

for examination can only be made to flow with great difficulty; and when it is examined, few or no micrococci will be found free in the blood, all present being either in the zoogloea-stage, or, if single, firmly adherent to the red corpuscles, so as to make them, even in freshly drawn specimens, look like mulberries.

If currents be produced under the cover by pressing on it with a needle, some of these may occasionally be seen to become detached, and to float about free; but the moment they happen to come into contact with some corpuscle, they adhere to and are carried about by it.

Now, the pneumonia seen here often runs an extremely rapid course, death sometimes taking place in as little as twelve hours, with signs of pulmonary engorgement; but with no pronounced dullness on percussion, and, *post mortem*, with only deep congestion of the lungs, and often extensive pulmonary apoplexy. It is in such, especially, that I have observed the appearance of blocking of the capillaries.

Is it carrying too far "the scientific use of the imagination" to surmise, that this blocking may be caused by the corpuscles becoming matted together by the adherent micrococci, and by the infarction of zoogloea-masses, many of which reach dimensions too great to allow their passing through the finer capillaries?

The presence of these microphytes in the blood and sputa appeared to me to lend considerable probability to the theory of communication by contagion; and, with a view to test this, I performed the experiments described below.

*Experiment 1.*—I injected into the pleural cavity of a rabbit a small quantity of the freshly ejected sputa of a pneumonic patient. Twenty-four hours later, immense numbers of the smaller or non-nucleated form of the micrococcus were present in the blood. In thirty-six hours after the injection, the animal died. *Post mortem*, there were present effusions into the pericardium of clear fluid, and of a turbid fluid into both pleuræ. The lung on the side of the injection was covered with lymph, and partly adherent. Both lungs were intensely congested; the other organs were healthy. The blood and pleuritic fluid swarmed with the smaller form of micrococci. The next day, on examining some of the pleuritic fluid that had been put aside in a covered vessel, it was found to contain the nucleated form in addition.

*Experiment 2.*—I injected some pneumonic sputa into the subcutaneous cellular tissue of the back of a rabbit. As in the first experiment, the animal became ill. Micrococci, first of the smaller, and then of the nucleated form, appeared in the blood, and the animal died, but not until four days after the injection. *Post mortem*, the pericardium and pleuræ were filled with a turbid fluid, and the lungs showed signs of pneumonia more advanced than in the first case. The other organs were healthy, and no sign of the point of injection could be made out.

Dogs and rats proved incapable of being infected, either with the fluids of the dead rabbits, or with human pneumonic sputa.

During the past cold season, Experiment 2 has been repeated, and the fluids from this animal proved infective to another rabbit.

*Potato-Cultivations.*—A minute quantity of sputum was placed on a slice of boiled potato, after the method recommended by Koch for cultivating the anthrax and other germs. In a few days, a greyish-white scum was seen spreading out over the surface, from round the point of sputum. This scum, on microscopic examination, proved to consist of a micrococcus, of exactly similar size and appearance to those already described in the blood. The cultivation of this micrococcus was carried on a potato to the seventh generation; and the experiment was several times repeated, and carried on through several generations, there being apparently no limit to the number. A minute speck of blood was placed on a slice of potato in the same way, and round it grew a scum of exactly similar appearances, consisting of micrococci exactly like those in the blood, or grown from sputum.

A little of the third generation of one of the potato-cultivations from sputum was mixed with distilled water, and injected into the cellular tissue of a rabbit's back. The animal became obviously ill, and the blood for many days swarmed with micrococci—all three stages, nucleated, nonnucleated, and zoogloea, being detected. It, however, recovered, and about three weeks after was used in an experiment with the injection of sputa. The poison in this case must have been very virulent (the patient from whom it was taken died a few hours after it was collected), for this animal died within a few hours. *Post mortem*, the lung was found to be in a state of recovery after pneumonia.

Afterwards, some of a sixth generation sputa-cultivation was injected. In this case, again, the animal became very ill—so obviously

so, that I was much surprised at its recovery. Three weeks after, it was killed, and the last traces of an attack of pneumonia were still apparent in the lungs.

Since I first noticed these bodies in the blood, in February 1882, I must have seen them in about fifty or sixty cases. They appear to be constant, for I have found them in every case that I have examined.

Under these circumstances, the possibility of communication of pneumonia by contagion can scarcely be doubted. Whether such an occurrence be at all common, or usual, is a matter by no means so easy to decide. At least, it appears that it is advisable to carefully disinfect sputa in this disease, before disposing of them where they will probably become constituents of the dust which fills the air in dry climates such as this.

Before concluding, I should add that, in the pneumonia we meet with in this part of India, a large number of cases, while running the same course, as to pyrexia and general symptoms, as seen in the typical acute pneumonia of Europe, are yet, as to physical signs, instances rather of lobular than of acute croupous pneumonia.

