the appearance of crescents in the blood was not followed by fever. They persisted for several weeks, and the patients were discharged from hospital apparently in good health.

In some of my cases deeply pigmented spherical bodies accompanied the crescent form; in them the pigment was generally arranged in a dense mass occupying the interior of the parasite. These pigmented parasites were never larger than a normal red cell, and could readily be distinguished from the large pigmented parasites of tertian fever. In one instance I saw a pigmented sphere slowly change into a crescentic form. Among several hundreds of crescents that I examined with care, I did not observe any appearance suggestive of an encysted stage of the parasite, and in this connection I may mention that I saw in one oval form of the crescent series three large, well-marked spores, each possessing a distinct nucleolus, while a fourth spore, which had evidently just escaped, lay close to this oval-shaped parasite.

In many cases crescents were free in the blood, no fine line connecting the ends of the crescent being visible, and the periphery of these crescents did not stain with eosin.

At Sierra Leone the season of the year did not influence the size of the parasite. Frequent observations were made during both the dry and rainy seasons, and the parasite was always found to present the same appearances.

Some patients were frequently admitted to hospital with attacks of malarial fever, while others suffered to a very small extent; but in all cases the same size of parasite was evident.

Since my return to this country I have had an opportunity of examining several sailors invalided after the Benin expedition. They were sent to the Royal Naval Hospital, Plymouth, where I made a careful examination of their blood, some months after they had left the African coast. In these cases the appearances presented by the parasite were in every respect identical, both as regards its form and size, with what I observed at Sierra Leone—the minute unpigmented forms, the slightly pigmented, and crescents. The activity of the parasite did not appear to be at all diminished by the change of climate, and I detected no difference in its size. In one of the cases the temperature had been normal for two days. All the men had been treated with daily doses of 10 to 15 grs. of quinine sulphate.

From this brief account it will be evident that the conditions referred to by Dr. Marchoux as affecting the size of the parasite of malaria caused no alteration in the appearance of the parasite seen by me at Sierra Leone and in this country. I am of opinion that the parasite of malaria observed by me at Sierra Leone is identical with the parasite of the summer-autumn fevers of Southern Italy, described by Marchiafava and Bignami, and that there is no evidence of polymorphism in its development. The only case suggestive of polymorphism was admitted to hospital shortly after the beginning of the rainy season. The appearance of the parasite agreed in every detail with the description of the tertian parasite given by Golgi, and with specimens of this parasite kindly sent me by Dr. Thin.

Malarial fever may be contracted during the dry season. I have employed quinine as a prophylactic in daily doses of 5 grs., but only succeeded in inducing a few persons to continue this treatment. The results were sufficiently encouraging to warrant the advisability of all who have to live in a malarious district adopting this precautionary measure. The hydrochlorate is preferable, being stronger, more soluble and palatable than the sulphate.

TRANSIENT AND RECURRING PARESIS IN ACUTE CEREBRAL SOFTENING.

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THE somewhat indefinite symptoms of acute softening due to thrombosis of the cerebral arteries may make those observed in this case of special interest.

At the commencement it was one of the usual type. Severe and persistent neuralgic headache above the left orbit had existed in a woman aged 66 for ten days or so before I saw

her. Except that her power of memory seemed to fail from day to day, the symptoms remained practically unchanged for a fortnight, till one afternoon she became suddenly drowsy, cerebration was slow, and the speech blurred. Two hours after this there was slight paresis of the right side of the face, shown only by a faint droop of the angle of the mouth, and by the ala of the right nostril being flattened. The pupils were equal, sluggish, and somewhat contracted. The conjunctivæ had a yellowish tint. The following morning the paralysis had disappeared, the conjunctivæ were normal in appearance, but the patient remained semi-comatose.

She passed a restless night, and the next day the nose and mouth were drawn far over to the left side, the conjunctivæ were again yellow, and the skin of the face had a distinctly jaundiced look. The extremities were cold as far as the knees and elbows, and also the left side of the neck. The knee-jerks were gone. She was sensible to pin-pricks on the soles, but sensation seemed dulled, and the feet were drawn slowly away, and only after a distinct interval. The right hand was hyper-extended, the fingers and elbow flexed. The hand and forearm would respond slightly to stimulation, but power in the shoulder seemed to be lost.

Six hours later no traces of paralysis or pigmentation were to be found, the patient spoke quite rationally, but the same evening it all returned, and she was as drowsy as ever.

