to be expected in the fourth week of the disease. For this reason his diet was not improved, and he was sedulously watched.

A sharp but short relapse occurred, at the end of which the urine passed increased from 30 to 40 oz. to 80, 90, and even 110 oz., and an uninterrupted convalescence took place.

In no case in which polyuria was noted have I known perforation to occur, and in no case has haemorrhage of any moment ever occurred after polyuria has been established, and, furthermore, the occurrence of relapse is of the most extreme rarity when polyuria has once begun.

If these observations are correct and can be substantiated by others, it seems certain that we have in polyuria a valuable aid to prognosis. In the hope of obtaining the benefit of the experience of others who have the opportunity of seeing many cases of typhoid, I have ventured to publish an opinion which has been to me a great help and safeguard in estimating the chances of recovery of my patients.

A NOTE ON THE PRODUCTION OF DIARRHOEA BY THE BACILLUS PRODIGIOSUS.

By LOUIS C. PARKES, M.D., D.P.H.,

Medical Officer of Health for the Borough of Chelsea, and Consulting Sanitary Adviser to H.M. Office of Works.

At the end of last July I was asked to investigate the cause of an outbreak of diarrhoea in a large country mansion. About three weeks prior to the date of my visit the first attacks commenced, and had been more or less continuous ever since, nearly every one of the eighteen members of the household having suffered, and some having had more than one attack. The attacks appear to have been of a mild nature, like ordinary summer diarrhoea of a mild type. The only child living in the house escaped attack.

An examination of the premises showed that the drainage and sanitary arrangements were quite modern and in very good order. The water was the same as that supplied to the neighbouring town, where there has been no unusual diarrhoea, and the milk from the farm had been examined and found good. The little girl was the chief milk consumer of the household, and she had escaped attack.

About the time that the illness commenced some alterations had been effected with a view to improving the ventilation of the larder, more openings being made to secure ventilation from an adjoining yard enclosed by a high garden wall. The steam escape pipe of a new hot-water cylinder had also been made to discharge into this yard close to the larder door. Since these alterations had been carried out it had been noticed that the cooked meat, and sometimes puddings, kept in the larder were affected with a superficial pinkish growth. This had been sent to London for examination, and was pronounced to be a growth of *Bacillus prodigiosus*, and harmless.

An examination of the yard from which the larder drew its chief supply of air showed that there had been a continually recurring ejection of hot water from the steam escape pipe on to the yard surface, which was defectively paved at this point with old, worn, and soft bricks. Owing to the enclosed nature of the yard a steamy saturated condition of the atmosphere must have been caused by the escape of so much hot water, a good deal of which must have soaked into the ground, and no doubt the recent heat of the weather had accentuated this condition.

Not being satisfied under the circumstances as to the alleged harmlessness of the *Bacillus prodigiosus* and its products in cold meat and cold pudding, and having also regard to the fact that the little girl who escaped attack never ate cold meat, I advised the temporary discontinuance of the larder, and the taking of such measures as would be required to carry off all surface water from the yard and the prevention of any soakage into the ground around the larder. The larder was also to be cleansed and disinfected before being taken again into use.

The family left the house for the summer holidays two or three days after my visit, and I now learn, by the courtesy of the owner, that my instructions were fully carried out in every particular, and that since the return of the family there has been no recurrence either of the pink bacillus or of any illness.

I am not aware of any hitherto recorded instance of illness due to the growth of *Bacillus prodigiosus* on food. It is evident that the growth must have been favoured by the atmospheric conditions prevailing in the adjoining yard; and

possibly the bacillus was originally present in the soil of the yard, and was mechanically raised by the action of the escaping jets of hot water, which were ejected at a height of 7 or 8 ft. above the yard surface from the steam escape pipe.

Although the facts above mentioned are highly suggestive of the *Bacillus prodigiosus* being the cause of the diarrhoea, the chain of evidence is not complete; and I am informed by the medical practitioner who attended the cases that the attacks continued when he had no reason to believe that the patients had partaken of food contaminated by the bacillus. The occurrence, however, seems of sufficient importance to be recorded with a view to further investigation into the alleged harmlessness of the bacillus.

FURTHER OBSERVATIONS ON PARANGI (YAWS).

By A. CASTELLANI, M.D.,

Colombo, Ceylon.

ON June 17th, 1905, I read a paper before the Ceylon Branch of the British Medical Association on the presence of spirochaetes in cases of parangi.¹ A few days before I had sent a note on the first two cases to Sir Patrick Manson, who kindly communicated it to the meeting of the British Medical Association held at Leicester on July 27th. At the meeting of the Ceylon Branch I was able to communicate that I had found spirochaetes in three cases out of six; that in two of the cases two varieties of spirochaetes could be seen, one thicker and with large waves, one thinner, extremely delicate, identical with or resembling greatly the *Spirochaete pallida* of Schaudinn. In the third case, in which the lesions had not yet ulcerated, there were only spirochaetes of a very delicate variety. Besides the spirochaetes, in several preparations a few rare, peculiar, oval bodies containing granules of chromatin could be seen. In the meantime I had sent a specimen taken from the first case to Professor Schaudinn. Professor Schaudinn has been so kind as to examine the preparation, and has written me a letter, dated Hamburg, August 8th, 1905, in which he states that in the preparation I sent he has observed three varieties of spirochaetes, one of which, very delicate, resembled closely the *Spirochaete pallida*.

As in the last two months I have had the opportunity of studying some more cases, and as I have recently had the good fortune of Dr. Daniel passing through Colombo and giving me his advice in the interpretation of several preparations, I think it may be desirable to publish the latest results of the investigation.

Technique.

