

vesicles and all the interstices between the ultimate tissues of the organ, and, subsequently coagulating, produces its condensation or so-called hepatisation. This, at first reddish or sanguinolent, becomes afterwards gray or suppurative; a change resulting from the exudation, as a molecular blastema, passing into pus-cells. Numerous researches have satisfied me that the cell-formation is caused first by molecular aggregation and formation of nuclei; and, secondly, by the deposition of cell-walls around them. In no instance, although frequently assisted by the pupils of Professor Virchow, have I ever been able to see any appearance capable of supporting the hypothesis put forth by that pathologist, which attributes the origin of pus in pneumonia to proliferation either in the epithelial cells lining the air-vesicles, or in the nuclei of the pulmonary fibrous tissues (*Verbindungs-körperchen*). I consider that, so far from being an exceptional and fatal occurrence, suppuration is the ordinary method by which nature breaks up the solid exudation, and renders it capable of rapid disintegration and absorption. In chronic cases where this is not accomplished, it remains molecular or granular. If this view be correct, all those circumstances which favour suppuration, such as local warmth, and maintaining the strength of the economy, are those which best favour the onward progress and rapid recovery from pneumonia; a result I consider established by the facts and statistics of my practice previously referred to.

In conclusion, I have to suggest that, in addition to the schedule now circulated to each member of the Association, an extra 500 or 1000 be struck off, so that any practitioner, and especially hospital physicians, though not members, may be enabled to assist in this inquiry, on application to the editor. I shall endeavour to do my best to reduce the various observations into order, and present a report on the subject at the next meeting of the Association at Bristol. But to accomplish this it will be necessary that the schedules be forwarded to me at a certain time; and I would name the 1st of July, 1863, as the latest day for that purpose.

THE JARDIN D'ACCLIMATATION. A pupil of the Collège Rollin, now at Tréport, has just sent a *Hippocampus Brevis*, or sea-horse, to the Zoological Gardens of the Bois de Boulogne. This singular fish, which is generally from six to ten inches in length, has a head strongly resembling that of a horse; the rest of the body is covered with scales in longitudinal and transverse ridges, with tubercular points at the angles of intersection, so as to give it the appearance of a lizard. It seizes its prey with its tail, which is very prehensile, and then turns round with great dexterity to devour it. The garden has also received other objects of interest. Several conchyliologists have hitherto denied the assertion that the Echinus, or sea-urchin, a creature shaped like a ball, and densely covered with thorns or spines, could perforate the hardest rocks. M. Caillaud, director of the Museum at Nantes, has now sent a number of these echini to the aquarium of the Jardin d'Acclimatation, together with fragment of granite and quartz. These new comers may now be seen firmly attaching themselves to the rocks with their fleshy tentacles, and then turning round and round like gimblets, without losing their hold, all the while grinding the rock to powder; and by this process a hole is excavated in course of time through the hardest stone. The creature does not swallow any of the powder, which is seen accumulating at the bottom as the work proceeds. (*Galigian.*)

## Original Communications.

### FEVERS OF THE SOUTH-EAST COAST OF AFRICA.

By CHARLES J. MELLER, Esq.

[The following letter accompanied the paper:—

MY DEAR SIR,—I have just received from my friend, Mr. Charles James Meller, who was formerly curator of the museum at St. Mary's Hospital, and is now the medical officer of the exploring party under Dr. Livingstone, a short account of the fever which prevails at the mouths of the Zambesi, Rovuma, and other rivers, on the south-east coast of Africa, with the treatment adopted. The opportunities which Mr. Meller has had of noting the peculiarities of the disease during the twelve months that the expedition has been trying to penetrate the country by means of these rivers, render these observations valuable, and will, I think, make them interesting to the profession.

It will be found that the fever now existing on that coast differs from that described by Dr. Livingstone in 1859, and requires some modification of the treatment found so effectual by him; this variation in the disease is admitted by the Doctor also.

Should you think the accompanying notes worthy of publication, they are quite at your service.

I am, etc., GEO. G. GASCOYNE.

