utely cold; and, to restore warmth, friction of the limbs with powdered ginger and oil had to be resorted to. The suddenness, the violence, and the rapidly fatal nature of the disease, serve, in my opinion, to show that it could not have been remittent fever."

The Sanitary Commissioner writes: "Dr. Evers inclines to the belief that the disease may have been acute yellow atrophy of the liver. A case, with symptoms somewhat similar, was treated in the Mayo Hospital in December last. A Eurasian boy, aged four years, was admitted on December 18th. It was stated that he had been suffering from fever for five days. On admission, he had bleeding from the nose, and vomited a quantity of coffee-coloured liquid containing clots of blood; he was pale, and had anæmic patches all over the body. Spleen enlarged; colour of skin intensely yellow; no fever; pulse feeble and small.—19th. Vomited several times fluid containing blood.—20th. One stool, waxy; vomited six times fluid containing clots of blood. Some bleeding from the nose.—21st. No stool; no fever. Vomited thrice. Eruption the same. Died, 4 P.M.

"The assistant-surgeon put this down as a case of yellow fever; and Dr. Brake, the civil surgeon, informs me that the symptoms were precisely similar to those observed in that disease."

In the absence of a more detailed account of the symptoms, and of temperatures during life, and of any description of appearances after death, it is impossible to offer an opinion as to the precise nature of the attacks; but I am inclined to think that it was only one of many ways in which heat and miasmatic influences, malaria and foul water, may affect those who are exposed to them in their intense forms; and I would express a hope that the very able medical officers who have already contributed so much to our knowledge, will add to the obligations they have conferred, by continuing and reporting in detail the observations so well commenced. It is only to be regretted that so able an observer as Dr. Evers had not the opportunity of personally studying the cases he has described from the reports of the Malguzar and of a subordinate, who have furnished but scanty information.

CLINICAL REMARKS ON HYDROPHOBIA.

By J. S. BRISTOWE, M.D., F.R.S.,

Senior Physician to St. Thomas's Hospital, etc.

CONSIDERING how common, on the whole, outbreaks of rabies are in kennels and in districts, and how frequently, therefore, human beings are exposed to the danger of catching hydrophobia, it is a matter of sincere congratulation that hydrophobia remains, as it ever has been, a rare disease; and that it is only at long intervals, if at all, that medical men, even in large practice, have the opportunity afforded them of witnessing its symptoms or of studying its morbid anatomy.

An important reason, of course, why the disease does not readily spread from dogs to man, or from man to man, is that, like syphilis, it can be imparted solely by direct inoculation. It has been proved, also, that only a minority of persons actually bitten by mad dogs contract hydrophobia; the explanation of this fact being, either that the bite has been inflicted through clothes, and the fangs, before they enter the skin, have thus been cleansed from virus; or that the wound is, by the resulting hæmorrhage, washed clean of the poison which has been inserted into it; or that, from some peculiar state of health or idiosyncrasy, the injured person is at the time more or less insusceptible. Something, however, is due to luck; for many persons, I am sure, tempt Providence unwittingly in this matter by harbouring and even nursing rabid dogs which do not chance to bite them.

Two such cases of lucky escape come to my mind. Some years ago, a party of a dozen of us went to North Wales for a holiday; and about seven o'clock (having arrived at our destination shortly before) we were sitting at dinner in a private hotel, in which we had taken apartments. The evening was chilly; a fire was burning in the grate; and a little pet dog was lying on the hearth-rug, having appropriated, as is usual with pet dogs, the most comfortable place in the room. I should think that half a dozen times at least during dinner-time the dog woke up suddenly and treated us to a howl; and on each occasion I attributed it to the fidgetiness of one or other of the children, who were sitting with backs to the fire, and whose chairs, I thought, had disturbed and perhaps hurt the little animal; and on each occasion, therefore, I administered a suitable rebuke. Immediately after dinner, the children were put to bed, and the rest of us adjourned to another room; and no further thought was given to the dog. The next morning, however, it was

