attacks of *Oidium albicans*. When from lowered health, however, the blood of the silkworm tends to acquire an acid reaction, or the mucous membranes of the infant or of the man assume such a condition, then the respective organisms may appear, and general or local morbid conditions may be established.*

The attempts which have been made to inoculate healthy plants with the various Fungus-parasites to which they are liable, cannot be regarded as being other than very unsuccessful as compared with what it should have been if "contagion" were the only means of spreading and perpetuating these parasitic productions. Thus many cruciferous plants, such as garden-cress, mustard, and shepherd's purse are liable to be affected by a white rust, named *Cystopus candidus*; and De Barry made an extensive series of experiments with the view of ascertaining the means by which plants became affected with the parasite. These experiments showed very conclusively, as De Barry himself thought, that plants are not infected either through their spongioles or through their leaves or stems;† though a subsequent series of experiments induced him to believe that it occasionally took place through the seed-leaves or cotyledons of the embryo plant. The results of these experiments may be given in the words of Mr. M. C. Cooke, who says:‡—"In two series of plants cultivated at different periods from good seeds, one hundred and five plants which had not received the water impregnated with zoospores upon their cotyledons, vegetated without any indications of the parasite. Amongst the eighteen plants which were inoculated by watering the cotyledons, four only were not attacked by the parasite, fourteen bore the 'white rust.' In six of these it did not extend beyond the cotyledons; in the others it also appeared on the stem and leaves." Thus eight only out of eighteen plants which were placed in the most favourable conditions which could be devised for bringing about inoculation were found to have been affected—since it does not seem fair to include those cases in which the contamination did not spread beyond the seed-leaves. Moreover, De Barry's own experiments tend to show that, if a plant has not been infected in the first stages of its growth, such parasitic disease cannot be subsequently induced by inoculation. So that if the disease can be determined almost at will by submitting previously healthy plants to unhealthy conditions, it would tend to show that such affections can originate *de novo*, by reason of pathological changes taking place in the plant. Nay, more; unless De Barry can show that the tissues of plants, when once infected through their seed-leaves, subsequently continue to present evidences (which they do not) of their tissues being permeated with a rudimentary mycelium, afterwards capable of bursting out into more active growth in all parts of the plant, his experiments cannot be said to have given much real support to the supposition that such diseases are propagated only by means of contagion and pre-existing spores. In fact, the advocates of inoculation are themselves compelled to give up the notion that the parasitic fungi are produced from ordinary spores, since in the majority of cases these are far too large to enter through the stomata or through the spongioles of the roots. A determined upholder of the doctrine of the spread of these diseases by contagion (Mr. C. Cooke, in *Microscopic Fungi*, p. 9), whilst admitting that "the spores themselves have certainly not yet been traced traversing the tissues of growing plants", says that the difficulty may be lessened "when we remember that what are termed the spores which are discharged from the cups are not the true spores, but bodies from which smaller seed-like vesicles are produced." Yet, as the same writer most candidly adds, "even then there will be much need of an active imagination to invent hypotheses to cover the innumerable difficulties which would encounter their passage through the vessels of the infected plants."

The experiments of Dr. Spring, § moreover, show a similar failure in many attempts to produce a direct inoculation of hen's eggs, even though the inoculation was made with portions of a fungus which had been produced in an uninjured egg. Very rarely, indeed, did a growth start from the seat of inoculation, though frequently an entirely different form sprang up at the opposite extremity of the egg, in a region which was apparently quite beyond the reach of contamination. And, again, such facts are rendered all the more significant by reason of the researches of Harless (Robin, p. 559), showing that fungi may be made to appear, almost at will, in eggs which are exposed for a few days in the chamber

of an incubator saturated with moisture, and maintained at a temperature of 100-104 deg. F. Under these conditions, the customary exhalations and evaporations of fluid cannot take place from the egg, so that the embryo dies whilst lower organisms appear.

