

Observations on the pathology of lethargus : with cases / by Robert Clark.

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OBSERVATIONS ON THE PATHOLOGY OF
LETHARGUS: WITH CASES.

ROBERT CLARKE

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PART FIRST.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Observations on the Pathology of Lethargus; with Cases.* By ROBERT CLARK, ESQ., Surgeon, Civil Service, Colony of Sierra Leone.

THE attention of the medical profession was, I believe, first directed by Dr Winterbottom, to the frequency and often fatal termination of the disease termed "lethargus" on the western coast of Africa; but the description given in his work, both of the symptoms and mode of treatment, is much too meagre for practical purposes. As deductions leading to a sound and rational mode of treatment can alone be drawn from an attentive, patient, and minute investigation of the pathological appearances presented, the following cases and observations, with the pathology of this most interesting disease, founded upon my own experience as surgeon to the liberated African hospital at Kissy in the colony of Sierra Leone, will not, I trust, be uninteresting.

Dr Mason Good, in his work upon the study of medicine, has placed this disease in the class "neurotica;" but as developed in the cases which came under my notice, I think that it

may be classed under the variety "cataphora," or short remission lethargy.

Causes.—Lost balance of circulation, inducing irregular distribution of blood and venous congestion; depressing mental emotions; severe bodily labour; unwholesome scanty diet; repelled eruptions; suppressed evacuations; perhaps functional derangement of the nervous system, producing insufficient action or energy to resist the approach of sleep, even without its concomitant exciting causes.

Symptoms.—On the first approach of the disease the patient is observed to become fat, the demand for food being inordinate; when it has, however, existed for some time, the appetite declines, and in the latter stages the patient emaciates;—there is uncontrollable desire to sleep, the patient often falling asleep in the act of conveying food to his mouth;—sometimes squinting and convulsions may be observed; the glands of the neck become tumefied, but this is by no means always present.

The negroes call this disease sleepy dropsy, and after it has advanced, never attempt its cure, giving over the patient as incurable; but in the first stages, they attempt its removal by inducing copious perspiration.

Some European doctors, conceiving the disease to be induced by debility, have administered various stimulants, such as camphor, musk, valerian, blisters, sternutatories, metallic tonics, (as sulphate of zinc,) and the powerful agent, galvanism, has also been employed. Others, I imagine with more propriety, have viewed the disease as originating in congestion of the brain, and have sought its cure in the employment of local depletory measures, and by keeping up an action of the bowels; but it appears to me that medical men have been deterred from the judicious employment of general bleeding by an unfounded apprehension of danger from debility; nor does it appear that the potent remedy, mercury, has ever been called to exert its powerful influence in equalising the circulation:—indeed, the practice I imagine to be novel. An esteemed and experienced friend of mine, holding the chief civil medical appointment in this colony, has informed me that he has repeatedly tried it with a view to induce ptyalism, but without effect. Another medical friend of long standing and experience in the colony told me that he had treated the disease repeatedly, using blisters and drastic purgatives; but neither of these gentlemen appear to me to have sufficiently appreciated mercury. Dr Bacon, a gentleman practising at Cape Mesurado, the American settlement on this coast, remarked to me that the disease is of frequent occurrence there, accompanied in its progress by a low type of typhoid fever, but this I have never observed in any of the cases which

have come under my notice. Dr Winterbottom observes that the slaves from the Bight of Benin are the most subject to it, and that it prevails much among the Foulaho. I have observed it also equally to prevail among the several tribes inhabiting parts of the continent far inland. I have chiefly seen it among the liberated Africans, of whom there are sometimes from 400 to 500 at one time in the hospital under my charge, and I have been informed that several cases have occurred even among the creole inhabitants.

CASE 1. On the 7th April 1839, Mary Coker, aged 14, an apprentice from Waterloo village, a native of Benin, was admitted to hospital. States, that about three months ago she was attacked by sleepy dropsy, (the country name for lethargus,) for which she was treated by the natives, but without mitigation or the slightest alleviation of the symptoms. She is of a stout plethoric habit of body; her general appearance is that of an individual roused from sleep, the face and eyes being devoid of animation, almost of expression; wears a besotted look; the skin is dry and above the natural temperature; pulse 108 and small; bowels costive; the tongue is clean about the tip, but towards the root and in the middle coated with a greyish fur; during the day she continues drowsy, and falls asleep while taking food.

Apply a blister, 7 x 4 inches, from occipital protuberance along the spine.