absent from our breakfast-room, nor did it show up during the day; and in the evening, whilst I was having a chat with the landlord, I asked him casually where the little dog was that had disturbed our dinner the day before. "Oh," he said, "it ran away this morning, and we don't know what has become of it." It is not a usual thing for a dog to run off as this dog did; and I began to feel a little suspicious, and questioned him further about it. I then learnt that the dog belonged to a gentleman who had occupied our rooms for several weeks, and left on the day of our arrival, leaving the dog behind him in charge of the landlord, because for the last two or three days it had been out of health, snappish, and refusing its food. I obtained a more definite history of the dog's symptoms than I now give (for I have forgotten the details), and, at any rate, quite enough to make me pretty certain that it was suffering from rabies. After this, I inquired day by day if anything had been heard of it; and at the end of a week or so I learnt that, a few days previously, it was seen running along some road or in some fields by some labourers, who, concluding from its appearance and actions that it was "mad," destroyed it. I may add that, just about that time, rabies was unusually prevalent in the north-western parts of England. I think there is no doubt that that dog had rabies; and I congratulate myself, and I congratulate myself still, on our fortunate escape, for the party consisted largely of children from two or three years of age upwards.

The other case was in the personal experience of two or three young spinster ladies with whom I had a slight acquaintance. They had a little pet dog, which became ill, and which they nursed with most affectionate solicitude until, at the end of a few days, it died. To them the illness and the death appeared very mysterious. They suspected, indeed, that the dog had been poisoned; and they had a *post mortem* examination made upon it by a veterinary surgeon, who found in its stomach a considerable quantity of its own hair, bits of stick, and indigestible rubbish of other kinds. What opinion the surgeon formed of the case I do not know; but the ladies were confirmed in their belief that their pet had been the victim of foul play, and accused some neighbouring mischievous boys of having compassed its death by poking down its throat the indigestible materials found in its stomach. It is well known that dogs suffering from rabies are in the habit of tearing out their hair and swallowing it; and that, like some hysterical women and lunatics, they are apt to cram themselves with innutritious and even offensive substances. My suspicion, thus excited, that the dog had died of rabies, was confirmed by other facts which subsequently came to my knowledge.

My personal experience of hydrophobia is very limited. The first case I ever saw was admitted into St. Thomas's Hospital fifteen or sixteen years ago (when it was in the Surrey Gardens), under the care of Mr. Simon, and was published at the time in one of the journals. A number of persons had been bitten in that neighbourhood by a mad dog, and this was one of the very small number of unfortunates that became hydrophobic in consequence. The case was impressed on my memory, not only by its own striking incidents, but by the fact that one of the men who had brought it to the hospital, and who had himself been bitten, was so frightened that he straightway went and got drunk, and, from the combined effects of drink and fear, came to the hospital the next day barking like a dog, refusing water, and proclaiming himself mad. Fortunately for himself, however, as his intoxication subsided, so his symptoms of hydrophobia disappeared. A second case of true hydrophobia was admitted into the hospital shortly afterwards.

Two other cases, the details of which are subjoined, complete the sum of my experience of the disease. They were both admitted under my care.

The earlier of the two I never saw, for the patient was brought to the hospital early in the morning, and died before my attention had been called to her. The case, indeed, was seen only by my house-physician; who (though the possibility of the disease being hydrophobia was suggested by the history, and to some extent by the symptoms) seems to have been undecided as to its real nature up to the time when death occurred, almost suddenly. The history of the case, and the record of symptoms observed in the hospital, as narrated below, are not those which the house-physician had before him to guide his judgment. But they comprise many additional important details, derived from the friends and the nurses, after the child's death; when, on collating the facts already before us, it had become abundantly clear that we had a case of hydrophobia to deal with.

