were developed in so grave a case, the dulness being so ill-marked and vocal fremitus and vocal resonance practically normal, the breath sounds, too, were quite superficial and the temperature below 100° after the ninth day of disease until the eighteenth after aspiration. The chief signs for active treatment were a frequent pulse, which became irregular, and dyspnoea. The urine was normal and there was no cardiac murmur. No portion of rib was excised on either side.

St. Andrews.

A CASE OF DIFFUSE PAPILLOMATOUS DEGENERATION OF THE NASAL MUCOUS MEMBRANE.

By G. HUNTER MACKENZIE, M.D. EDIN.,

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NASAL papillomata are of rare occurrence. The few cases hitherto recorded have generally been instances of single, less frequently of multiple, growths, and their histological characters have usually been rather of the fibrous than of the true papillomatous character. Hence the term "papillomatous fibroma" which it has been proposed to apply to them. In several instances they appear to have been simple hypertrophies of the nasal mucous membrane. Ordinary mucous polypi, it may be mentioned, occasionally develop papillomata on their surface, especially if they have been exposed to external irritation. The following case seems worthy of being recorded on account of the many points of interest which it possesses.

A man aged thirty years came to me on April 2nd, 1896, complaining of partial nasal obstruction and stuffiness. In May, 1887, he appeared to have had both nostrils electro-cauterised on account of thickening of the mucous membrane. There was no history of syphilis, but he was somewhat alcoholic. The mucous membrane

there was no recurrence. The growths were examined microscopically by Dr. R. F. C. Leith, who submitted the following report: "Microscopical examination shows the undoubted papillomatous character of the growths. The central core of fibrous tissue varies in thickness, but is mostly thin. It consists of young vascular fibrous tissue. The epithelial covering is of considerable thickness and, while the lower cells are columnar and elongated, the rest are typical flattened squamous, such as are present in an ordinary papilloma of the skin. Many of the cells show prickle processes. The outmost cells are somewhat flattened, but there is no cornification such as the stratum corneum of the skin presents. The conversion here seen of the columnar glandular epithelial covering of the nasal mucous membrane into cells exactly similar to those of the Malpighian layer of ordinary stratified squamous epithelium is very interesting" (*vide illustration*).

Edinburgh.

NOTES ON THE TREATMENT OF HEART DISEASE BY MECHANICALLY-RESISTED MOVEMENTS.

By GEORGE HERSCHELL, M.D. LOND.,

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PUTTING aside as a point yet to be settled whether the baths in use at Nauheim and their imitations in this country have any real curative power in disease of the heart, the evidence in favour of the practical utility of the resisted movements in selected cases is overwhelming. My experience, however, leads me to believe that we can obtain better and more constant results by substituting a mechanical resistance to the movements, for that offered by a nurse. My reasons are the following. 1. A mechanical resistance is more scientific inasmuch as it admits of being exactly measured. 2. It is more constant as it does away with the personal equation of the operator. It is quite impossible even after long practice for a nurse to be certain of offering the same amount of resistance to movements on each occasion, for, as a matter of fact, she does not ever know how much force she is really exerting. 3. With the aid of mechanical resistance we can improve very much upon the Nauheim movements, which I venture to assert are by no means the best which can be devised for the purpose. 4. The exercises which can be used when the movements are mechanically resisted are more rapid in their action than those used in the Nauheim treatment. As an example I have convinced myself by actual observation and experiment that five minutes' use of a certain simple movement will temporarily increase the circumference of the arm of a healthy muscular man by one inch. This it can only have accomplished by withdrawing blood from the general circulation into the tissues of the limb.