R. Ext. colocynth comp.

Submur. hydrarg. ā ā gr. xij.

Divide in pil. vj.

One every two hours until the bowels are fully opened.

8th. Bowels open; alvine evacuations natural. During the night she removed the blister, which had partially risen. The skin is cool. Reapply blister.

R. Calomelanos ʒj.

Pulv. ipecac. gr. ix.

Pulv. opii. gr. ij. Misce.

Divide in pil. vj. One of the pills every three hours.

9th. The blister has risen well; bowels opened once; a lumbricus about eight inches long discharged; the urine is secreted sparingly, and is highly coloured, but does not coagulate on application of heat; skin of natural temperature.

10th. The mouth has become affected with the mercury; her bowels have been twice opened; micturated once in the space of 36 hours; the same lethargy oppresses and weighs down both her physical and intellectual faculties; pulse 94, small and quick.

Let the mouth be gargled with a solution of an ounce of salt in fifteen of water.

11th. No change.

12th. Considerable amendment in appearance, which is more lively than since her admission. Bowels have been severely purged; appetite good. With a view to keep up a brisk action from the intestinal tube, I prescribed as follows:—

R. Aloe. socot.

Extr. colocynth. comp.

Calomelanos ā ā gr. xij. Misce.

Divide in pil. vj. One every three hours.

Continue the wash for the mouth.

14th. Vast quantities of feces have been discharged by stool, dark coloured, highly offensive and stringy, as if from the tenacity of intermixed bile. During the night she was buried in the most profound sleep; pulse 112, small and quick; tongue much loaded at base; the secretion from the kidneys is sparing, and on application of heat, a film of albuminous-like coagulum floated on the surface of the urine. The appetite is good. There is some distension of abdomen, as if from flatus.

R. Bitart. potassæ, ʒi.

Aquæ font. ℥ij. Solve.

To have this ad libitum. To discontinue pills.

R. Sulph. magn. ʒij.

Aquæ font. ℥ij. Solve.

A wine glassful every four or five hours until the bowels are opened.

16th. Bowels freely open; says she feels less inclination to sleep. About half a pint of slightly turbid urine passed in the course of the twenty-four hours.

18th. Pulse 120, quick but small; appetite good; tongue clean round the edges and at tip, but the base is covered with grey sordes. Her general appearance is more lively than on previous days.

19th. Bowels open, but evacuation sticky. During the day she walks about the yard and ward, occasionally conversing with girls of her own age, but more frequently mopes about without noticing surrounding objects. She has never been observed to laugh since her admission, and often drops asleep after very slight exertion. She has continued to use the solution of the bitartrate of potassa, and, as a purgative, a solution of sulphate of magnesia.

Continue wash for mouth. The diet to consist of soup, with arrow-root, or well-boiled sago, and a small quantity of wine.

20th.—Several lumbrici, from eight to nine inches in length, were found in the alvine evacuation.

R. Ol. ricini.

Ol. terebinth, ā ā ʒss.

Sp. pimentæ, ʒi. Misce.

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and mixed with frothy-like mucus, with quantities of undigested food contained therein; drowsiness evidently on the increase.

5th. To-day she was asleep when I entered the ward. On light being brought close to the pupil, it remained uncontracted.

6th. No change.

7th. Pulse full, 106; breath is highly foetid; general aspect improved; has, however, slight dyspnoea, attended with cough, and complains of pain under left breast. On applying the ear to the chest, the respiratory murmur was distinctly crepitous; the feeling of hardness about the epigastrium has disappeared.

Apply a blister, 4 × 4, to the chest.

R. Tinct. camph. comp. ℥iv.

Antim. tart. gr. ij.

Aquæ font. ℥viij. Misce.

A table spoonful every three hours.

8th. To-day the blister has risen well; she appears, however, weak; no expectoration; breath extremely foetid; pulse 120.

9th. Before visiting hour, I was told by the matron that she was dying; and at 7 o'clock A.M. she expired.

Autopsy, two and a half hours after death. Body not much emaciated.

Head.—Arachnoid membrane thickened, firm, and opaque; substance of brain, when cut into, was closely dotted over with blood-vessels. About one drachm of serum was present in the lateral ventricles, and at the base of the brain half an ounce of the same fluid was effused.

Thorax.—There was some effusion in the pleura of the right side, which was thickened and highly vascular; lung of same side had a dark and florid aspect; a gangrenously foetid and melanotic-like fluid covered a great portion of the inferior and middle lobes; the inferior lobe slightly adhered to the diaphragm. A pretty large collection of purulent matter, intolerably offensive, was found on that portion of the diaphragm where adhesion existed; the corresponding surface, to the extent of an inch and a half, was of a dark colour, evidently from infiltration and inflammation.