CASE 1.—A. C., a little girl, 7 years of age, was admitted on June 10th, 1878. She had been bitten by a dog, in the face, two months previously. The bite was superficial; bled a good deal, and was

countered within an hour of its infliction. The dog was not known to have bitten any one else; but it was thought to be mad, and was killed shortly after.

The patient remained quite well up to the night of June 7th, when she screamed a good deal in her sleep. But this had occasionally happened for some years, and little notice was taken of it. The next morning (the 8th) she did not care to get up, and complained of pain in the part that had been bitten, and the pain seemed to fly about her face. She remained in bed most of the day; was "fussy," but good-tempered; and complained of a little pain in the abdomen, and of pain in the throat when she attempted to swallow. Nevertheless, she took a little solid and fluid food during the day. She screamed once that night, but slept well. During the 9th, the difficulty in swallowing continued, and towards evening she began to be delirious; she said her aunt was making faces at her, and that a rabbit was looking at her. She remained awake all the following night, talking nonsense, and occasionally (when left alone) screaming; but she was obedient, good-tempered, and when spoken to, answered sensibly. The pain in the throat continued, but she had managed to take a teaspoonful of jelly from time to time. On the morning of the 10th she vomited, and at 7 A.M. was brought to the hospital.

She was pale, and anxious-looking. She sat, at first, on her father's knees, but did not remain still for a moment. She spat about the floor, and had in her hand a handkerchief saturated with saliva. When offered water to drink, she at first buried her face in her father's breast; but immediately afterwards asked for it, and then took a mouthful quickly, which she swallowed, without apparent effort, and then pushed away the mug. This was repeated several times, and no convulsions were induced. Her mind seemed clear, but she was hasty and abrupt in her speech and movements. No hyperæsthesia was observed. She retched violently at times, and vomited a little. She complained of pain in the belly, but chiefly of pain in the throat. Respirations, rapid; pulse, 180; temperature, 104.2°.

Shortly after admission, a warm bath was administered, which did not seem to trouble her. But afterwards, she rambled a good deal in speech; said she had pushed her little brother head foremost into the bath, and had drowned him. She was much excited, throwing herself about, screaming at times, especially when she was touched; and attempted to knock and pinch anyone who interfered with her. She had occasional hiccough and retching, and now and then brought up a little mucus. Her eyes were bright; the pupils were equal, and dilated. There were no abnormal appearances in the throat. She said she had pain all over her head and abdomen. She expressed a desire to pass urine, but only discharged from two to three drachms. This was turbid, contained one-third of albumen, and presented, under the microscope, hyaline and epithelial casts, free epithelium, and crystals of uric acid and oxalate of lime, but no blood or blood-colouring matter.

At 10 A.M., she asked for milk, but only took a teaspoonful, and then threw her arms about, seemed unable to breathe, and wiped away the milk with her handkerchief. She was continually wiping away fothy saliva from her lips. She attempted to get out of bed, slapped the nurse in the face, and, when her hands were held, tried to bite her. She was much excited, and talking much nonsense. Temperature 102.2°.

At 11.30, she had been much quieter during the last ten minutes, and twitching of the limbs and face, especially of the lips, was observed. A few minutes later, she suddenly became livid, writhed over on her chest, with her head strongly retracted, and died in this position at 11.45 A.M.

Her temperature was 102.6° twenty minutes after death, and the rigor mortis was strongly marked at 1.30.

At the *post mortem* examination, nothing was observed with the naked eye, excepting congestion of the brain and spinal cord.

[To be continued.]

DONATIONS AND BEQUESTS.—"A Lady" has offered (through Mr. Harding) £1,000 towards the proposed fund for assisting convalescent patients of the Birmingham and Midland Hospital for Women.—The Rev. Richard Thomas Lancaster and Miss Mary Anne Lancaster, of Cheltenham, have each bequeathed £500 to the General Hospital and Dispensary in that town.—Miss Beckett, of Somerby Park, Gainsborough, has given £500 towards the endowment fund of the Meánwood Convalescent Home for Children.—The Norfolk and Norwich Hospital has received £800 under the will of Mrs. Cann, of Wrampingham.—Mrs. Mugeridge has given £50 for the furnishing of a ward in the New Chelsea Hospital for Women.