To produce a mechanical resistance we may make use of either a pulley weight apparatus or one in which the effect is produced by tension of rubber cords. As a result of my experiments I have decided that the rubber cord presents many advantages. My reasons are mainly the following: 1. In a machine in which the resistance is produced by a weight the force to be exerted by the operator is the same at all points in the range of movement. Moreover, it is actually necessary to exert the most power at the commencement of any given stroke or movement in order to overcome the inertia of the machine and start the weight from its point of rest. Now this is just what we do not want. I am informed by professional gymnasts that it is a fact well recognised by them that a muscle is not able without strain to exert its full force until it has got well under weigh—so to speak—and for this reason they prefer apparatus worked by an indiarubber cord in which the power exerted by the machine slightly increases continually up to the end of the movement. 2. A pulley weight apparatus is more difficult to apply to patients in the recumbent position. On the other hand a machine consisting of a rubber cord passing round pulleys can be attached in many different ways to the bed or the adjacent wall. 3. The difference in price. A pulley weight apparatus costs several pounds; the

Papilloma of nose. Photo-micrograph $\times 20$ D.

in both nostrils was studded throughout by numerous sessile growths varying in size from a pin's head to almost a grain of rice, the size of the great majority of them being about intermediate between these two extremes. They were most abundant on and about the upper regions (roof, outer wall, and septum), but many were located on and about the inferior areas of the nose. Both nostrils appeared to be equally affected. Several of the larger growths were removed with the cold snare, but the greater number could be detached only by means of the nasal curette. Four months afterwards

alternative machine a few shillings. Personally I use an exercising machine which is on the market and is of American manufacture.¹ It is very perfectly constructed and answers my purpose admirably. It consists of a long rubber cord terminating at each extremity in handles. This cord passes round three pulleys which can be variously grouped and attached by hooks to the wall or to the rails of the bed. We can thus by a proper arrangement of the apparatus oppose resistance to almost any movement of the patient either lying or standing or sitting.

As mechanically resisted movements produce a more marked effect upon the patient than the Nauheim ones, even greater precautions must be taken in administering them. It must be made an absolute rule that the exercises are never to be given except in the presence of a medical man until the treatment has so far advanced that it has been ascertained not only that it is doing good, but also exactly how much mechanical work the patient can stand.

The first exercises must be tentative, using the mildest movements and the lightest resistance. In order that the physician should obtain an intelligent idea of the effect produced the following points should be observed: (1) the pulse-rate must be taken before, during, and after the exercises; (2) from time to time during the course of the treatment a sphygmographic tracing of the pulse must be made before and after the exercises; (3) the rate of respiration must be observed and the effect of the movements upon it; (4) the position of the apex beat before and after the treatment; and (5) the area of cardiac dulness must be noted before and after the exercises. To estimate variations in the size of the heart I am accustomed to depart somewhat from traditional methods and attempt to measure the heart in its longitudinal and transverse diameters. The former may be roughly taken to correspond to the distance of the apex beat from the right limit of cardiac dulness taken at the level of the fourth costal cartilage, and the latter to the extent of the dulness along a line drawn from the xiphoid to the middle point of the left clavicle. In order to secure accuracy we must reduce as much as we can the number of occasions on which error is possible. We have here the advantage of two easily estimated points to measure from, leaving only two lines to be made out by percussion. As an additional precaution it will be as well to note the position of the apex beat with respect to the left mid-clavicular line and also the distance of the left limit of cardiac dulness from the mid-sternal line.

Having thus observed the effect produced by the exercises upon the patient the physician will be in a position to prescribe those suitable for the particular case he is about to treat, the rapidity with which they are to be executed, and the amount of resistance to be used. During the exercises he will be on the watch for and note any symptom, such as dyspnoea, lividity, pallor, faintness, or giddiness, which would show that the exercises were not suitable or were being executed too rapidly. It is this necessity that the patient should be under the observation of a properly trained clinical observer which makes it impossible that a treatment of this kind can ever safely be administered by a nurse—at any rate, until the patient is well advanced towards recovery, and it has been definitely ascertained what exercises he can stand with impunity. Then, and then only, it may be admissible to allow the movements to be performed without the presence of the medical attendant.

Among the advantages of the treatment of failure of compensation by mechanically resisted movements are the facts that (1) we do away with the expense of the nurse, which is often an important consideration in cases where only a certain sum can possibly be afforded to cover all medical treatment, &c.; (2) we keep the treatment in the hands of the medical practitioner, the time occupied being really so small that the treatment can easily be carried out during his daily visit; and (3) we substitute for the fallible muscles of a nurse the unvarying tension of a rubber cord.