Heart—of the natural size. On laying open its cavities, a large portion of coagulated lymph was found filling up the ventricles, and passing into the arterial tubes. There was considerable deposition of fat on its parietes.

Abdomen.—The peritoneum was pulpy, and crowded with small blood-vessels containing florid blood; omentum contracted, having a considerable accumulation of adipose tissue; the stomach, at its greatest curvature, had a blush of redness, and a lumbricus¹ was found in its cavity, measuring eleven inches in length; the contents

¹ These parasitical intruders were found alive after removal from the body.

and found with difficulty the tumor with prominence of surface, and contained within; the tumor was found on the internal surface of the uterus, and was removed when I entered the cavity, the tumor being brought close to the point, it remained unaltered.

On the 10th.

The 10th Feb 1861: breast is slightly better; general condition improved; the bowels, slight dyspepsia, attended with flatulence, and accompanied by pain under the breast. On applying the cautery, the inflammatory tumor was destroyed, and the feeling of hardness about the epigastrium has disappeared. Apply a blister to the chest.

At 12 o'clock, some five.

At 12 o'clock, some five.

At 12 o'clock, some five.

A table spoonful every three hours.

On the 12th Feb the patient has risen well; she appears better; no expectoration; breath extremely fresh; pulse 120. The patient stating that I was told by the physician that she was dying, and at 1 o'clock she expired.

Examine the dead body after death. Body not examined.

Findings.—The body was examined, first, and opened, and the contents of the brain when cut into, were closely dotted over the surface of the brain. About one drachm of serum was present in the lateral ventricle, and at the base of the brain half an ounce of the same fluid was effused.

There was some effusion in the pia mater of the brain, which was thickened and highly vascular; part of same was found in a dark and hard aspect; a gangrenous fluid and matter, the fluid covered a great portion of the interior and exterior of the brain; the interior lobe slightly adhered to the dura mater; a large collection of purulent matter, intensely offensive, was found on that portion of the dura mater where adhesion was made; the corresponding surface to the extent of an inch and half, was of a dark color, evidently from inflammation and infection.

Heart.—Of the natural size. On laying open the cavity, a large portion of coagulated lymph was found filling up the ventricle, and passing into the arterial tube. There was considerable effusion of fat on the pericardium.

Abdomen.—The peritoneum was gummy and crowded with small blood-vessels containing dark blood; numerous contracted, brown, a considerable accumulation of adipose tissue; the stomach, on the greatest curvature, had a bluish or redness, and a number of small nodules in its cavity, resembling shaven heads; the contents

These pathological findings were found after removal from the body.

of the upper portion of the intestines were dark-coloured and semi-fluid; fecal matters of similar colour were found in the colon; patches of ulceration were discovered in both the great and small portions of the tube; lumbrici, varying from two and a half to eleven inches in length, occupied the canal, and were situated both in the duodenum, ileum, and colon. *Liver*.—Gall-bladder green externally, and impacted with very green ropy bile; otherwise healthy. Weight of liver, 2 lb. 2 oz. *Kidneys*—Healthy. Coats of *bladder* thickened and contracted. On laying open the *spinal canal*, a good deal of blood was found effused at the inferior cervical and dorsal regions; the neurilema of the cord had a yellowish-like lymph deposited on its surface,—which appearance could be observed more especially towards its termination. On carefully removing the sheath, a beautiful net-work of vessels was seen ramified throughout the whole length of the cord.

CASE 2.—Sara, a fine intelligent lively boy, aged 10, a native of Soosoo nation, was received into hospital on the 17th April 1839, from on board the Portuguese schooner "Labradore," affected with glandular swellings of both sides of the neck, for which he was treated with iodine ointment,—to which treatment they yielded. Bowels regulated by gentle purgatives. A few weeks thereafter, he began to lose flesh, his appetite at the same time declining. On the 2d of May, he was first observed to drop asleep while eating. On being roused, he was seized with an universal tremor, the motions of his head resembling the symptoms produced by inebriation. The eyes were bloodshot, the pupils staring; the countenance meagre and emaciated; bowels costive; tongue white and loaded; pulse 84; skin below natural temperature.

Applicentur hirud. xxx. temporibus.

Bleeding to be encouraged as much as possible by flannel cloths dipped in warm water, then wrung and applied as hot as possible.