48, Queen Anne Street, Cavendish Square, W.]

Although the time spent in the Rovuma, Zambesi, Shiré rivers, has been too short to enable one to form statistics, or tabulate results of practice, I am able, from the number of cases we have had, to select the most salient points of the fever common to all the rivers; and to point out the principles of treatment in the typical form and varieties. To know the fever in its different forms, it would be necessary to study it in the reputedly healthy and unhealthy parts of the river, at different times of the year. This we have not been able to do.

We were only in the Rovuma a short time—March and part of February, 1861—and left it, from finding it rapidly falling. Probably, we entered it just at the end of the rainy season. Before leaving it we lay by a mangrove swamp, for five days, procuring wood. A few cases of simple fever had occurred, attributable rather, I think, to exposure to the sun in boats than to malaria; but whilst we were lying by these mangroves, a more severe form rapidly spread amongst us. The patients were first attacked with griping and vomiting; followed by headache, hot skin, and the usual symptoms of the second stage; or by exhaustion to syncope, long continued rigors, or profuse sweating, without cold or hot stage. The system seemed to have suddenly received a poison of such sedative power that partial collapse ensued, reaction from which was, in two or three cases, procured only after stimulants had been frequently administered. Griping being an unusual concomitant, we looked for some cause to account for it; and thought we had found it, on observing that the water flowing by the ship, and which we had been drinking, came from a creek in the mangroves, and was exceedingly impure from the amount of vegetable matter floating on, and held in suspension in it. Within the five days, but four out of the whole number of white men on board (twenty) escaped. To avoid further infection and bad consequences, we left the river as quickly as possible, carrying, however, so much fever with us that all the sailors but one remained in the sick-list incompetent for duty for nearly a fortnight afterwards; and there were but two or three who had re-

turned to duty when we reached Johanna on the 8th of April. An incubatory process must have existed after leaving the river; for several who were not affected severely while in it, were great sufferers at Johanna, and on the way to the Zambesi, which we reached on May 1st, having left Johanna April 22nd.

The following three months, which are reputedly the healthiest, were spent in the Zambesi and Shiré; and the mild character of the fever we had would seem to confirm this opinion. For the sake of studying the fever, the year may be divided into three seasons, wet, hot, and cold. We entered the Zambesi at the commencement of the last, which old residents have considered the healthiest with respect to fever, though in its place we have skin-diseases and congestive disorders prevalent. It embraces the months of May, June, and July; then succeed two months when diarrhoea and dysentery occur, and fever is more severe. The rains begin in September or October; and when they are well set in fever almost disappears, unless it be brought on through undue exposure to wet and damp, or sleeping in wet clothes. The rainy season may end in January or February, earlier or later, according to the time of setting in; but these months include the range. The two months that precede and follow this season are the unhealthiest. Fever is most virulent in those that follow, when the marshes and lagoons are drying up, and miasmata from decomposing vegetable matter are evolved. During the wet months, in place of fever, we have affections common to moist atmosphere in all countries, boils, prickly heat, catarrhs, etc.; and some special to the river—œdema of the feet, and a peculiar eruption resembling herpes zoster.

It first appears in the axilla and inguinal regions as slight elevations of the cuticle, with a zone of pink erythematous blush. There is great itching; on the second day a vesicle forms; on the fourth or fifth this becomes a pustule with thin milky pus, which has a peculiar odour. Desquamation occurs on the seventh day, leaving behind semilunar or oval patches of the surface, slightly elevated; or, after the first appearance of vesicles, the subcutaneous tissue becomes infiltrated, and of a condition that, at first sight, resembles that of phlegmonous erysipelas. The vesicles coalesce; the part becomes much swollen and very tense; there is no throbbing nor pain; and itching is constant and very troublesome. Or a few pustules may form on the chest and neck; and red swellings appear in different parts of the body, generally over the elbows and patellæ. The health suffers just before the eruption; and whilst it continues, the appetite fails, the tongue is coated white, leaving marks of teeth-pressure; sometimes there is diarrhoea. If the eruption continue long, an anæmic look follows; œdema of the feet, if present at the commencement, becomes worse. The treatment has included alkalis, alteratives, and tonics; saturnine lotions to erythematous patches; and warm clothing. The œdema is always confined to the feet and legs. There is nothing in the state of the urine to account for this condition; nor, in fact, would the attention be drawn to the swelling were it not from the difficulty that is soon experienced in putting on boots. Dysentery in a mild form has occurred in the hot and wet months; it has yielded to alteratives, ipecacuanha, and careful diet. Diarrhoea is common at all times; most so in the cold months. This may be from the great alternations of temperature that occur during the night—a difference of as much as 35° being frequently registered between 12 and 6 o'clock A.M.