AN INQUIRY INTO THE CAUSES OF THE INCREASE OF CANCER.

By HUGH P. DUNN, F.R.C.S.

(Continued from page 710.)

It is now necessary to proceed to the consideration of the general mortality amongst the infant population, and its bearing upon the increase of cancer. In the commencement, we may remind the reader that for some time there has been a notable reduction in the death-rate in early life, which in England has been almost annually maintained. Thus, the introduction of sanitary improvements, and other measures for preserving the infant population, has resulted in swelling the ranks of those who survive the exigencies of early life and pass to adult age. Now, what bearing has the knowledge of this fact upon the subject before us? According to Sir James Paget, "cancer is a disease of degeneracy, the frequency of which increases as years increase." Although, as some maintain, there is some difficulty in accepting this statement in its entirety, it is nevertheless beyond dispute that cancer is a disease of at least comparative rarity in early life. It consequently follows that, if more persons than heretofore reach adult age, it is obvious that there must be a numerical augmentation of those who, thus living, become liable to cancer. Perhaps, in proof of this, we should find that the cancer-mortality varies in certain districts according as the infant mortality is high or low; and such inquiries as we have made into this point tend to support the supposition. But, whilst we have proof that no period of life is absolutely exempt from cancer, yet experience still shows that its prevalence is by far the greatest in later life; and, under these circumstances, it is comprehensive enough that the numerical liability, so to speak, of the disease must be coincident with the increment in the adult population; or, to state the same matter differently, if the liability of a person to cancer increases with age, it is not surprising that the disease is exhibiting year by year an increasing mortality, when, by means of the enforcement of sanitary laws and other measures of like importance, a large proportion of children survive the exigencies of their early existence, live to adult age, and enter the period of life during which the disease is most prone to exhibit its greatest virulence. At least, it is only rational to suppose that the diminished death-rate of the infant population has some connection, upon the grounds we have mentioned, with the augmented cancer-mortality.

Now, there is abundant evidence to show that the prevalence of cancer varies largely in the different divisions into which England and Wales have been divided for the purposes of efficient registration; and we now propose to inquire, taking as our guide the various tables in the reports, as to the circumstances to which might be attributed the varying mortality in the respective districts. It was observed by Charles Moore that, in the counties south of an imaginary line drawn across England from Bristol to Peterborough, the mortality from cancer was high; whilst in the counties north of this line the cancer-mortality was low; in other words, that the northern counties of England and Wales appeared, almost without exception, to enjoy a certain immunity from the disease. He also showed that this immunity was chiefly apparent in the north-western division, in which are included the counties of Cheshire and Lancashire. This statement is, even in the present day, with two or three exceptions, incontestable; it is still a fact that in the South of England generally there is a high cancer-mortality, while in the North there is a low one. But I shall presently hope to show that this immunity in question, the records tend to support, in connection with the northern counties, is, in the face of certain facts, presumably more apparent than real. Putting aside for the present the question of any geographical or climatic differences subsisting between the divisions of England north and south of the line to which we have referred, we have, however, thought it expedient to compare the death-rate of cancer with that of the infant population (under five years), as recorded for the various counties; and, in doing this, the remarkable fact is presented to us, that, with one notable exception (London), the infant and cancer death-rates in the several counties exhibit a relationship which almost renders them inversely proportional. In other words, in the counties in which a high cancer-mortality prevails, in those the death-rate amongst infants will be found to be low; and, conversely, when the cancer-mortality is low, the infant death-rate will be seen to be high. The fact of London being in this respect exceptional, rather, however, than otherwise, tends to support the rule, inasmuch as many alien cases of cancer