The facts narrated in this communication, and multitudes of others of a similar nature that might have been quoted, constitute a body of evidence which is thoroughly harmonious with the results of my previous observations and experiments. It is not a little contradictory to see many of those who have wholly cast on one side the old developmental doctrines of Haller and Bonnet, still confidently pin their faith to a derivative doctrine, which always found its principal support from these now repudiated developmental theories. The inconsistency is, however, increased when we find the doctrine of Panspermism advocated not only by professed vitalists, but by leading evolutionists who do believe in the original occurrence of an independent production of life, though they reject the notion of the continuance of such evolution. They have never attempted to explain why these natural life-evolving laws, whose original existence they postulate, should have ceased to operate in the present day. They assume the omnipresence of germs; they assume that such hypothetical germ can exist for an indefinite period in a latent state; that they can resist degrees of heat which are fatal to all known germs, and that they possess powers of penetration such as known germs do not possess—they will make all these assumptions upon assumptions in order not to believe that which is in accordance with the general teachings of science and with their own doctrines in particular, that which is testified by experiment, and also that which almost every unbiassed microscopist may learn by direct observation.

DEATH FROM SUFFOCATION WHILE INHALING CHLOROFORM: IMPACTION OF FALSE TEETH IN LARYNX.

By EDWARD CHAFFERS, M.R.C.S., Keighley, Yorkshire.

I FEEL constrained to offer to the profession, through the JOURNAL, a report of the circumstances attending a fatal event that happened during the administration of chloroform, as I deprecate the recurrence of such a lamentable and unfortunate casualty; and am not personally aware that an accident similar in character and result has been recorded in the practice of any other surgeon.

A patient of mine, aged 46, was about to undergo the operation of ovariectomy, which I arranged to perform in conjunction with Messrs. Pridgin Teale and Oglesby of Leeds, on whose co-operation I congratulated myself. The usual precaution was taken of insuring an almost empty stomach, by ordering her to have some beef-tea and brandy about 5.30 A.M., and a second dose of brandy immediately before the time fixed for the operation, at 9.30 A.M. Chloroform was being administered by Mr. Oglesby; but, before the patient had arrived at the stage of insensibility warranting our proceeding with the operation, the breathing became laboured, the face livid, the pulse failed, and unintelligible symptoms of suffocation supervened, differing considerably from those attending chloroform-asphyxia. She made one or two faint efforts to cough, as is usual previously to the accession of the vomiting commonly produced by the inhalation of chloroform; and this was accompanied by a discharge from the mouth of frothy, bloody mucus, which we attributed to a slight bite of the tongue. Chloroform was instantly withheld. Mr. Oglesby drew out the tongue with a pair of forceps which he had at hand for the purpose, and Mr. Teale and I applied Silvester's method of artificial respiration. As this treatment failed to effect any manifest improvement in the patient's condition, Mr. Teale inserted his finger into the pharynx, and found a hard intrusive substance lodged in the glottis. This was immediately extracted, and proved to be a metal-plate, to which false teeth were attached. The plate, having fallen from the roof of the mouth, was drawn into the glottis by inspiration, and could not be ejected from its position, as the patient was not sufficiently conscious to exert any voluntary effort, or to communicate to us the cause of obstruction in breathing. We continued artificial respiration for forty minutes, being induced to persevere in our resuscitative efforts by the encouraging gasps which the patient made at short intervals during the first ten minutes; but the heart ultimately failed to respond to the stimulus given by the inspiratory movements, and death ensued.

Post Mortem Examination Twenty-three Hours after Death.—The heart was thin-walled and flabby; the right ventricle was dilated, and contained a small quantity of fluid blood. The mitral and aortic valves were slightly altered by deposit, but not sufficiently so to give rise to

* How important such a modification may be, in enabling evolutionary changes to occur in certain fluids, is to be surmised, as we have previously hinted, from the often quoted experiments of Dutrochet, who found that white of egg diluted with distilled water remained for more than a year without becoming covered by mould; whilst, by rendering it slightly acid, a crop of these organisms became developed in less than eight days.

† See, on this subject, also M. Fée, *Sur les Cryptogames des Ecorces Exotiques Officinales*, p. 13.

‡ *Microscopic Fungi*, 2nd ed., 1870, p. 134.