R. Spir. vini. rect. ℥iij.

Aquae font. ℥bij. Misce.

The head to be kept constantly wetted, by means of pledgets moistened with the lotion.

Apply a blister, 6 × 6, from occipital protuberance along the spine.

R. Pulv. jalapæ gr. x.

Calomelanos gr. iv. Misce.

To be taken immediately.

These active measures, with repeated large doses of oil of turpentine, (which certainly brought several worms away,) conjoined, and the production of salivation, with the occasional use of the sulphate of quinine combined with infusion of quassia, alleviated, although they failed to arrest, the progress of the malady, which terminated fatally on the 12th of June.

Post-mortem examination, two hours after death. Body much emaciated.

Head.—The skull-cap was with great difficulty torn from the dura mater, to which it firmly adhered round the corona; about 4 oz. of blood mixed with serous fluid escaped on its removal. The skull itself appeared more than usually dense; there was minute injection of the arachnoid membrane, and great engorgement of the vessels distributed over the convolutions; the grey substance of the brain was of a rather paler colour than natural; choroid plexus pale; serosity between the convolutions; the ganglions of grey substance, the corpora striata and optic thalami were softened. In the ventricles, a small quantity of fluid was present; the principal arteries at the base of the brain were enlarged and turgid.

Thorax.—A good deal of serum was found between the pleura on opening the thorax; the inferior lobe of the left lung was found to adhere to the superior surface of the diaphragm, to the extent of a half crown piece, where a yellowish exudation was abundantly poured out, and which was discovered to exist in considerable quantity about the root of the lung; its surface was rose-coloured, from excessive congestion. On being cut into, a reddish-like fluid oozed from every part of it. The right lung was also much engorged; pericardium collapsed; heart much loaded with fatty deposit, but of natural size.

Abdomen.—The stomach was highly vascular between its great curvature and the pylorus; the intestines presented very considerable traces of inflammation in some points; spleen slightly enlarged; several lumbrici were present in the small intestines; liver healthy; gall-bladder filled with dark-green bile; peritoneum exceedingly vascular; cortical substance of kidneys highly injected.

On sawing and chiselling out the vertebral column to its termination, a considerable quantity of blood was found effused over the cervical and dorsal aspects. Blood-vessels filled with blood were seen everywhere ramified in an exceedingly beautiful congeries of net-work over the cord.

CASE 3.—John Silver, a liberated African of the Ackoo tribe, aged fourteen, was sent to hospital on the 9th of June 1839, affected with lethargus, with which he was first attacked about three months previous to admission. When seen by me, he lay upon his back in a state of stupor; pulse 90, and full. On application of light to the pupil, it remained uncontracted; being roused, he articulated with difficulty; he complained that he felt pain at the lumbo-sacral junction; expression of countenance stupid and vacant, the eye is bloodshot and listless; bowels open; tongue moist, clean at tip, but at base covered with grey sordes; respiration natural; skin of natural temperature; slight rigidity of muscles of arm, accompanied by spasmodic motion of the

fingers, with occasional slight jactatory motion of the body; feet cold; says he passed several lumbrici prior to admission; states that he has not made water for many hours previous to admission.

To be cupped over the portion of spine complained of; the head to be shaved, and a blister applied thereto, so as to cover the scalp,

R. pulv. jalapæ, gr. x.
Calomel, gr. v. Misce.

To be taken immediately.

Let his strength be supported with thin soup, arrow-root, and adgedea, to which he is extremely partial.

Evening.—In the same profound coma; pulse 104, and full; skin hot; medicine has not operated. Flannel cloths to be immersed in boiling water, and applied to the feet and around the ankles; but although the application had the immediate effect of rousing him, the relief was not permanent. The skin was slightly vesicated by the high temperature.

R. ol. terebinth. ʒi.

Mucil. gum arabic. ʒss. Fiat haustus.

To be taken immediately.

June 10th. During the night he lay on his back, from which posture he did not move; blister applied to head had risen well; 7 lumbrici, varying in length from $4\frac{3}{4}$ to 11 inches, were evacuated; the feces were of a dark-green colour, being intermixed with a considerable quantity of mucus; in the course of 12 hours, five ounces of urine of a very high colour were passed; pain in back gone; complains of pain about the left trochanter major, where there is some slight swelling.

R. Submur. hydrarg. ʒj.

Pulv. opii. gr. vi.

Divide in pil. vj. One of the pills every hour.

Embrocation of soap and opium to thigh.