The fever of the Zambesi, as found by Dr. Livingstone in 1858, was described as of the sthenic intermittent kind. That, however, of the last year has rarely assumed this character, being generally of the asthenic remittent type; when intermittent, being only so for a short time, and always resolving into remittent. As it was first observed in 1858, the paroxysm was sudden; there were few premonitory indications; the patient had chills and

rigors, with headache, pain in the temples, and aching of the loins. In the hot stage, there was complete stoppage of secretions; the headache became more and more severe; occasionally there was delirium. The tongue did not always change with the progress of symptoms; it might remain healthy-looking through this stage. It was when these symptoms are established that the Livingstone specific must be given, if the first stage had been allowed to pass without its administration. The composition of this powder is the following:—Rhubarb, gr. x; resinous extract of jalap, gr. viii; calomel, gr. iv; quinine, gr. iv. This quantity used to be given in five pills, with the view to relieve the *primæ viæ* quickly. Quinine was given about an hour after the pills, and continued every two or three hours, in five or ten grain doses, to cinchonism. The greater the deafness produced, the greater was the assurance of speedy restoration.

Generally the force of the attack was spent by the full action of the pills; and it was not uncommon for the patient to resume his occupation on the third day after that of the attack. The exceptional cases were those in which the fever had been brought on by exposure to wet or sun, and the treatment had been delayed; or in which obstinate vomiting was present. Quinine was continued in five-grain doses until perfect restoration was secured, when the ordinary three-grain dose, taken with coffee early in the morning, was resumed. The attacks were sharp, but short, quickly gave way to treatment, and left the patient apparently none the worse.

In the past year, however, the fever has taken an active form; the symptoms have been less decided, the stages ill defined, or none; and treatment less efficacious. So irregular have the symptoms been, and the sthenic class is now the least often found; rarely is the intermittent form met, and when pure at the onset, it soon becomes remittent. The symptoms may be classed, according to their regularity and frequency, under three heads:—1. Those of the sthenic form of fever, in which they are most highly developed and defined; 2. Those of the asthenic form, where no one is followed—a prolonged cold or hot stage, or absence of one stage altogether, ending in great exhaustion relieved only when full perspiration is procured; 3. The ephemeral—a mild form of the sthenic, in natural sequence, and lasting but a short time without any complication. The sthenic form is that generally met with in first attacks, and answers to that described by Dr. Livingstone in his letter to Sir James Clark in 1859, but the treatment has not been so successful in producing rapid cures. The purgative “specific” has had to be repeated frequently before relief came; and when this has been necessary, and time been lost, the cure has been by so much delayed; so that, in place of three days, we must say seven, as the average time of each patient on the sick-list. Headache has always been the last symptom to leave; and, so long as it has lasted, large doses of quinine have been continued.

But when the patient has had frequent attacks, the stages become less marked, and the symptoms less amenable to treatment. The premonitory symptoms are ill defined. The fever may be ushered in by the patient feeling chilly, or as though currents of cold air were passing over the spine; or there may be a distinct rigor. This state may be continued for twenty-four hours, or alternate for that or a longer time with headache and heat of skin. There may be no cold stage at all, or no hot stage; or the paroxysm may consist only of alternations of the two; the headache, pains in the loins, and languor, meanwhile increasing. There may be vomiting from the outset; when this occurs, the case is always tedious. Or the cold stage may be so prolonged, that reaction is with difficulty induced. The tongue may be foul, or clean throughout; but relief will not be