## RE-FRACTURE OF THE PATELLA.

By HENRY PARSON, M.R.C.S. Eng.,

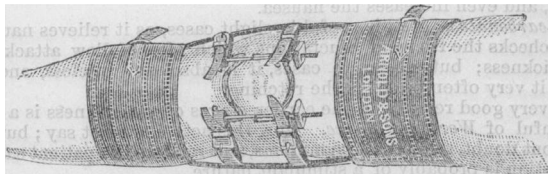
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PERHAPS the following particulars of a case of re-fracture of the patella, together with a description of the appliances used during the treatment, may be of interest.

In December 1874, Mr. — fractured his left patella at the junction of the upper and middle thirds. In October 1880, he fractured the same bone at the junction of the middle and lower thirds; and, in August 1882, he re-fractured the left patella at the seat of the last injury—viz., at the junction of the middle and lower thirds.

This last accident occurred on August 6th, whilst staying at Amsterdam. He was seen by a local surgeon, who applied suitable splints; and the patient started for England on August 8th, reaching his home on the 9th. I was called in on the 11th, and found considerable swelling over the joint, with about three-fourths of an inch of separation between the fragments. The amount of separation which existed directly after the accident, I could not ascertain. The lower fragment was small, and very movable. He was wearing a leather splint, with side supports, to which were strapped two semilunar soft leather pads. By drawing the pads together, and fastening them, I got the fragments into close apposition; and the patient continued to wear this contrivance until the primary inflammation had subsided.

I then devised the appliance, of which an illustration is here given



It consists of two semilunar pieces, made of some sound, narrow, unyielding material, shaped to fit the edges of the lower and upper fragments. One piece slides on the other, and admits of closing and separating them by means of screws, and without any other movement: so that, when adjusted and firmly strapped to the side supports of a suitable splint prepared for it, the upper and lower pieces are perfectly rigid, one with the other; it is then almost impossible for the patella to slip out of position. The semilunar pieces being narrow, they form grooves for themselves behind the fragments, and have a tendency to run under the bone, instead of over-riding, as most other appliances do; so that the pieces are kept firmly in good position, in their proper place, and have no tendency to tilting. This apparatus was applied about the end of the third week from the date of the accident, and the patient was removed to the couch.

At the end of the fourth week, he came down stairs with assistance, and went out in a Bath chair. At the fifth week, he walked round the garden with the aid of sticks. At the seventh week, he walked a mile with one stick. At the end of the eighth week, he returned to business, walking to and fro—that is, two miles daily. He could walk well wearing the appliance, and experienced very little inconvenience; and, to the best of my knowledge, the fragments never slipped once during the twenty weeks that he wore the

splint. The pressure was relieved at times by small tufts of cotton-wool, and by wearing an old splint at night; but, during the latter part of the time, nothing was worn at night—thus, abrasions from continued pressure were avoided entirely.

The patient now walks well, and is not particular as to distance; but still wears a contrivance to support the knee-cap, and limit the movements of the joint. The advantages claimed for the appliance are these.

1. As soon as the primary inflammation has subsided, and the apparatus firmly and properly adjusted, the patient can begin to move about, and in a short time follow his usual business pursuits.

2. The long confinement to bed is avoided; thus the patient retains his health and strength; and the condition is more favourable to the repair of tissues.

3. Easy adjustment of fragments, and the keeping of them in good position, without fear of slipping when the patient is walking.

4. The slight movement of knee in walking about prevents a stiff joint, and keeps up sufficient activity in the parts to complete the union.

Lastly, but not least, as far as the patient is concerned, the "doctor's bill" is reduced, as he will require much less attention.

I consider the case here mentioned to be a good test case for trying the merits of the invention; for, if the surgeon can secure a good union in a re-fracture, and under such adverse circumstances, surely the results will be far superior in the case of primary fracture.

### SEA-SICKNESS.

By T. M. KENDALL, B.A.Sydney, L.R.C.P.ED.

MANY remedies have been suggested for the prevention of, and much time and patience have been expended in the attempt to relieve, sea-sickness. During a recent voyage, I had under my care about 200 cases of sea-sickness, and, from treating them, I learnt the following facts.

Many people, as soon as sea-sickness commences, have recourse to oranges, lemons, etc. Now oranges are very much to be avoided, on account of their bilious tendency, and even the juice of a lemon should only be allowed in cases of extreme nausea.

*Champagne*, too, is a very common remedy, and, without doubt, in many cases does good; but this appears to be chiefly due to its exhilarating effects, as, if it be discontinued, the result is bad, and a great amount of prostration follows.

*Creasote* is a very old but still very good remedy, and, in cases accompanied by great prostration, is very useful; but, if given in the early stages of sea-sickness, it is often followed by very bad results, and even increases the nausea.

*Bicarbonate of Soda* is useful in slight cases, as it relieves nausea, and checks the frequent eructations which often follow attacks of sea-sickness; but, in severe cases, it is absolutely useless, and, in fact, it very often prolongs the retching.

A very good remedy in the earlier stages of sea-sickness is a teaspoonful of *Worcester Sauce*. How this acts I cannot say; but it, without doubt, relieves the symptoms, and renders the patient easier. Its action is probably of a stimulant nature.