Evening.—Pulse 120, and full; skin hot; four ounces of urine of a pale yellow colour passed in the course of 8 hours. During the day he would occasionally awake and converse with boys of the same age in the ward.

R. Subcarb. potassæ, ʒij.

Mist. camphor. ʒij.

Antim. tart. gr. ij.

Aq. font. ʒviiij. Misce.

Fiat mistura, cujus sumat cochleare magnum quaque tertia hora.

The skin to be sponged with vinegar and water; pledgets moistened with water to be constantly applied to the head; bottles of warm water to the feet.

June 11th. Pulse 80; skin cool; tongue clean at tip, but loaded with a grey fur towards the base; gums swollen and tender; countenance mild; articulates with difficulty, but returns appropriate answers to the interpreter; appetite improved; does not complain of pain; respiration natural; on applying the ear to the chest, the action of the heart was violent, the impulse being extended over a considerable portion. Pills to be discontinued.

R. Solut. chlorid. sodæ, $\bar{3}i$.

Aq. font. $\bar{3}xx$. Misce.

With this the mouth is to be repeatedly gargled; a large blister to the calf of each leg; the application of cold water to the head also to be persevered in—poured on the head from a tea-kettle; continue the mixture.

12th. Pulse 120; skin bedewed with a copious perspiration; blisters have risen well; at the evening visit the countenance was natural, and more lively; during the day he ate some fish, which he appeared to relish.

13th. Makes no complaint; pulse natural and soft; tongue white and moist; extremities cold.

Apply bottles of warm water to feet; cold applications to the head to be continued; discontinue the mixture.

14th. Skin cool; pulse, although quick, is regular; bowels costive.

R. Ol. terebinth. $\bar{3}i$.

Mucil. gum arabic, $\bar{3}ss$. Fiat haustus.

15th. Bowels open; has passed several lumbrici; the discharge consisted of pure bile; the bedding has a urinous smell, from involuntary discharge of urine.

June 16th. Urine and feces passed involuntarily; wine ordered *ad libitum*. He continued to sink, and died at two o'clock A.M. of the 17th.

Post-mortem examination, five hours after death. Emaciation considerable.

Head.—The calvarium and dura mater being removed, the blood-vessels passing between the dura mater and brain were found enlarged to the size of a crow-quill; retiform injection of the pia mater; a little serosity between the membranes. On slicing the brain, many bloody points were discovered closely congregated, both on the medullary and cortical substances, the investing membranes of the ventricles were highly vascular; nothing particular was found in the cerebellum; the spinal marrow was not examined.

Thorax.—The lungs were slightly congested, and of a rose colour; deposited on the inner and inferior aspect of the left lung there was considerable effusion of yellowish lymph. The heart

June 11th. Pulse 80; skin cool; tongue clean at tip, the
 loaded with a grey fur towards the base; gums swollen and
 dry; countenance mild; articulation with difficulty, but not
 apparently due to the larynx; appetite improved; no
 complaint of pain; respiration natural; on applying the
 to the chest, the sound of the heart was violent, the lungs
 was extended over a considerable portion. Still to be
 treated.

H. Solat child case, II.

At 10th. At 10th. With this the mouth is to be repeatedly washed; a large
 blister to the neck of each leg; the application of
 water to the head also to be continued in-
 the head from a tea-bottle; continue the mixture.
 June 12th. Pulse 120; skin bedewed with a tepid perspiration;
 phlegm from throat well; at the evening visit the countenance
 was natural, and more lively; during the day he was
 which he appeared to prefer.

12th. No complaint; pulse natural and soft; tongue
 white and moist; articulation cold.

A dry bottle of warm water to foot; cold applications
 the head to be continued; discontinue the mixture.

13th. Skin cool; pulse, although quick, is regular; bowels
 regular.

H. Ol. child case, II.

Black gum applied for 1st time. 13th. Bowels open; has passed several stools; the
 change occurred at four o'clock; the bedding has a strong smell
 from involuntary discharge of urine.

June 14th. Urine and stools passed involuntarily, with order
 of 14th. He continued to sleep and died at two o'clock
 a.m. of the 15th.

Post-mortem examination, the day after death. Examination
 remarkable.

Head.—The calvarium and dura mater being removed, the
 blood-vessels passing between the dura mater and brain were
 found enlarged to the size of a crow-quill; yellowish injection
 of the pia mater; a little serosity between the meninges. On
 lifting the brain, many bloody points were discovered closely
 congregated, both on the medullary and cortical substance. The
 investing membranes of the ventricles were highly vascular; no
 thing particular was found in the cerebellum; the spinal men-
 row was not examined.