afforded until the secretions are restored healthily, and free perspiration procured. The symptoms may be so few and undeveloped that they are scarcely noticeable; a man who has had fever frequently will only be able to appreciate them for what they prognosticate. If left alone, they recur again and again, gradually prostrating the patient, and ultimately merging into the remittent form when they have almost exhausted the strength of the victim. It is in the insidious progress of these symptoms that the opportunity is lost of treating actively. The first symptoms may be merely giddiness, and a feeling of languor, not calling for more than a stimulant. If they recur, the same remedy is used with quinine. But, though relieved, the patients are not cured; they become jaundiced gradually, and sickly looking; and now the tongue for the first time may become foul, though, unless there be other evidence of hepatic derangement, it is as often clean and pale throughout. And now, when the system has already become debilitated, the difficulty arises in the treatment, as the means taken to relieve the liver, whether mild or active, cannot be depended upon to relieve the system thoroughly, as in the sthenic type of the disease. The liver may be relieved; but general relief is not obtained, and the prostration becomes greater the oftener this form of medicine is administered. It is generally in this condition that vomiting sets in, frustrating every attempt to push in sustenance or medicine.

The oftener a patient suffers in this way, the more spurious and irregular is the process of the fever. The intervals of attacks never permit him to resume work long; headache and giddiness, loss of appetite and sleep, keep him constantly ailing. He seems to be only cured so long as he is under the full influence of quinine. Large doses have been given to patients suffering in this way—ten or twenty grains every day, so long as the slightest indication of the approach of an attack existed, or the symptoms from the last one had not entirely disappeared. But, though lessening the severity, they have never warded off an attack, nor lengthened the intervals between the paroxysms.

It is not unfrequent that, after sthenic fever, a patient may, after regaining health, suddenly lose appetite and sleep, and have pricking sensations through the skin, with constipation or diarrhoea. These, if allowed to take their course, or if only treated individually, resolve into periodical returns, and, progressing in development, assume the remittent form. In treating each symptom as it arises (when pointing to functional disorder in any organ) specifically, antiperiodic doses of quinine are given; and, should this combination of treatment prove ineffectual, it has been found best to treat for the removal of vitiated secretion, and restoration of healthy action in the liver and any other organ affected; following with quinine to cinchonism, and continuing its use in large doses almost to cinchonism until every symptom shall have disappeared. As a rule, this treatment is sufficient; but, when a patient falls into this form of fever, he is in a low condition of health, pale, and dyspeptic. Vomiting may set in at any time, and, if it be long continued, will delay the cure; for until the remedies can be retained, and the secretions restored in healthy form, no permanent relief can be expected. Generally, when vomiting is severe, there is jaundice, sometimes with pain over the hepatic region. So soon as medicines can be retained, a large dose of calomel and jalap is given. In addition to large bilious evacuations by stool, the urine is frequently found deeply tinged by bile.

The same complications may occur in the process of the sthenic form. The liver, though relieved at first, may suffer blockade a second time; jaundice may be universal in a few hours, with tenderness over the liver; or there may be complete arrest of the secretion; and, when this amounts to suppression, the circulation be-

comes clogged; the heart's action is troubled, and frequently a mitral *bruit* is heard; and there is a feeling of weight at the præcordia. As the functions of the liver and emunctories are restored, the heart's action becomes more natural; but *bruits* have remained until the strength and flesh have been made good. In two cases, an anæmic condition remained after treatment had reproduced healthy action of the liver and kidneys. If a loud *bruit de diable* was heard along the course of each jugular, as well as a loud mitral murmur, both gradually disappeared as health and strength returned.

