to the brain. In 1875, Mr. Holmes successfully tied the left carotid in a young woman believed to have an aortic aneurism, and she is still alive and well. During this session, a man was under my care on whom I wished to operate, but he declined, and six weeks afterwards returned in great distress and died in a few hours. The specimen shows that this would have been a very favourable case for ligature of the left carotid.

The last case was in the woman on whom I had proposed to operate on Wednesday last. This woman had an aortic aneurism; and it was evident that, if something were not done, her life must shortly cease. She was forty-three years of age, and was admitted under Dr. Wilson Fox on January 10th. She was submitted to treatment by rest, by appropriate medicines, rigid diet, and so on, and particularly by the administration of iodide of potassium; and it is well to say that some physicians lay great stress upon the effect which iodide of potassium has in producing clot. She was fairly put under the influence of it, but experienced no benefit. The aneurism varied a good deal, but, on the whole, was increasing in size; and she was transferred to me, with the view of having the carotid tied. I had no doubt myself that the left was the proper one to tie, because it is essential that we should be beyond the disease; and, by tying the left, I made pretty certain that we should be beyond the aneurism. The death of the patient was due to the fact that we were obliged to lay her down; and the trachea being already very much compressed by the aneurism, it became practically occluded. You will remember that I did laryngotomy; and, as the anterior jugular vein was very large, it was unavoidably divided during the operation; but still blood did not reach the lungs, and, except for the flattening of the trachea, the patient would no doubt have had sufficient air and have lived for the operation to be performed. Had I known that there was so much flattening of the trachea, I should not have operated on the patient lying down; I should have had her sitting up in a chair and without an anæsthetic. But, in these cases of dyspnoea, we find chloroform gives so much relief, that we determined to administer it. If there ever was a favourable case for ligature of the left carotid, this was the one. The aneurism just involves, and no more, the orifice of the innominate, and springs from the upper part of the transverse portion of the arch of the aorta between the innominate and left carotid. If I were asked what case I should by preference choose for the operation, it would have been this very case. I think, in all probability, we should have had a good cure; for, even under very unfavourable circumstances, she had already a small clot in the aneurism; and, much as the untoward result is to be regretted, it must be remembered that she laboured under a disease necessarily and rapidly fatal if untreated.

ON DENGUE OR DANDY FEVER.*

By WILLIAM R. E. SMART, C.B., M.D.,
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FEW diseases have had more numerous synonyms than dengue, owing chiefly to local or regional variations in the predominance of one or other of its phenomena. Thus groups of synonyms have arisen having relations to the altered state of the skin, or to the painful symptoms, or to the equal display of these, or to a first-sight resemblance to other diseases; and to either of these groups or single names the features of epidemicity may have been appended or not. The title now generally accepted is that given by the West Indian negro slaves to it, when it first appeared among them in 1827: the "dandy fever", from the strange attitudes of the sufferers, translated dengue in Spanish, altered into denguis for scientific classification.

The invasion of this disease is not usually attended by rigor, although the first stages of heat and sweating have been observed, in the West Indies, to have had throughout a sense of cold in a painful degree. This stage may last from six to thirty-six or to forty-eight hours, during which the whole surface is of a more or less scarlet hue, and there are more or less acute pains in the head, spine, and limbs, creating much alarm. It often terminates abruptly, on awaking, in apyrexia so complete that the sick take to their ordinary avocations, a general stiffness and soreness in motion alone remaining, which gradually wear away in many cases; and to this condition the term dandy-fever was applied. But more frequently, after a period of from one to four days, there comes a second accession of fever, characterised by a rubeloid eruption which ends by desquamation, and by a return of the pains, with which there is a remarkable fall of the pulse, sometimes to fifty beats. The continuance of this stage is uncertain, lasting but three or four days, then disappearing gradually, but sometimes very slowly, through

weeks in which there are exacerbations that impart to the disease a relapsing character.

The pathological features are those of an exanthem, with muscular and arthrodial pains, without effusions into the joints, and with lesions of innervation, with diminished force of circulation, and gastro-hepatic disturbance, which may be indefinitely prolonged.