Lungs.—The lungs were slightly congested, and of a rose
 colour; deposited on the inner and inferior surface of the left lung
 there was considerable effusion of yellowish lymph. The heart

was enlarged,—its walls were thickened and loaded with fat; fibrous clots were found in the auricular and ventricular cavities.

Abdomen.—The stomach at its upper curvature was highly vascular; the omentum was loaded with fat, having its vessels highly injected with blood; the liver, on being cut into, was found turgid with blood; the gall-bladder was loaded with dark-green bile, similar to what had passed by stool; the intestinal canal contained the same coloured fluid, with here and there hardened scybalæ; four worms, from 4 to 12 inches in length, were also found; the spleen was of middling consistence, between the state of health and degeneration; the blood-vessels of the kidneys were completely gorged with blood; the bladder was contracted.

CASE 4.—Thomas Caperhill, a Creole boy, aged 14, was admitted into hospital on the evening of the 6th July 1839, affected with decided and far advanced symptoms of lethargus. I was informed by the person who brought him to the hospital that he was an orphan, his parents having died about six years ago, leaving him to the tender mercies of an individual residing at the village of Wellington, by whom he had been employed to cultivate his farm on the banks of the Quia River, at a distance from the residence of his assumed protector. From the same source I learned that he had been attacked by the disease about five weeks prior to admission, and that no remedial means had been employed to check the progress. When seen by me, he lay upon his back in deep sleep; the expression of his countenance was fatuous; skin rather hot; pulse small and irregular; his tongue, (which he was got with difficulty to protrude,) was covered at its base with grey sordes; bowels costive; respiration slightly crepitous; the impulse of the heart was heard over a large space; pupils contracted; articulation indistinct and hesitating; spasmodic rigidity of upper extremities; feet cold.

Let the head be immediately shaved, and kept constantly wetted with cold lotion, pouring at intervals a stream of cold water over it. Apply blisters to the calfs of the legs; and boiling water, by means of flannel cloths, to the feet and ankles.

This application roused him, but the benefit was not permanent.

Ol. Tiglii, gtt. i.

R. Calomel. gr. iv. Misce.

Fiat. Pil. i.

To be taken immediately.

Bottles of hot water to feet and legs. Let his strength be supported with arrow-root given at short intervals.

July 7th. The blisters have risen well. Bowels open, the stools consisting of hard and dark-coloured feces. Reclines on his back; pulse small, weak, and intermitting; urine discharged involun-

was enlarged—the walls were thickened and stained with light brown stain, especially in the anterior and posterior regions. The stomach at its upper extremity was highly congested with blood; the liver, on being cut into, was found to be with blood, the gall-bladder was loaded with dark-green bile, similar to what had passed by stool; the intestinal canal contained the same coloured fluid, with here and there hardened coagula; four worms, from 5 to 12 inches in length, were also found; the spleen was of middling consistency, between the state of health and degeneration; the blood-vessels of the kidneys were completely gorged with blood; the bladder was contracted.

Case 2.—Thomas Flanagan, a Chinese boy, aged 14, was admitted into hospital on the evening of the 6th July 1880, affected with cholera and the advanced symptoms of typhus. I was informed by the person who brought him to the hospital that he was an English lad, having died about six years ago, having been in the last of his life, as an individual residing at the village of St. Agatha, by whom he had been employed to cultivate his farm on the banks of the River, at a distance from the residence of his natural protector. From the latter source I learned that he had been attacked by the disease about five weeks prior to admission, and that no remedial means had been employed to check the progress. When seen by me, he lay upon his back in deep sleep; the expression of his countenance was stertorous; his features hot; yellow small and irregular; his tongue (which he was not with difficulty to protrude) was covered at its base with grey scabs; bowels costive; respiration slightly stertorous; the impulse of the heart was heard over a large space; pupils contracted; articulation indistinct and feeble; epigastric rigidity of upper extremities; feet cold.

Let the head be immediately shaved, and kept constantly wetted with cold lotion, pouring at intervals a stream of cold water over it. Apply blisters to the cells of the legs, and boiling water, by means of flannel cloth, to the feet and ankles.

This application proved fatal, but the benefit was not permanent.
O. T. 1881, p. 1.
E. C. 1881, p. 1.
F. 1881, p. 1.