Two days later she began to pass her water under her, and the pulse, which still continued full, dropped from 54 to 42. (No drugs had been given since the coma first set in.) Next morning there was marked external strabismus of the right eye, which had gone by the following day. The pupils of both eyes were generally strongly contracted when the lids were suddenly raised, and then slowly dilated. No optic neuritis was present in either eye, but the choroid of the left had a blotched and mottled appearance as though from old capillary hæmorrhages. The surface of the cornea of the right eye was hazy and as though studded with minute boiled sago grains, which had not been noticed when the eyes were examined the previous day. The media had become cloudy, and only one or two of the retinal vessels could with difficulty be indistinctly seen.

There had been no history of any impairment of vision. When the examination of the eyes was commenced there was no paralysis of the face, but it was very marked before the examination was concluded, and then it appeared that local irritation, such as raising the lids or touching the tongue, would bring it on. At those times when these focal symptoms were most marked the conjunctivæ would become deeply stained and the face also, though not when the palsy was induced by irritation. The urine shortly after would have a dark "portery" appearance, though this grew less marked as the case went on. It was faintly acid, contained no albumen or sugar, but immense quantities of oxalate of lime and minute traces of bile pigments.

There had been great frequency of micturition for some days, almost half-hourly calls, and a considerable quantity at a time. Two days later the pulse rose to 76 and the respirations to 34, though examination of the chest revealed nothing. Rhythmical movements of an athetotic character were present in the right arm.

The forearm would be flexed to a right angle, then rotated in; the thumb was then strongly flexed, and lastly the limb would be slowly extended again. This would occur about six times a minute, and lasted several hours. Four days later the patient spoke quite sensibly, smiled at and knew everyone around her, remarked that she felt better and would like something to eat, objected to milk, but made signs for something solid. Half an hour later the coma was as deep as ever.

Towards evening she showed signs of Cheyne-Stokes breathing, pulse 88, strong, and incompressible. Next day the temperature, which had throughout the illness been normal, rose to 100° F., pulse 80, respirations 48; pupils unequally contracted, the right the smaller of the two; all reflexes gone, both superficial and deep. No urine had been passed for twenty-six hours, the bladder appeared empty, and on passing a catheter only a few drachms were drawn off. The bowels had been constipated all through. Slight hypostatic pneumonia at both bases.

The next and last day of her illness the temperature rose to 103.8° in the morning, respirations 72, pulse 140, and very weak. The face was flushed, the skin moist, and there was conjugate deviation of the eyes to the right. At 6 P.M. the respirations were 52, the pulse uncountable, the temperature in both axillæ 107.2°, and in the rectum 108.6°; the face was pale and the skin dry. At 6.30 she died, and there was no rise of temperature after death.

The *post-mortem* examination of the brain revealed extensive mischief. The surface showed nothing abnormal on the convexity, the vessels appearing patent and healthy, but at the bifurcation of the basilar artery was a patch of atheroma, and one or two small patches in the right posterior cerebral, while the left posterior cerebral was blocked a short distance from its origin for about three-quarters of an inch. On section, the brain substance was normal to a level with the roof of the lateral ventricles, but at that point it was distinctly softer on the left side and of a yellowish tint. The vessels of the choroid plexus on this side were congested and matted together with yellow lymph. The floor of the ventricle was one mass of softening involving the optic thalamus and corpus striatum, and rendering any distinction of detail impossible.

The area of softening was approximately 2 inches by 2½ and 1 inch in depth, and a small patch of it occupied the inner surface of the superior temporo-sphenoidal lobe. The other organs of the body showed nothing unusual, except that there were numerous bands of recent peritonitic adhesions binding down the intestines without any inflammatory condition of the gut itself, and accounting for the pain which was elicited on deep pressure over the gall bladder, though there was nothing else to point to existing mischief there.

The most noticeable points of interest in the case were the brief yet recurring attacks of paresis, more especially in the close connection they apparently had to the paroxysmal hæmoglobinuria to which the jaundiced appearance of the patient seemed evidently due. It could hardly have been caused by an excess of bile pigment, which would have shown itself in greater quantities in the urine, whereas traces of it were but once found, and then only to a slight degree. The effect would also have been more lasting had it been due to more than some altered condition of the blood, for a few hours sufficed to remove all discoloration both of conjunctivæ and skin, to reappear and disappear again and again a few hours later.

AN EXPERIENCE OF NINETY-SIX CASES OF DIPHTHERIA IN PRIVATE PRACTICE.*

By WALTER CHARLES AYLWARD, M.R.C.S., L.R.C.P.

