at 4 P.M., the patient was suffering from extreme dyspnoea and recession. The fauces were coated with membrane. Temperature 101°. Intubation was performed immediately, with complete relief. She took food freely. At 10 P.M. the tube was coughed out; but she breathed well until 2.30 A.M. on the 14th, when dyspnoea returned, with frequent cough and much mucus. Intubation was again practised, but with very partial relief, so tracheotomy was performed, with marked improvement resulting. Fine crepitations heard in lungs. Temperature 103°.—15th: No return of recession, but she sank and died at 2 A.M.—*Necropsy*: A continuous lining of membrane throughout larynx, trachea, and small bronchi. Lungs collapsed, slight pneumonia. Bronchial glands large and caseous.—*Remarks*: In this case, as in Cases 4 and 8, owing to the presence of much mucus, an O'Dwyer's tube failed to relieve the dyspnoea, so tracheotomy was resorted to, the larger lumen of the tube affording a freer vent.

CASE 4.—Ernest W—, aged sixteen months. Previous history: The patient had been in this hospital since September, 1888, with repeated attacks of broncho-pneumonia.—Jan. 22nd: During early morning the voice was hoarse, and in the afternoon marked stridulous breathing and recession with extreme dyspnoea occurred. No membrane seen on fauces; no enlargement of glands. At 4.30 P.M. an O'Dwyer's tube was inserted, followed by violent coughing and increased recession. The tube was removed, and for a brief period the breathing was easy, but the cough frequent and much mucus. At 5 P.M. the dyspnoea again became urgent, and tracheotomy was performed, small pieces of membrane being removed with a feather. The tracheotomy gave immediate relief, and the patient progressed favourably until the 24th, when he seemed to lose strength, and died on the 25th.—*Necropsy*: No membrane on fauces, but below the level of the vocal cords a continuous lining of tough membrane. Lungs studded with tubercular deposits; bronchial tubes dilated to the size of a goosequill.

CASE 5.—Ellen B—, aged eighteen months, was admitted to hospital on Feb. 13th, 1889. Previous history: Patient had recently recovered from scarlet fever. She seemed feverish, and croupy cough began on the evening prior to admission. When admitted, at 9.30 P.M., there were urgent dyspnoea, cyanosis, and marked retraction. Temperature 101°. Intubation was at once performed, with immediate and complete relief. She took food well during the night, but gradually became weaker, and died at 10 A.M. on the 14th.—*Necropsy*: Extensive deposit of membrane and double early pneumonia.—*Remarks*: The same remarks apply here as in Case 1. No return of dyspnoea, and death occurred from asthenia.

CASE 6.—David H—, aged three years and four months, was admitted to hospital on April 6th, 1889. Previous history: "Feverish attack" on April 1st. Shortness of breath on the 3rd. Had a "choking fit and became livid" on the 6th. When admitted, at 10 P.M., he was suffering from cyanosis, marked dyspnoea and retraction, and crowing inspiration. Intubation was performed immediately, with marked relief. Fell asleep soon afterwards. Temperature 100.8°.—April 7th: Slept quietly all night. Fit of coughing at 9.40 A.M. and the tube was thrown out. Continued to breathe quite easily for two hours, when the dyspnoea returned, and the tube was replaced. In introducing the tube, a cylindrical cast of the trachea was found in the throat and removed. Temperature 101°.—8th: Tube removed at 10 A.M.; the cough continued croupy for some days, but intubation was not again required.—May 2nd: Discharged well.—*Remarks*: Intubation was performed twice. The tube was *in situ* thirty-four hours altogether, with an interval of two hours' relief after having been coughed out.

CASE 7.—Grace T—, aged four years and six months, was admitted to hospital on April 12th. Previous history: Had suffered from enlarged tonsils since previous summer; sore-throat one week. Had breathed badly for twenty-four hours. When admitted, at 11.15 A.M., the child was fat, with blue lips, crowing inspiration, and retraction of ribs. Fauces and pharynx were covered with membrane. After intubation the child coughed for a few minutes, then complete relief followed. Temperature 99°. At 10.20 P.M. there was frequent coughing, with much mucus. The tube was removed. Some membrane and much mucus were coughed up. The dyspnoea returned, and the tube was replaced after one hour.—13th: Passed a good night. Took

food freely. Temperature 103°.—14th: Breathing quite easy; tube removed, but after one hour dyspnoea returned, and the tube was replaced.—16th: Tube coughed up during the evening, and dyspnoea returned very rapidly; after fifteen minutes tube replaced.—19th: An attempt was made to get her to do without the tube, but it had to be reinserted half an hour afterwards.—21st: Tube taken out, and was not again required.—May 3rd: Discharged well.—*Remarks*: Intubation was performed five times. The tube was coughed out once, and removed three times (once for the purpose of cleaning), before it was no longer required. The tube was worn nine days altogether.

(To be concluded.)