To be taken immediately.
Bottle of hot water to feet and legs. Let his strength be supported with arrow-root given at short intervals.
July 14. The patient has risen well. Bowels open, the stools consisting of hard and dark-coloured feces. Reaction on his back; pulse small, weak, and intermittent; urine discharged inordin-

tarily; the skin around feet and ankles is slightly vesicated, the result of application of hot flannel cloths; extremities cold. Let the feet and ankles be dressed with

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Continue cold lotion to head. Apply warmth to the extremities, by means of bottles of hot water. Wine to be allowed at short intervals. During the night he expired.

Post-mortem examination, two hours and a half after death.

Head.—The skull-cap was with much difficulty separated from the dura mater. A very large portion adhered firmly to the calvarium, so as to be removed along with it; engorgement of the vessels which ramify on the convolutions; general injection of the arachnoid, which was red, and thicker than natural; both cortical and cineritious substances very red. A small hard tumour, of an oval shape, and of a dark ash colour, was attached to the choroid plexus of the left side; there were several ecchymosed spots on the lateral parts of the middle lobes. On the internal and external sides of the olfactory groove of the left hemisphere there was considerable *ramollissement*; the vessels ramifying on the circumvolutions of the cerebellum were engorged; the spinal cord was much congested; and its investing membrane was of a rose colour.

Thorax.—The lungs were of a light rose colour, and congested everywhere with dark blood; the heart was filled with very dark blood.

Abdomen.—The omentum was loaded with fat; minute injection of the peritoneum; liver much gorged; gall-bladder filled with very dark tarry-like bile; intestines contained matter of a very dark green colour, mixed at the lower portion with hardened scybalæ; several lumbrici were also found among their contents; at the upper third of the jejunum there was an ecchymosed spot, about the size of a crown piece; the kidneys were much loaded with fat, and the cortical substance was engorged.

Autopsy of a boy of the Bacongo tribe, aged 16, who died fourteen days after admission to the hospital, but whose case I did not note down.

Head.—The calvarium being removed, a great quantity of very dark blood escaped. The dura mater was infiltrated with some fluid which ablution failed to remove; glandulæ Pachioni enlarged; effusion of lymph over arachnoid membrane. On slicing the brain, streaks of blood were observable. The ventricles were filled with bloody serum; the choroid plexuses were turgid, small vesicles appearing on their structure. Over the corpora striata, blood-vessels ramified in an arborescent form; the circle of Willis was well marked, from the great turgidity of the vessels;

larly; the skin around feet and ankles is slightly wrinkled; result of application of hot steam; cutaneous cold; the feet and ankles be dressed with—

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Cardiac cold lotion to head. Apply warmly to the neck; the arteries of the neck of hot water. To be done at short intervals. During the night be exposed. The patient examined, two hours and a half after death. The head-cap was with much difficulty separated from the brain. A very large portion adhered firmly to the brain, so as to be removed along with it; arrangement of vessels which result on the convolutions; general injection of the arachnoid, which was red, and thicker than natural; both cerebral and cerebellar substance very red. A small hard tumour of an oval shape, and of a dark red colour, was attached to the choroid plexus of the left side; there were several blood-spots on the lateral parts of the middle lobe. On the inner and external sides of the olfactory groove of the left hemisphere there was considerable tumefaction; the vessels running on the circumference of the cerebellum were engorged; the spinal cord was much congested; and its investing membrane was of a red colour.

Thyroid.—The lobes were of a light red colour, and were everywhere with dark blood; the heart was filled with very dark blood.

Abdomen.—The omentum was loaded with fat; minute portions of the peritoneum; liver much engorged; gall-bladder filled with very dark tarry-like bile; intestines contained matter of a very dark green colour, mixed at the lower portion with hardened coagulæ; several intussusceces were also found among their coils; at the upper third of the jejunum there was an oblong tumour, about the size of a goose's quill; the kidneys were much loaded with fat, and the cortical substance was engorged.

A wedge of a lobe of the pancreas was cut off, and the rest was left attached to the duodenum, but when cut I did not know how to dispose of it.

Lungs.—The external being removed, a great quantity of very dark blood escaped. The dark matter was infiltrated with some fluid which appeared to be serum; the lungs I examined and enlarged; effusion of lymph over arachnoid membrane. On dividing the main trunks of blood were observable. The ventricles were filled with bloody serum; the choroid plexuses were enlarged, and vessels appearing on their surface. Over the corpus striatum blood-vessels ramified in an arborescent form; the entire of this was well marked, from the great brightness of the vessels.

a netting of blood-vessels was stretched over the pons Varolii; the cerebellum and its coverings were equally congested.