In children, the attack may be ushered in with convulsions, and the resolution may be attended by sensorial depression, approaching more or less to "dementia", which last condition may attend the stage of resolution of the disease in elderly persons also; but its duration is only temporary, and concurrent with the induced conditions of general debility. Nor can the disease, however severe, be said to have any special sequelæ proper to itself, like the typical exanthemata, which it simulates in its eruption; nor like acute rheumatism, to which it approaches in its painful symptoms. Nosologically, its position appears to be with exanthematous fevers, while from all of these it is distinguished by the absence of uniformity of symptoms, of normal courses of distinctive organic lesions, and of definite sequelæ, by its greater liability to recurrence in the same individual, and by its extreme rarity of fatal results relatively to the amount of suffering.

The infectiousness of "denguis" has been a disputed point from the moment when its epidemic nature first attracted attention. The affirmative opinion seems to have been first entertained in the West Indian epidemic of 1827, when it was traced from island to island by isolated importation. But even then, there were those who attributed its diffusion to a widely spread so-called "epidemic constitution of the atmosphere", such as was at the same period maintained to be the sole cause of epidemic of yellow fever. Now there are probably in that region very few acquainted with the disease who doubt its intrinsic infectiousness by importation, or its propagation and diffusion from solitary cases; for this property of diseases is more concisely defined in insular than in continental positions. And thus it has happened that the discussion has remained an open one to a later date in the East Indies. There, however, the facts connected with the last epidemic, 1871 to 1874, have brought the question within more definite limits.

The earliest epidemic display was at Zanzibar in 1870, and then at Aden, holding monsoon commerce with it; in June 1871, both Zanzibar and Aden having commercial intercourse with India, especially Bombay; and Zanzibar with the Arab coast of the Persian Gulf. It is, therefore, of interest that it was epidemic at Aden and at Muscat before any notice was taken of its presence in either of the Presidencies of India. But after it had become epidemic in Bombay and Calcutta, in the spring of 1872, there were recollections of its having presented cases in Bombay so early as August, and in Calcutta in November 1871, both of these ports maintaining frequent intercourse by steamers and sailing vessels, some of them native craft, with Aden; and it has been stated by Dr. Charles, no mean authority, that cases of the disease are seen in Calcutta almost every summer. The period between the unrecorded isolated cases and the epidemic outburst was such as to raise a doubt whether the entire visitation was not of Indian origin, independent of importation; it is clear, however, that there was no epidemic outburst in India previously to the arrival of a vessel from Aden bearing the disease in epidemic form. This vessel was the *Dalhousie*, a Government steam-trooper, whose movements were easily ascertainable. She arrived at Bombay from Aden early in December, then having the disease among her Lascar crew, and was on that account cleared out, cleansed, and painted, but not disinfected. After that, she embarked European artillery, with whom she reached Cannanore, on the Malabar coast southward, about January 1st, 1872. During the voyage, the disease broke out among her European officers, who had been in her from Aden to Bombay without suffering when the native crew did so; and the troops she brought from Bombay only showed the epidemic type almost immediately after their landing at Cannanore, and the disease was afterwards seen as an epidemic in that district so far south as Allepya and Cochin.

After the disease had established itself in epidemic type at Bombay and in Calcutta, it spread throughout India to the foot of the Himalayas, and from Kurrachee, in the extreme west, to the banks of the Bramah-Pootra, in the extreme east, extending along the railway routes, and being frequently conveyed from station to station amidst infected detachments of troops, and it was thus carried into our garrison in Burmah. It appeared in Singapore, from which it was taken to Amoy in China, spreading into the southern provinces. It also made its appearance in Batavia. In this wide dissemination, there was sufficient evidence of its infectious, if not of its contagious, properties.