ON THE SYMPTOM OF PAIN IN SLOW INTRA- PERICARDIAL HÆMORRHAGE.

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II.

IN a previous number of THE LANCET—in that, namely, of July 11th, 1885—I had occasion to direct attention to certain cases of slow intra-pericardial hæmorrhage, in which severe abdominal pain appeared, *inter alia*, to be the most salient and distressing symptom. Three instances were there adduced, occurring in the course of medico-legal practice, which had been caused respectively, (1) by rupture of an aortic aneurysm; (2) by rupture of the right auricle; and (3) by a stab of the left ventricle; a brief description of each case, with the detailed result of its post-mortem verification, being duly appended. It is to be noted that while, on the one hand, no attempt was made to ignore or minimise the just signification of certain other of the more usual and recognised symptoms of this mishap, so on the other hand the suggestion was carefully avoided that intense abdominal pain in these cases was to be regarded as at all an invariable or even common accompaniment. And this with good reason, or we should have heard more about it. Indeed, in the very last case of which I have cognisance, ably reported in a contemporary by Mr. Samuel Clarke Noble of Kendal, the patient, who lived five days and a half with a ruptured left ventricle, "only complained of pain at the præcordia," and had, therefore, deductively, no abdominal pain at all. My sole endeavour was to set forth that it was at least an occasional feature of this form of thoracic hæmorrhage, occurring with such concentrated intensity as to mask the real issue, and, in short, prove diagnostically misleading; "that," I quote the passage, "there may also occur in a certain proportion of cases of slow intra-pericardial hæmorrhage this symptom of abdominal pain, so marked as to lead either to a diagnosis of peritoneal or enteric (inflammatory) mischief, or to the refusal of a death certificate" (on suspicion of poison). Now I have another case (the fourth), attended by Dr. Lawrie of Ayr, and reported with his approval, which further illustrates this proposition. I had no knowledge whatever of its history or details till, after death, it became the subject of medico-legal investigation on the part of the Crown.

At 6.30 A.M. of May 7th, 1888, Mrs. F. B—, a field worker, about forty-eight years of age, walked a distance of three miles and a half to her work in the fields. The police information states that for some years she had had occasional attacks of pain in the chest and breathlessness, but in the intervals was apparently well and fit for her usual employment. At 8 A.M.—that is, an hour and a half after leaving home—she became suddenly very ill, vomiting repeatedly, and complaining of much pain in her "belly." She was taken home in a cart, but medical aid was not obtained till next day. Dr. Lawrie, who then saw her, depones: "I saw deceased at 10.30 A.M., and found her in bed complaining of very severe pain in the epigastric region, but not in the heart. She told me she had been taken ill in the fields the morning before, and had suffered the same pain as she had now; that she had vomited before being brought home, and had done so considerably since (no vomited matters had

been preserved); and that she had suffered this epigastric pain all night long, indeed since ever she took ill. She was in so much agony as to be unable to explain anything. I thought her suffering from inflammation of the stomach or peritoneum, and said so, ordering stimulants, as there was great debility, and poultices to the abdomen. There was nothing noticeable in the character of the breathing. I had barely left the house, not having gone far, when I was recalled, and was only in time to see deceased expire, after an illness, I understand, of about twenty-six hours. It subsequently occurred to me that the death might have been due to irritant poisoning, though, from the absence of marks on the mouth, not by the more usual corrosives. I understood the vomit had all gone on the floor." In short, a certificate of death from natural causes being, in the circumstances, properly refused, I was instructed by order of the Procurator Fiscal, to make, in conjunction with the medical attendant, whose precognition I have just quoted, a post-mortem examination.

The following are detached excerpts from the report, selected solely in respect of their relevancy, and irrespective of their order of sequence in the body of that document.

"The body, which was that of a female about fifty years of age, was well nourished, bordering on obesity. There were no marks of vomiting or staining of the lips, tongue, or hands. The stomach and gullet, which were ligatured and removed for separate examination along with the upper portions of the small intestine, were all empty, healthy, and normal, exhibiting no erosion or inflammatory action on their lining surfaces. Some adhering mucus in the stomach had the usual acid, but no other distinctive, odour.... The other abdominal organs and the peritoneum were healthy and normal. On opening the chest the pericardial sac was observed to be livid and tensely distended with large clots and dark fluid blood, which entirely surrounded and compressed the heart. This effusion was discovered to have found exit through a minute opening in an aneurysm of the size of a bantam's egg, involving the base or commencement of the aorta, that portion of it—namely, which is situate within the pericardial precinct. The aneurysm occupied the front and left lateral portion of the vessel, but may be considered to be of the spurious, diffuse, or consecutive type; for by a process of ulcerative thinning an opening of the size of a threepenny-piece communicated with a sacculated condition of the corresponding portion of the pericardium itself. The outer or cardiac wall of the tumour, therefore, consisted of the pericardium only; and it was found that, on its anterior aspect, a minute opening not larger than a single grain of rape seed, was the point where the hæmorrhage had gained access to the pericardial cavity. The aorta exhibited the usual appearances of atheromatous disease. The heart was of normal size, but pale, soft, and friable; its right and left cavities almost empty and partially contracted, its valves fairly competent; pericardial serosity, of course, ungaugeable. Opinion: From the foregoing examination of the body of the said F. B., we are of opinion that death was caused by the rupture of an aortic aneurysm; and, from the small size of the rupture, that death did not occur suddenly, but after the lapse of some hours."