In the asthenic variety, a murmur has commenced with the earliest symptoms, and has progressed and faded away with them. Indistinct at first at the heart's apex, it has grown more defined, being accompanied when loudest with a *bruit* along the jugulars; and it has faded away as it commenced. But, in its progress, the heart's action is troubled; the patient feels oppression and distress in the region of the heart; he cannot sleep from the continuance of these sensations, and finds it difficult to lie on either side with comfort when there is *bruit de diable* along both jugulars. The cause of this may be found in the anæmic state into which patients rapidly fall after long continued spurious fever, or after long continued sthenic, in which the treatment has been active, and heroic doses (twenty grains of the specific repeated three or four times in the course of twenty-four hours) have been used. Corroborative of this view, we find frequently œdema of the lower extremities, without any indication of renal disorder, blanched skin, small weak pulse, and tendency to syncope.

After many attacks, the spleen frequently suffers. Attention is first directed to it by pain and tension beneath the ribs, simulating, from its suddenness and acuteness, pleuritic affection. Percussion and auscultation will soon define the limits of the enlargement, the spleen presses forward immediately against the cartilages of the lowest ribs, and the anterior edge forms a distinct prominence.

As sequelæ, may be mentioned intractable diarrhoea, headache, general, or hemicranial, or over the brow; vertigo; and, in the asthenic, œdema of the legs. Ulcers may form from the smallest abrasion, and will not heal until the general tone be improved.

There is a modification of the symptoms of this fever; it is simply the mildest form of all the stages in natural sequence. It does not require the active treatment of the sthenic, but it must be at once combated with the usual means in smaller doses; and quinine must be continued to cinchonism. If neglected, it will recur as intermitting; soon, however, becoming remittent. Those who have been longest resident in the country have the slightest attacks. The strength is very slightly affected by them. The treatment is based on the principle that the *primæ viæ* must be relieved and healthy secretion restored before any permanent good can be effected. With this view, the composition of jalap, calomel, and rhubarb is given at the outset, and repeated again and again, until the secretions are fully relieved, and restored to healthy characters. In obstinate cases, other drastic purgatives are combined, until thorough purgation has been effected. Recovery is tedious and protracted in proportion as the object is quickly or tardily achieved.

But in asthenic cases, where the stages are irregular, and where there is often difficulty in inducing reaction after a fitful, long continued cold stage, the purgative is given in smaller doses with a stimulant; and (if there be no vomiting) reliance is placed in producing reaction as quickly as possible the full influence of quinine.

Complications of vomiting, headache, pains in the renal region, loss of rest with extreme restlessness, are treated by ordinary means. A full dose of morphia, given after purgation, often relieves all these symptoms and induces sleep, from which the patient awakes almost restored to health.



As to the virtue of quinine as a prophylactic, I can, from watching its influence on our small party, give only negative conclusions.

1. It cannot be depended upon, in any dose, to avert an attack; though it would seem that, if given in a large dose on the first approach of symptoms, it will lessen the severity of the paroxysm. We have given every morning for a year past a dose of three grains with a little wine or rum; the rum because early morning is a very cold time during the greater part of the year, and cold and misty during May, June, and July, and the men seem to require a stimulus at this more than any other time. But, though this practice has been religiously persevered in, fever has not been warded off; in fact, it has been less frequent with some of those who have been longest in the country, and who refused to take the quinine regularly, than with the later arrivals, who have never missed taking the morning dose.

2. In addition to the morning dose, large additional ones have been given to men who have been frequently attacked, when they have felt indications of an approaching attack—ten, twenty, or thirty grains at a dose; but the paroxysm, though mitigated (as compared with that when no quinine has been given) in severity, has never been warded off.

3. Some of the expeditionary party have almost entirely abstained from taking quinine for a year or so past. These men have not been more liable to fever; and, when attacked, have not suffered from any more severe form than the rest. These men, however, have never refused quinine during fever, knowing that they cannot hope for safety until they shall have been cinchonised.

4. During the two months when the boats of H.M.S. *Gorgon* were up the river (which must be considered an unhealthy period, as the rains had ceased earlier than usual, and marshes were drying up), there were 12 men left at the mouth of the river, who took no quinine nor fever; whilst of the 54 men who went up in the boats, and who were regularly taking it with a double ration of spirits, 6 only had escaped fever on their return to the sea, and of these six men one alone had escaped a month later. Of the complement carried by the *Pioneer* (22) but two escaped. Those, however, who were left at the mouth of the river had the advantage of sea-breeze (which set in for the greater part of the day) during the whole time the rest were absent. Of 39 *Gorgon* men, who went seventy-four miles up the river and returned after thirty-two days, 34 had fever. Of 15, who were sixty-one days up river 14 suffered. These men, for the greater part of the time, had ordinary ship's rations, with extra rum, given with a daily dose of quinine. It was observed that those men who were young and active were more immune than the older, more feeble, or indolent.