Most of the information we possess in reference to diphtheria, particularly in reference to the treatment of that disease by the hypodermic injection of antidiphtheric serum, has been obtained from the isolation hospitals. The conditions which obtain under these circumstances of necessity differ somewhat from those which obtain in private practice, and I venture to hope that a record of results observed under the latter conditions may not be wholly devoid of interest. Moreover, as one-fourth of the cases were treated by non-serum methods and the remaining three-fourths with serum, an opportunity will be afforded of comparing the results of the two methods in the same outbreak and under similar conditions, and the fallacy of comparing one line of treatment in an outbreak of malignant type with another line of treatment in an outbreak of benign type will be avoided.

The outbreak as a whole must be regarded as a mild one, although there were some very severe cases in addition to those which proved fatal. The spread of disease was almost entirely due to personal contact with the sufferers. The first case of the whole series occurred in June, 1896, and was followed in five days by No. 2, who had been sitting next to No. 1 at school. No. 3 was the brother of No. 2, and slept with him. No. 4 attended the same school as Nos. 1 and 2, and No. 5 was the father of No. 4.

* Read at a meeting of the East Sussex District of the South-Eastern Branch of the British Medical Association.

In all these cases there had been obvious personal contact affording ample opportunity for the conveyance of infection from one to another, and this mode of infection was so marked a feature of the whole outbreak that upwards of two-thirds of the total cases were clearly traceable to it. A few examples of indirect personal infection occurred; by this I mean the conveyance of infection by an intermediate person without the intermediary contracting the disease. For example, Mrs. J. nursed Case 4, and washed him after his death, and did not contract diphtheria, but four days later her son had developed it. Again, Case 42 died, and was "laid out" by Mrs. F., who remained well, but a nurse child who lived with her developed the disease within a few days. In neither instance could any other source of infection be traced. On inquiry I elicited the information that after performing her offices for the dead child Mrs. F. had taken absolutely no precautions in disinfecting herself beyond the formality of washing her hands in a little ordinary water and using a little carbolic soap.

In reference to the position occupied by the false membrane, it is worthy of remark that in nearly 97 per cent. of the cases it was observed at some time or another on one or both tonsils, and these were the parts almost invariably first attacked. In 51 per cent. of the cases it did not spread beyond them, but in the remainder it spread so as to attack the various adjacent parts as follows:

The posterior part of pharynx	in 26 per cent.
The uvula	in 23 "
The soft palate	in 15.6 "
The nares	in 14.6 "
The larynx	in 9.4 "

In two cases the posterior pharynx was attacked, and the false membrane disappeared without spreading to the tonsils.

The submaxillary glands were observed to be enlarged in 72 per cent. of cases, and sometimes the enlargement of these and the cervical glands with the surrounding oedema was so great as to suggest at first sight a combination of lower alveolar abscess and mumps.

The age incidence of those attacked was approximately as follows:

Under 1 year	1	per cent.	1	fatal case.
Between 1 year and 2 years	5.2	"	0	"
Between 2 years and 5 years	10.4	"	1	"
Between 5 years and 10 years	38.5	"	3	"
Between 10 years and 15 years	23.0	"	1	"
Above 15 years	21.9	"	0	"

In 11.1 per cent. only of total injected cases has a rash been observed. This appears to be considerably below what is usually experienced, and it would be interesting to know to what cause or causes this difference may be reasonably attributed. On looking through my notes with this object specially in view, I found that while a rash followed in 25 per cent. of 12 cases in which fluid serum was used, it only followed in 8.33 per cent. of 60 cases in which the dried serum had been used. Although the numbers are too small to carry much weight, this marked difference seems to point to some causal relationship, and rather suggests that in the process of drying the serum loses some of its irritating properties upon the skin. So far as I have been able to judge, there is no difference in its effects upon the disease.

The rash usually appeared some eight to fourteen days after the injection. It was usually of a measly appearance, and attacked the lower extremities first, then the upper extremities, and afterwards the trunk, if at all. One marked exception to the measly type of rash occurred in Case 18, in which fluid serum was used. In this case the rash was markedly urticarial, with raised flat-topped wheals as large as a five shilling piece. There was much general subcutaneous oedema, and the face was so swollen that the eyes were nearly closed. The heart's action was very feeble, and much accelerated—pulse 170 per minute, while the temperature rose to 103°. There was no albuminuria.

In Case 26, although the rash was of the usual measly type, the distribution was peculiar. From the middle of the thigh downwards both lower extremities were well peppered with the rash, both on the flexor and extensor aspects, while the only other part of the body attacked was a circular patch 10 inches in diameter, having for its centre the point of injection between the scapulæ.

Albuminuria was observed in 18.7 per cent. of 16 cases exa-