Queen Anne-street, W.

¹ The Whiteley Exerciser. 10, Ironmonger-lane, E.C.

POISONING BY MAGNESIUM SULPHATE (EPSOM SALTS).

By J. HEADLEY NEALE, M.B. EDIN., M.R.C.P. LOND.,
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ON the evening of April 26th I was asked by my friend Mr. Montague Williams to see a lad aged fifteen years at the Midland station, to whom he had been called a few minutes previously, finding him in so critical a condition that he would not on his sole responsibility sanction his removal to the infirmary. The history was as follows. Being constipated on the previous day he purchased a penny packet (one ounce) of Epsom salts at a neighbouring druggist's and took the whole of the contents. Only three slight motions resulted and towards evening he began to feel very sick and ill and remained so through the night. On the following morning his landlady would not allow him to keep his bed so he went to his work at the station as usual, but was too ill to do anything and went to lie down on one of the other boys' beds, vomiting frequently during the day, Mr. Williams not being sent for till nearly 6 P.M. The following describes the condition in which we found the lad. He was lying outside the bed in an attitude of flexion (occasionally varying his position by rolling on to his stomach), perfectly indifferent to his surroundings, but answering questions intelligently when smartly roused. He declared "he had taken nothing the day before but the packet of Epsom salts he got from —'s." The face and hands were deeply cyanosed, the lips, eyelids, *alæ nasi*, and auricles being of a dark purple colour, and when the finger was drawn forcibly down the forearm the resulting white line was very slow in regaining its colour, while the conjunctivæ were intensely congested and the pupils dilated and unequal. The covered parts of the body presented a roseolous rash, and there was a zone of herpes zoster in the left sub-mammary region extending round to the back. During the few minutes we stood by his bedside the boy had several attacks of tetanic spasms, affecting the right side of the face and passing down the right arm, together with pronation of the hand. The tongue and teeth were covered with "sordes," the stomach was enormously dilated, and his urine was dribbling away. The right radial pulse was absent and the left hardly perceptible; the heart beats were feeble and could not be counted. The extremities were cold; the axillary temperature was 105° F. We gave the boy a stiff dose of hot brandy-and-water, had him placed on the station ambulance well covered with blankets and packed with hot-water bottles, and he was at once removed to the infirmary, the immediate treatment on arrival being a draught containing carbonate of ammonia, spirits of ether, and tincture of strophanthus. On paying my usual visit the following morning I found that the patient had had frequent vomitings of a greenish fluid. The cyanosis was less marked, the radial pulses were perceptible, and he was altogether better and more conscious of his surroundings. Further examination, however, disclosed that his bladder was greatly distended. He was immediately catheterised and about forty ounces of urine drawn off. By the end of the week he was practically well and was discharged in a few days completely recovered.

I purchased at the earliest moment a packet of the salts which I was assured by the druggist came from the same cask, and through the kindness of Dr. Murrell, who took a great interest in the case, had it analysed by Dr. Wilson Hake, Professor of Chemistry at the Westminster Hospital Medical School, whose report is as follows:—"I have carefully examined the sample of 'purified Epsom salts' from Mr. —, chemist, Leicester, handed to me by Dr. Murrell in a sealed packet. I find it to be free from all poisonous metals, oxalic acid, or strychnine in any approximate quantity, but I have not looked for *minute* traces; it contains a small quantity of chloride of sodium and some potassium. It is, therefore, what it is labeled—namely, 'Purified Epsom Salts,' and abundant evidence of magnesium and sulphuric acid is to hand. It is also quite neutral in reaction and very soluble in water."

Remarks.—I was not told a single word of the history of the case until I had examined the boy, and I came to the conclusion that he was suffering from some irritant poison. This exactly tallied with Mr. Williams's previously formed

A MEETING of the Supreme Grand Chapter of Royal Arch Freemasons was held at Freemasons' Hall on Thursday, Aug. 5th, under the presidency of Mr. W. W. B. Beach, M.P. On the motion of Sir George D. Harris a donation of 100 guineas was voted to Guy's Hospital in aid of the special effort now being made on behalf of the institution.