§ *Bullet. de l'Acad. Roy. de Belgique*, 1852, t. xix, p. 573; or abstract in Robin's *Végétaux Parasites*, pp. 545-54.

any murmur, none being audible upon frequent examination. Examined by the microscope, the muscular fibre did not appear to have undergone fatty degeneration. The lungs were healthy. On opening the abdominal cavity, the appearances were presented of encephaloid cancer of the peritoneum, complicated with ovarian cancer, such as is described by Rokitsky in the second volume of his work on *Pathological Anatomy*.

ON A CASE OF TRAUMATIC AXILLARY ANEURISM.

By WALTER RIVINGTON, M.S. Lond., F.R.C.S. Eng.,
Surgeon to the London Hospital.

ROBERT HUNTER, aged 70, was admitted into the London Hospital under my care on Wednesday, May 10th, 1871. He gave the following history. On the previous Saturday, May 6th, he fell out of a cart, alighting on the side of his head and his left shoulder. His arm was fixed and powerless immediately after the accident, and continued so until treated. On the following Monday, he applied to a surgeon at Ilford, who told him his "shoulder was out;" and who reduced the dislocation by extension with his foot in the axilla. The reduction did not take a long time, and was effected without much pain. He never had anything the matter with his arm before.

When he came to the hospital on the 10th, he walked into the receiving room, undressed himself, and used his left arm and hand. He was carefully examined by Mr. H. Leapingwell, the house-surgeon, who could discover nothing but considerable swelling around the shoulder-joint. He was then taken in, and seen by myself on the following day. On hearing the history, which included a statement subsequently proved to be erroneous, that the surgeon had kept his slipper on while effecting reduction of the dislocation, I remarked that cases were related in which the axillary artery had been ruptured under the like circumstances; but that in the present instance the symptoms did not seem to warrant that conclusion. These symptoms were the following: considerable swelling of the shoulder, especially at the outer side, with œdema of the hand, and some swelling of the rest of the limb; the pulse beating at the wrist with the same force and frequency as on the right side; ecchymosis extending down from the axilla along the side of the chest; the skin over the axilla and shoulder natural and not discoloured; no pulsation whatever to be felt at any point of the swelling; fluid, and probably, as I stated, blood in the shoulder-joint; power on the part of the patient, as well as of the surgeon, of bringing the arm to the side; absence of a distinct tumour projecting the pectoral muscle; presence of a small hard lump, of the size of a pigeon's egg, at the base of the axilla on the inner side of the situation of the axillary vein, receiving no impulse whatever from the axillary artery. My diagnosis was effusion of blood, in all probability from the smaller vessels, perhaps from the vein; and I directed that the arm should be bandaged and kept fixed to the side, in order to maintain it at perfect rest, and to give the best chance of obtaining absorption. At the same time, I remarked that, considering the advanced age of the patient, absorption would necessarily be slow, and, if this object should not be obtained, the case was in all respects unfavourable for the success of any operative interference. Up to the end of the month I saw the case regularly, and noticed a considerable improvement. The ecchymosis on the side of the chest altogether disappeared, the swelling of the arm was reduced in size, and, if there was not much appreciable diminution of the swelling round the shoulder-joint, there was no enlargement of the hard lump in the axilla, nor anything that appeared to me to indicate a necessity for interference.

A day or two afterwards, I was obliged to give up the care of my patients on account of ill-health, and I left town for a week or ten days, intending, when I returned, if I did not find any improvement in my patient's condition, to consult my colleagues about him. Circumstances rendered it desirable for me to prolong my stay; and, being fully occupied, I naturally ceased to think about the case, nor did I hear anything more of it until my return to town towards the end of June, when a notice of consultation about a case of axillary aneurism reached me. Having an engagement, I could not go down to the hospital; but I learnt that the case was my own, and that the patient and his friends objected to any operation. On returning to the hospital at the end of June, I examined the patient, and found the following condition. The swelling round the shoulder-joint had greatly increased in size, and assumed a more defined shape; it projected the pectoral muscle in front, and the latissimus dorsi behind; there was pulsation in the swelling, and a distinct *bruit* was audible just below the clavicle; the radial artery was still perceptible at the wrist; the arm and hand were more swollen than before, and the former was inclined at an angle to the trunk, and could not be brought to the patient's side; the skin over