Thorax.—On opening the thorax, both lungs were found engorged; there were considerable adhesions to the pleura costalis; the pericardium was collapsed; the heart was enlarged, its walls being thickened. On making a section through the right ventricle, fibrinous clots $3\frac{1}{2}$ inches in length were discovered, of very dark-coloured blood; coagula filled the auricles.

Abdomen.—On opening the abdomen, the liver was found enlarged, and of a purple tint, some parts of its structure being infiltrated with bile. The gall-bladder was distended with bile of a tar-like consistence and colour. The omentum was contracted and thickened, and tinged of a yellow hue. The stomach contained a glairy fluid, the mucous coat being dotted over with grumous coagula. The duodenum was also much studded. The intestines being removed from the body, washed, and slit open, were found filled with lumbrici and hardened scybalæ; the spleen was softened; the kidneys were normal; bladder thickened and distended with urine.

Addenda.—In the case of a boy aged 14, of the Akoo tribe, who was admitted to the hospital on the 2d September 1839, and who had been ill for six weeks prior to admission, dissection revealed sanguineous infiltration of the cerebral substance, thickening of the dura mater, and several spots of a black colour scattered over its structure, along the course of the longitudinal sinus; it was marked of a brownish-blue colour; the lungs contained tubercles in their first stage. Hypertrophy of walls of the heart: several lumbrici were found in the intestinal canal at its upper portion. Dr Copland, in part ii. section 25, page 345 of his valuable Dictionary, observes that in the dark races of men, worms, especially lumbrici in the intestinal canal, are frequently connected with the origin of many maladies of remote, but related organs. Affections of the stomach, diarrhœa, &c. &c., may very often arise from this cause. These parasites, it will be noticed, were found to be present in great numbers, both during and after life in these cases.

In conclusion, I hope it will be conceded, that if the practice pursued in those cases proved unsuccessful, that circumstance may with propriety be accounted for from the advanced stage to which the disease had proceeded prior to its being submitted to medical treatment.

Appendix.—In Mary Cocker's case, the right lung weighed $14\frac{1}{2}$ oz.; left lung, $50\frac{1}{2}$;—the weight of the brain was 3 lb avoirdupois, that of the liver $2\frac{3}{4}$ lb, and that of the spleen, 9 oz.

a-*section of blood vessels* was situated over the bone Ventrals; the carotid and the jugular were equally congested. The opening of the liver, both veins were found as follows: there were considerable adhesions to the pleura costalis; the posterior was collapsed; the heart was enlarged, its walls being thickened. On making a section through the right ventricle, the situation of the liver in length was discovered, of very dark-colored blood; coagula filled the interior. *Abdomen*.—On opening the abdomen, the liver was found enlarged, and of a purple tint, some parts of its surface being associated with bile. The gall-bladder was distended with bile of a tar-like consistency and color. The contents were contained in the right and left of a yellow hue. The stomach contained a gray fluid, the mucous coat being dotted over with granular coagula. The duodenum was also much enlarged. The intestines were removed from the body, washed, and all of them were found filled with lumbrici and hardened together. The spleen was not used; the kidneys were normal; bladder thickened and distended with urine.

Autopsy.—The case of a boy aged 14 of the Algonquin tribe who was admitted to the hospital on the 22 September 1908, and who had been ill for six weeks prior to admission, diagnosis revealed sanguineous infiltration of the cerebral substance, thickening of the dura mater, and several spots of a black colour scattered over the structure, along the course of the longitudinal sinus; it was marked of a brownish-blue colour; the lungs contained tubercles in their first stage. Hypertrophy of walls of the heart; several infarcts were found in the intestinal canal in its upper portion. Dr. Campbell, in part II, section 25, page 445 of his valuable *Text-book*, observes that in the dark cases of men, women, especially females in the intestinal canal, are frequently congested with the origin of many metastases of tumours, but related organs. After those of the stomach, distention, etc., may very often arise from this cause. These parasites, it will be noticed, were found to be present in great numbers both during and after life in these cases. In conclusion, I hope it will be conceded, that if the parasites present in these cases proved unnecessary, that circumstances may with propriety be accounted for from the advanced stage to which the disease had proceeded prior to its being submitted to medical treatment.

Appendix.—In Mary Cooke's case, the right lung weighed 144 oz.; left lung, 50;—the weight of the brain was 5 lb. 2 oz.; of the liver 2½ lb., and that of the spleen, 9 oz.