*Hydrocyanic Acid* is of very little service, and most acid mixtures are to be avoided, except that perhaps, for drinking purposes, when it is best to acidulate the water with a small quantity of hydrochloric acid.

Of all the drugs used, I found that the most effectual was *Bromide of Sodium*. When bromide of sodium is given in doses of 10 grains three times a day, the attacks entirely subside, the appetite improves, and the patient is able to walk about with comfort.

In all cases of sea-sickness, it is very desirable that the patient should take sufficient food, so that at all times the stomach may be comfortably full, for by this means, overstraining during fits of retching is prevented, and the amount of nausea is diminished. The practice of taking small pieces of dry biscuit is not of much use; as, although the biscuit is retained by the stomach, yet the amount taken is never sufficient to comfortably fill the stomach. Soups, milk-puddings, and sweets are to be avoided, as they increase the desire to be sick, and are followed by sickening eructations. Fat bacon is easily borne, and does much good, if only the patient can conquer his aversion to it. When taken in moderate quantity, it acts as a charm, and is followed by very good results.

But of all food, *Curry* is the most useful in sea-sickness, and is retained by the stomach when all other food has been rejected.

Next to curry, I would place small sandwiches of cold beef, as they look nice on the plate, and are usually retained by the stomach.

In conclusion, I would advise that brandy should be used very sparingly, as, in many cases, it induces sea-sickness; and its chief use is confined to those cases where the prostration is very great, and even then, champagne is more effectual.

### ON OCCIPITO-POSTERIOR CASES.

By CHARLES ROBERT THOMPSON, M.R.C.S., Westerham.

THE occipito-posterior position of the fetal head is by far the most frequent cause of tedious, lingering, exhausting labours. This position is estimated to occur, at the beginning of labour, in about one of every four cases; as the head passes through the pelvis, rotation takes place in about ninety-six per cent. of these cases, the remaining four per cent. being expelled with the occiput still posterior.

In cases of the first and second cranial positions, as the head enters the pelvis, the occiput presses against the pubes, whilst the wide forehead is in contact with the posterior wall of the vagina. As labour proceeds, the forehead advances much more rapidly than the occiput, and occupies fully the highly sensitive (excito-motor) posterior vaginal wall, sweeping along and distending it as the head gradually extends itself in an arc of a large circle, of which the occiput pressed against the pubes is the centre, thus irritating and exciting the expulsive uterine efforts.

On the other hand, when the forehead is against the pubes, and the head being gradually forced downwards, the tendency is, not for the occiput to extend itself and sweep over the hollow of the sacrum, but for the forehead and face to be more and more advanced below the pubes; the relations of the head for its movement of flexion and extension (Tyler Smith) being reversed. Thus, the posterior vaginal wall is not pressed on; the expulsive efforts fail to be excited; and the labour is tedious, unless rotation of the head take place, when the forehead is brought into the hollow of the sacrum, and active expulsion generally follows.

The obvious remedy would be to pull down the occiput, to make it occupy the hollow of the sacrum, whilst the forehead is necessarily made to recede, the head being flexed forwards by the movement. It is not easy to accomplish this with the forceps; when traction is made, the whole head is advanced in its faulty position, and it is very difficult to bring the occiput down, to flex the head forwards.

I have for many years adopted the plan of delivering these cases with the whalebone fillet. The position of the head being exactly ascertained, the fore and middle fingers of the left hand are passed up until the posterior fontanelle is reached, and, if possible, are pressed against the occipital bone. The fillet, held in the right hand, is compressed, and advanced gently along the left palm and palmar surface of the fingers till it rests on the head. It is now allowed to expand, and is guided upwards and directed by the fingers until it is felt to embrace the occiput, on which it is generally possible to obtain a firm purchase. Gentle traction is then made during each pain, the fingers of the left hand being still on the head to inform the operator of its exact position; the occiput is brought down, the forehead recedes, expulsive pains are immediately excited (in some cases spontaneous rotation takes place, although this is rare), and the labour is quickly terminated.

I select a few, from among a great many in my case-book, as examples of the result of this treatment.

CASE I.—Second labour, at full term. Pains began at 4 A.M. At 10 A.M. I found the os dilated, the membranes protruding; the head at the brim, in the third position. I ruptured the membranes, passed the fillet over the occiput, and made slight traction with each pain, which brought the vertex down at once. Forcing pains were caused, which expelled the child at 10.15 A.M., with the face towards the pubes.

CASE II.—Ninth labour, at full term. At 4 P.M. I found slight pains, at long intervals; the os was half dilated, and the head in the fourth cranial position; the eyebrow was to be felt at the right side of the pubes. At 5 P.M. the os was fully dilated. I passed the fillet over the occiput, and made traction with each pain. The head advanced rapidly, and a large child was expelled, with the face forwards, at 5.30.

CASE III.—Twin case, at seven and a half months. The first child was a footling; the second child was in the third cranial position. There had been forcing, but inefficient pains, for some hours, under chloroform. At 5.45 I passed a fillet over the occiput, and made