the tumour was red and threatening ulceration, and the hard lump had disappeared from the base of the axilla, fluctuation being now perceptible. I stated to my house-surgeon, Mr. Thornton, that since I had last seen the case very marked changes had occurred, and that I had no doubt that on inquiry it would be found when these changes began. From the notes with which Mr. Thornton subsequently furnished me, I ascertained that the swelling in the axilla began to increase in size about June 10th, and that it went on steadily increasing for a fortnight. Very soon after this increase began, the patient felt for the first time a throbbing sensation in the axilla, which gradually became more perceptible to himself, until it amounted to what he called a "jumping" sensation. The part also became more painful—so much so that he complained of it to the house-surgeon and to Mr. Reeves. The latter, suspecting an aneurism, called Mr. Maunder's attention to it on June 20th. Mr. Maunder found a *bruit*, and diagnosed a traumatic axillary aneurism. On June 24th, a consultation of some of the surgical staff was held at 2 P.M., and three proposals were discussed; viz., to tie the subclavian, to cut down and tie the artery at the seat of injury, and to amputate. The last procedure appeared to those best qualified to judge to offer the fairest prospect of recovery to the patient at his advanced age. The steady refusal of the patient himself to submit to any operation put an end to the discussion.

On my first visit to the patient after my return to the hospital, I stated to him and to his friends the great danger in which he was placed, and strongly urged them to let us interfere. I told them that in a very few days the tumour would burst, that there would be a great gush of blood, and perhaps immediate death. Remonstrances were useless, so I gave instructions to my house-surgeon that if hæmorrhage came on he was at once to send for me; to use all the means at his disposal to arrest the hæmorrhage until my arrival; and, if he found that he could not stop it by ordinary pressure on the part or on the subclavian, not to hesitate in drawing down the skin over the clavicle, and making an incision through the skin and fascia, which would allow him to introduce his finger and directly compress the artery. I remained at home, ready to go to the hospital at any moment. The condition of the parts now became rapidly worse; increase of pain, increase of throbbing sensations, increase of the œdema, increase of the tumour itself. On the 24th, the circumference of the left shoulder was twenty-four and a half inches, and of the right fifteen and a half. On the 26th, the swelling had increased to twenty-five inches, and by the end of the month to twenty-six. By the 28th, the most dependent part of the tumour had assumed a dusky red colour, and constant oozing of a sanguineous serum took place from the posterior surface.

During the next four days, the under surface of the tumour gradually deepened in colour, and ulceration commenced at two points. The largest ulcerating opening was about the size of a sixpence, and placed at the lowest part of the anterior surface; the other patch was more posterior, and only visible on raising the patient.

On July 6th, the greater part of the lower surface of the tumour had acquired a dark red colour; a portion of clot could be felt through the larger opening, from which a constant oozing of reddened serum was taking place. The patient still declined to submit to interference.

On Friday, July 7th, at 7 A.M., the house-surgeon was called to the case in consequence of hæmorrhage. The amount of blood lost did not exceed a couple of ounces, and the bleeding had entirely ceased before the house-surgeon arrived. At this time the house-surgeon would have sent for me, but the patient and his daughter, who happened to be in the ward, positively resisted operative treatment, although repeatedly warned of the danger of delay. At 2 P.M., the house-surgeon was again called to the patient, whom he found in a state approaching that of collapse, caused by a sudden gush of blood to the extent of at least ten or twelve ounces. On his arrival, blood was still trickling from the axilla, but not excessively. To arrest this a large plug of cotton-wool saturated with perchloride of iron was thrust into the opening, and a pad of lint was placed over this; and by these means the hæmorrhage was completely arrested. The house-surgeon was about to send for me, when Mr. Maunder arrived at the bedside, and having made some inquiries about the case, took the responsibility of the subsequent proceedings. An operation was performed, and the patient died in less than half an hour after its completion. On my arrival at the hospital at 4 P.M., I found my patient dead; both pectoral muscles completely divided, the brachial plexus and axillary vessels laid bare throughout their course below the clavicle, and the axillary artery tied in the third part. The ligatures were an inch apart, and between them was a large branch coming off from the main trunk.

The further history of the case assumes an interest in relation to professional ethics. On arriving at the hospital, I was assured by my house-surgeon that he had complete control over the bleeding, which had entirely ceased when Mr. Maunder arrived; that, on being asked