In the western hemisphere, there has been a very observable complicity of its epidemics with those of yellow fever on several occasions, both as prodromic and as concomitant. This feature has been noted in the Southern United States and in Bermuda; and it is further

* Read before the Epidemiological Society.

noticeable that the only European region it has not visited is the Spanish Peninsula, which alone has undergone epidemics of yellow fever. The widest, however, of those connected diffusions was in South America, from 1846 to 1858. In appeared first in 1846, in Brazil, which holds much commercial intercourse with the United States, where it had prevailed in Louisiana in 1844, and, simultaneously with yellow fever, in the summer of 1848, at New Orleans, and at Mobile in Alabama. It spread in Brazil during the summers up to that of 1849, and in the next year yellow fever superseded it, returning through six successive summers. In Peru, it commenced in January 1852, having broken out at Lima amidst a body of one thousand German immigrants, who had recently arrived, after touching at Rio Janeiro, where yellow fever was epidemic. From Lima, the disease spread far in the coast towns, and ascended to the inter-Cordillera provinces, but ceasing at Lima in July. Dr. Archibald Smith has described it as a fever, commencing with flushed face and injected eyes, and bruised sensations in the limbs and loins, ceasing about the fourth or fifth day by crisis, often hæmorrhagic, with appearance of roseolous eruption, the transition being often sudden from pyrexia to apyrexia; the eruption lasting several days, and often with spongy bleeding gums. The usual course was one of about eight days, leaving recurrent neuralgic pains for weeks or months, the fatal cases being few. It disappeared in Lima in July, but reappeared in January 1853, attacking many of the previous sufferers, and generally without the roseolous eruption. At the middle of March, Dr. Smith attended the first case seen of "black vomit, with jaundice"; such cases being rare that summer.

In January 1854, yellow fever of a fatal type ravaged Callao and Lima, continuing through the summer, attacks of the milder fever in the previous summer affording no immunity, as true yellow fever does, from future attacks. These diseases ought, perhaps, to be described as distinct entities constituting one epidemic; the principal feature in common being the tendency to a shorter or longer period of apyrexia, between the primary and secondary stages of the febrile action.

The question of the correlation of diseases in epidemic seasons or cycles, of which this seems to have been an instance, and which is generally observable in epidemics of other zymotic diseases, appears to be one worthy of the consideration of this Society.

NOTES OF A CASE OF TRANSFUSION BY AVELING'S APPARATUS.*

By GEORGE HOGGAN, M.B., AND FRANCES ELIZABETH
HOGGAN, M.D.

THE following notes are offered as a small contribution to the history of immediate transfusion of blood in man, in deference to the general opinion that it is only by the careful study of individual cases that a safe or correct general conclusion can be arrived at; and that it, therefore, becomes the duty of every physician to put on record every case of interest that may occur in practice, and to make public the reasons, if they can be discovered, which have led to success or failure.

Mrs. S., aged 49, was admitted on March 31st, 1874, into the New Hospital for Women, Seymour Place, under the care of my wife. She complained of having suffered from great pain and constant sanious discharge from the vagina during the previous three months. This discharge was independent of the monthly flow of the catamenia, which were still quite regular. She was tall and fat, even flabby; the vessels of the face were dilated; the heart was large, and had a slight systolic murmur at the apex. She was also subject to spasms of the heart, and had all the symptoms of exophthalmic goitre. She was the mother of a grown-up son and daughter; had menstruated for the first time when under twelve years of age; and, with the exception of the abovementioned symptoms, she considered her health to be otherwise good.

On examination, the uterus was found to be enlarged, the fundus being felt externally above the pubes. The cervix was indurated, nodulated, and ulcerated, bleeding freely when touched. The vaginal walls seemed to be quite healthy.

The treatment first applied was to touch the cervix with strong carbolic acid at intervals of three days; while internally infusions, first of quassia and afterwards of bark, were administered.

This treatment seemed to have no effect; and, the sanio-purulent discharge having been examined microscopically without finding any cancer-cells, it was considered advisable to remove the lower part of the cervix by means of the wire *écraseur*.