5. It might be thought that three grains for an habitual dose were too small to test the efficacy of the remedy, and that no satisfactory result could be obtained from it. But very large doses have been given, as before said, with no more satisfactory result; in fact, we have had to invalid one man who had constantly taken these large doses, and from whom the fever was never averted.

There are circumstances that modify fever. Though in the rainy season there is less of the disease than at other times, the form is more severe, because an attack is always brought on by the patient becoming thoroughly wet, or from having slept in damp or wet clothes.

The excessive irritation from mosquito bites will keep up fever, in spite of all treatment. The loss of rest occasioned will unfit one for the day's duties; appetite is lost; and headache sets in. A harsh diet of coarse native grain and foods will often throw the system into disorder, producing headache, dyspepsia, etc., and probably predisposing the body for the reception of malarious poison.

The consideration of these points may indicate the

best means for prevention. Care should be taken to insure a dry sleeping-place, and warm dry clothing for night use. A good mosquito curtain should be provided. Each person should on rising take some strong hot coffee. It is essential that a generous mixed diet be had so long as river work continues. The time of year best suited for river exploring or other work is the rainy season; but this only holds good so long as there is thorough protection from the rain. But for open boat work it would be very unadvisable to try this time of year, and much better to take the dry cold months of May, June, and July; for though one travelling in these months would be more subject to diarrhoea and congestive disorders, from the changes of temperature between night and morning, fever attacks would be comparatively mild.

There can be no doubt of the malariousness of these rivers, and that immunity from the diseases specified cannot be guaranteed, however sedulously precautions and sanitary measures be carried out; but from the large number of cases occurring amongst the men who have been resident long enough to test the climate, and be tested, and the small percentage of deaths—one only having occurred in the *Pioneer* during the last twelve months—there can be no doubt that the fever *per se* is of a mild disposition, perfectly amenable to treatment when taken early, and dangerous only when left to take its own course.

## FOREIGN OPINIONS OF THE NATURE OF SYPHILIS.

Collected by M. BERKELEY HILL, F.R.C.S., M.B.L.S.

### II.—VON BAERENSPRUNG OF BERLIN.

PROFESSOR VON BAERENSPRUNG, of the Charité Krankenhaus, Berlin, agrees mainly with Ricord and other French writers on syphilis in his doctrine of the *chancres*.\*

He commences with two propositions, which express the result of an examination of the statistical records of his wards.

The first is: A chancre which heals without induration is never followed by syphilis. The second: An indurated chancre is invariably followed by constitutional syphilis. These two observations, he remarks, are accepted pretty generally by all parties; but it now remains to prove that these two chancres are originated by independent causes. He announces himself firmly convinced of this fact. The most important proof of the distinct nature of the two sores, in his opinion, is that simple treatment is sufficient for the cure of the soft chancre, but that the consequences of the hard one require a special antisyphilitic course for their cure.

*Chief Distinctions in the Form and Results of the two Sores.* In most respects the professor follows closely the order and description of Ricord. The characters of the sores, for the better comparison, may be arranged in parallel columns.

#### Simple Chancre.

1. The contagious principle is contained in the pus of the sore, and in that of the suppurating bubo, which often accompanies it.

#### Infecting Chancre.

1. The syphilitic poison is contained in the secretion of the indurated chancre, mucous tubercles, and probably other secondary syphilitic results.

\* In drawing up this *resumé* of Baerensprung's opinions, I have made use of the condensation of his views contained in Friedrich's *Lehre vom Schanker*, a small pamphlet containing most of the recent opinions of syphilitic writers in Germany, France, and England, and published at Erlangen, 1861.