This is the case, and it only remains to add that for its elucidation it is a fortunate circumstance that a post-mortem was ordered. It certainly would not have been but for the suggestion of poison which I have recorded. My Scottish *confrères* will bear me witness when I affirm that in this country the medico-legal post-mortem examination has, from a scientific or pathological point of view, ceased, within the last few years only, to exist; and that in respect of its criminal relation it is, in effect, no longer investigatory and detective in its function, but has degenerated to a merely confirmatory procedure. That is to say, that the fact of a death being sudden and unaccountable is now no longer held, as formerly, to demand or justify a post-mortem examination; that as the authorities are not concerned to know the exact scientific cause of death, the mere looking at the outside of the body, and thereafter granting a certificate of "death from natural causes," is all that the nearest medical practitioner is expected to do when directed to proceed to examination, and he is, without the smallest experience, quite as competent as the most highly trained medical jurist for the task; so, indeed, is the nearest village constable. It is, in point of fact, now laid down—which of course disposes of the discretionary power which

procurators fiscal are assumed by their instructions to possess—that no post-mortem examination shall be ordered in a given case, unless some "circumstance of suspicion" appears in the police report. On the criminal aspect of this subject I may have something to say on another occasion, and have only referred to it here in order to accentuate the value of medico-legal investigation on pathological grounds.

Ayr, N.B.

ON THE EFFECT UPON THE HUMAN BODY OF A DIET CONSISTING ENTIRELY OF LEAN MEAT AND WATER.

BY GEORGE HERSCHELL, M.D. LOND.

CAN life and health be sustained indefinitely upon a diet of lean meat and water without any farinaceous food at all? Physiologists tell us that it cannot; experience seems to negative their assertion. It is highly desirable that this question should be cleared up and finally set at rest, both from a practical and from a purely scientific point of view. A diet of lean meat is now being advocated for several purposes in practical medicine, and it is of the highest importance that we should know for certain for what period it can be carried on without injury to the patient. In this country it is being used chiefly for the reduction of obesity, but in New York Dr. Salisbury and several other physicians are making an extensive use of a diet consisting entirely of lean meat and water, not only for that purpose, but also in the treatment of dyspepsia, phthisis, ectasia of the stomach, and in the absorption of new growths. In the latter case Dr. Salisbury claims that by increasing the metabolism of the body recently formed tumours can be absorbed. In order to procure these results, he and his followers continue the use of a diet consisting entirely of lean meat and water for a period of at least several months, and, they state, not only with perfect impunity, but with absolute benefit to the general health of the patient.

Let us now turn to Landois and Stirling, which we may accept as one of the most recent of the standard text-books on physiology, and see what they say upon the subject. On page 482: "To obtain the 448 grms. of carbohydrates necessary to support him, a man must eat 2261 grms. of beef." Again, on page 485: "A man is not able to maintain his metabolism in equilibrium on a purely flesh diet; if he were compelled to live on such a diet, he would succumb. If a man is to obtain 280 grms. C. from a flesh diet, he must consume, digest, and assimilate more than two kilos in twenty-four hours. *But our digestive organs are unequal to this task for any length of time.*" The reason why I am bringing this subject before the notice of the profession is that there are now being exhibited at the Westminster Aquarium a family of savages who have lived all their lives on nothing except lean meat, fish, and water, without succumbing, as we are told they ought to have done. Those interested in the physiology of diet have now an opportunity which they have never had before in this country of investigating a purely carnivorous man.

They are a family of cannibals from Terra del Fuego, belong to the tribe of Onas, and consist of five adults and two children. The adult male is thirty years of age, of normal weight and development, takes little or no exercise, and eats every twenty-four hours 5½ lb. of lean cold boiled horseflesh, 2 lb. of raw fish, and one or two eggs, and drinks about four pints of water at the most, probably rather less. As near as can be ascertained, he passes about the normal quantity of urine in the twenty-four hours, and a sample passed about three hours after his last meal at night yielded the following results on examination. Sp.gr. 1020; faintly acid, no albumen, no sugar, an excess of phosphates, but urea fifteen grains to the ounce, and uric acid one-sixth of a grain per ounce only!

A careful study of the case presents to us the following facts for our consideration. 1. It is generally admitted that the inhabitants of cold climates must eat more fat and farinaceous food than those of warmer parts. Now in the island where these people come from there is nearly always snow on the ground, and notwithstanding that they reject