Accordingly, on April 20th, the operation was performed by my wife, assisted by Mrs. Garrett-Anderson, M.D., I giving the chloroform, which was well borne by the patient. The steel wire with which the *écraseur* was unfortunately provided gave way before the cervix was completely severed, and the operation had to be completed with a pair of scissors. The free bleeding from the cut surface was effectually stanchied by the application of the actual cautery; the vagina was plugged; the patient dressed and carried to bed.

During the next twenty-four hours, the patient complained of throbbing of the temples, and the face was flushed. There were, however, no other symptoms, and she had several hours of refreshing sleep; indeed, altogether, she was considered to be in a very satisfactory condition.

On the following night, there was slight hæmorrhage; otherwise, things were satisfactory.

On the 23rd, the patient had a slight heart-attack, and was rather restless. A mixture containing five minims of tincture of aconite was ordered every four hours, in addition to the ice, which, ever since the operation, she was allowed to suck, and to have applied to the head while the throbbing continued.

On the 24th, the patient had another attack, consisting of irregular weak action of the heart, with a feeling of fulness in the epigastrium. Brandy was given during this attack, and the patient seemed much stronger after it had passed away, and ate a little meal for the first time since the operation. She passed a good night; but there was still slight hæmorrhage.

On the morning of the 25th, five days after the operation, my wife was summoned about 7.30 by a messenger from the hospital, giving her the intelligence that the patient was losing much blood. Setting off immediately, she found the patient much blanched and almost pulseless. The vagina was filled with clotted blood, which she immediately cleared out, and applied oil of turpentine as a hæmostatic. The bleeding being thus for the time stopped, the vagina was again firmly plugged. She now learnt that, early in the morning, a drunken disturbance had taken place immediately under the windows of the hospital, which had greatly frightened and excited the patient. As a result of this excitement, there had probably been increased strength of the circulation, and consequently flooding. The hidden condition of the parts and insidious flow had, however, caused it to be overlooked until the patient was observed to be sinking, on which my wife was immediately sent for and acted as described.

After waiting about an hour (during which a little brandy was administered every ten minutes) without seeing any satisfactory change in the condition of the patient, my wife returned to breakfast; and, after a brief consultation with me, determined to try transfusion of blood as the only means of saving the patient; I at the same time volunteering to give whatever amount of blood was necessary. She then sent a request to her colleague, Mrs. Garrett-Anderson, to come and assist in the operation; we meanwhile going with the transfusing apparatus to the hospital. On arriving there, we found the patient, if anything, worse than when seen an hour previously, and there was no time to lose if we intended to act at all. Soon an answer came that Mrs. Garrett-Anderson had gone on her rounds to see her patients, and would not return for some time; but, as the son of the patient arrived at the same time and volunteered to give his blood to try to save his mother, we two set about performing the operation ourselves at once. The special transfusing apparatus we possessed was that invented and introduced by Dr. Aveling; but, after having examined it very carefully, I must acknowledge that I acquired anything but a cheering opinion of it or of the chance of successfully transfusing with it.

I had already had good opportunities of acquiring experience in the manipulation of living blood-vessels, having assisted for some months in a physiological laboratory while an extensive series of experiments on the circulation of the blood was being made on dogs, rabbits, etc. In these experiments, the circulation was generally connected with the barometer, etc., by means of tubes filled with solution of carbonate of soda, to prevent coagulation; but, though every effort was made to obviate this tendency on the part of the blood (which was never exposed to the air), continual interruption took place through it. I have often seen during experiments on a dog, lasting, perhaps, a couple of hours, that the apparatus would require to be disconnected two or three dozen times to clear the cannulæ of clots which had formed in them and prevented the impulse of the circulation from being transmitted to the instruments. These clots seemed to form on the slightest provocation, more especially when the turning of a stopcock in the tubes filled with alkaline solution gave a shock to the circulation at its junction with the cannulæ, and in that way appeared to cause the formation of a clot.

The experience thus gained made me, rightly or wrongly, suspicious

* Communicated by George Hoggan, M.B., to the Section of Obstetric Medicine at the Annual Meeting of the British Medical Association.