestinal contents might check the growth of monilia fungi, considered by some authors to be the true cause of the malady, and by Low and myself to be merely the cause of certain symptoms, as, for instance, the frothiness of the stools. If recent hypotheses concerning the etiology of the malady be proved correct, then a different explanation will have to be found. At any rate, there appears to be little doubt that in sprue a certain degree of acidosis is often present, and that an intensive alkaline treatment is indicated.

Conclusion.

The administration in sprue of massive doses of sodium bicarbonate by the mouth and intravenously, in conjunction with the usual dietetic measures, gives satisfactory results in a large number of cases, especially as regards the intestinal symptoms of the malady.

ANGINA PECTORIS WITH AURICULAR FIBRILLATION.

BY

HAMILTON M. SANDISON, M.B., CH.B. EDIN.

With a Note by FREDERICK W. PRICE, M.D., F.R.S. EDIN.

THAT auricular fibrillation may coexist with angina pectoris is demonstrated in the case of M., a woman aged 72. The value of digitalis when its administration is controlled, not by its empirical dose but by its therapeutic effect, was evident in the treatment of the case.

M. has suffered more or less all her life from cardiac affection, but, notwithstanding the advice of her physician, has for the past ten years led a strenuous life. On several occasions in recent years, she has been compelled by a feeling of general and cardiac weakness to rest for two or three weeks in bed, and to take 7 or 10 minims of tincture of digitalis thrice daily. She regained strength during these rests in bed, but the action of the heart remained rapid and irregular.

In July, 1920, she had a more serious breakdown, associated with breathlessness on exertion, palpitation, frontal and occipital headaches, and several paroxysmal attacks of pain of varying severity. This pain, undoubtedly that of true angina, was situated in the region of the heart; it was sudden in onset, and associated with a feeling of tightness in the front chest, mental perturbation, intense anxiety, and a sense of numbness in the left arm.

The pulse was completely irregular, with a ventricular rate of 124, many of the ventricular contractions not being registered at the wrist. The systolic blood pressure was undoubtedly raised, most of the beats registering 210 mm.; the wall of the brachial artery was thickened. The left border of the heart was one fingerbreadth outside the nipple line, the right border two fingerbreadths to the right of the sternum, and the note in the neighbourhood of the junction of the manubrium sterni and right intercostal cartilages and spaces was impaired. There was an apical systolic murmur, propagated to the axilla, and the second sound in the aortic area was rather accentuated. There was an absence of albumin in the urine.

Dr. Frederick W. Price, who was called to see the case, confirmed the diagnosis of auricular fibrillation and true angina pectoris. It is accordingly of special interest to find that in the chapter on auricular fibrillation in his valuable work *Diseases of the Heart*, he states: "It would appear, however, that patients suffering from auricular fibrillation are exempt from definite attacks of angina pectoris." Dealing with the etiology of auricular fibrillation, in the chapter referred to, two main groups of cases are described: "(1) Those with a history of rheumatism, and (2) patients suffering from myocardial degeneration. In the case of the former the condition occurs more commonly in early adult life, and the patients frequently have valvular disease—more often mitral than aortic disease, and more especially mitral stenosis. In the second group of cases the condition is more common after middle age." M.'s case probably belongs to the first group,

since there is a definite rheumatic history, and in view of the long duration of the illness and the presence of mitral regurgitation.

The etiology of the angina pectoris is, perhaps, not so certain; but the supernormal blood pressure, the evidence of thickening of the wall of the brachial artery, and the accentuation of the aortic second sound point to arterial degenerative changes, while the impairment of percussion note in the aortic area suggests the possibility of fusiform dilatation of the ascending aorta.

M. was confined to bed for four weeks, and then very gradually allowed to resume a more normal life. Only a very small quantity of fluid was allowed with each meal, and the total intake of fluid did not exceed 1½ pints a day. Tincture of digitalis was administered during the first week in 15-minim doses thrice daily. At the end of the week, as there was no appreciable improvement, the dose was increased to 18 and ultimately 20 minims. During the second week there was obvious improvement; the ventricular rate gradually falling to 84. As there was now some complaint of general depression, headache, and giddiness, the digitalis was stopped for forty-eight hours, and then recommenced in 15 minim doses. It was found possible to continue with this dose, and the ventricular rate ultimately diminished to 74, and the pulse became much less irregular. The systolic blood pressure came down to 180 mm., a drop of some 30 mm. Coincident with the remarkable slowing and steadying of the heart's action there was a most gratifying improvement in M.'s general condition.

Note by Dr. Price.—I desire to express my thanks to Dr. Hamilton Sandison for allowing me the opportunity of reading his notes of this case, which he kindly called me to see in consultation. The case was undoubtedly one of auricular fibrillation and angina pectoris. The first statement quoted by Dr. Sandison from my book was written towards the end of 1917, and represented my experience up to that time. Since then, however, I had observed two cases of auricular fibrillation (proved by electro-cardiographic examination) who also suffered from typical attacks of angina pectoris, before seeing the case of M., which made the third.

ANEURYSM OF EXTERNAL CAROTID ARTERY TREATED BY LIGATURE OF COMMON CAROTID ARTERY AND INTERNAL JUGULAR VEIN.

BY

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M.B., B.S. DURH., MALVERN, NATAL. M.S., M.D. DURH.,

THE following case we think may be of interest and importance.

A Zulu woman, aged about 30 years, came with a tumour of the neck which she said came on after having had a tooth out. There were no signs of injury to her jaw, but she had a swelling the size of a Tangerine orange just below the angle of the lower jaw on the left side. The swelling was expansile in every direction and pulsated visibly. There was a loud systolic bruit over it. The impulse and the bruit disappeared on compressing the artery against Chassaignac's tubercle, and the swelling could be emptied on gentle pressure. It filled up from below on releasing the pressure. The pulsation in the left superficial temporal artery was delayed. The case seemed definitely to be one of aneurysm of the external carotid artery, the only other possibility being a pulsating tumour of the carotid body, and the subsequent history disposed of that possibility.

Following the principle of simultaneous ligature of artery and vein, one of us (Peverley) tied the common carotid artery and internal jugular vein at the seat of election. The after-course was uneventful; the pulsation at once disappeared, and now, six weeks after operation, the tumour is only the size of a small nut, and is hard and fibrous. She had no signs of any cerebral disturbance.

The artery seemed healthy, and she had no syphilitic history, though she had had two stillborn children. A Wassermann test was not done.

It does not appear to be the usual practice to tie the vein as well, though Ceci (Paris Surgical Congress, 1904) proposed the theory and Boari (*Policlinico*, 1905) has found it most successful. It is interesting to note in this regard that Lynn and Shipley (Ochsner, *General Surgery*, 1917) carefully avoided tying the internal jugular vein, thinking, presumably, it added to the risk of the operation. The idea of ligaturing the vein as well as the artery in this case was merely an enlargement of Sir George Makins's principle of simultaneous ligature of vein and artery in