Films are made in the usual way from scrapings of the eruptions. It is advisable to select lesions in which a secondary pyogenic infection has not yet taken place. Giemsa stain, which I have used only lately, gives good results; Leishman's method, however, gives also good results if the staining is done according to the following instructions:

1. Let the alcoholic solution of Leishman act for five minutes without fixing the films previously.
2. Mix the stain with equal or double amount of distilled water, and let it act for half an hour to several hours.
3. Wash with distilled water, and leave a few drops of it on the films as usual for half to one minute.
4. Blot and examine with very high power.

Description of the Spirochaetes Found.

In the preparations taken from ulcerated lesions, according to Schaudinn and myself, various spirochaetes are present. One form is rather thick and takes up easily the stain; it is morphologically identical with the *S. refringens* of Schaudinn. One form is thin, delicate, with waves varying in size and number, and with blunt extremities; I proposed for this variety the name of *S. tenuis obtusa*. A third form is also thin and delicate, but is tapering at both ends; I named it *S. tenuis acuminata*.

In non-ulcerated lesions there may be found a spirochaete which I believe to be identical with the *S. pallida*. The organism is extremely delicate, thin, and generally tapering at both ends. The length varies from a few microns to 18 and 20 microns. The number of waves varies also, but they are generally numerous, uniform, and of small dimensions. Sometimes two spirochaetes may be seen attached together, or apparently twisted one on the other. Two organisms close together and nearly parallel, but united at one end, as described in *Spirochaete pallida* by Schaudinn and McWeeney, have been seen. With the microscopes at my disposition the

minute structure of the parasite cannot be studied satisfactorily.

Frequently the patients presenting spirochaetes do not show them constantly, but only at long intervals. Weeks may pass before a single spirochaete is found; according to my experience, no spirochaetes are observed in lesions which are healing.

Description of some Peculiar Bodies found in Cases of Parangi.

In several preparations taken from patients presenting spirochaetes and also from patients suffering from parangi in whom the spirochaete could not be found, I have observed some peculiar bodies, which are represented in Fig. 2. These bodies are generally oval or roundish, 5 to 8 microns in length and 4 to 6 in breadth, sometimes they may have smaller or much larger dimensions.

Fig. 1.—Spirochaetes found in parangi.

In preparations stained by Leishman's method these bodies are stained slightly purplish or bluish and contain chromatin. The chromatin may be collected at one point near one of the extremities, or may be scattered at several points. There is no pigment. What these bodies really are, and whether they have anything to do with a developmental stage of the spirochaetes, I cannot yet say. I have shown them to Dr. Daniel, who is also of opinion that they must be the developmental stage of a protozoon, and that the scattering of the chromatin would point to the parasite being in a stage of preparation for division.

CASES.

CASE I.—Sinhalese boy, General Hospital, Colombo. Typical ulcerated fungoid lesions on the lower limbs and feet. Scrapings from the ulcers show numerous spirochaetes, some of which are very delicate.

CASE II.—Sinhalese beggar. Ulcerations healing. No spirochaetes present.

CASE III.—Sinhalese beggar. Ulcerated lesions. Spirochaetes of various appearance present.

CASE IV.—Sinhalese woman, General Hospital, Colombo. Typical lesions in the yaws stage. No spirochaetes present. An enlarged gland excised from the neck and films made. No spirochaetes found so far.

CASE V.—Child, Sinhalese, General Hospital, Colombo. Spirochaetes absent.

CASE VI.—Sinhalese woman, General Hospital, Colombo. Scrapings are made from a fresh eruption not yet ulcerated. Extremely delicate spirochaetes present; also a few oval bodies presenting chromatin, as already described. No bacteria present.

CASE VII.—Sinhalese woman, General Hospital. Numerous ulcerated lesions; spirochaetes found, together with numerous bacteria. Scraping the ulcers deeply till blood only exudes, spirochaetes only and a few oval bodies are found.

CASE VIII.—Sinhalese child, General Hospital. Spirochaetes absent, some extremely rare oval bodies present.

CASE IX.—Sinhalese girl, Hospital for Tropical Diseases. Ulcerated fungoid lesions; spirochaetes, some of which were of a delicate variety, were found for several weeks, then they disappeared, and for the past month no spirochaetes have been found.

CASE X.—Sinhalese girl, Hospital for Tropical Diseases. Spirochaetes absent.

CASE XI.—Sinhalese woman, Hospital for Tropical Diseases. This is a very typical case. In fresh eruptions spirochaetes of an extremely thin variety only and no bacteria are found. Oval bodies are also present, though very rare.

Summary.

1. In 7 out of 11 cases of parangi spirochaetes have been found. Of these spirochaetes there is an extremely delicate variety which in my opinion is absolutely identical with the *Spirochaete pallida* of Schaudinn. If my hypothesis should be proved to be wrong a proper name for the organism might be *S. pallidula*.

2. Peculiar oval, chromatin-containing bodies—represented in Fig. 2—have been observed in 4 cases, 3 among those presenting spirochaetes and 1 which did not show any spirochaetes.

Fig. 2.—H, Red blood cells, parangi (yaws); O, peculiar oval body, the dots represent chromatin.

I wish to express again my greatest thanks to Professor Schaudinn for his kindness and for the most valuable help and advice he has given me.

REFERENCE.

¹ *Journal of the Ceylon Branch of the British Medical Association*, July, 1905.

A NEW SANATORIUM FOR NEW YORK.—New York City is about to expend £400,000 on the erection of a city sanatorium for consumptives. The site is on Staten Island. The spot is said to be the highest on the Atlantic Coast between Maine and the Gulf of Mexico. The ward buildings will be in the form of an arc; all the windows are to extend to the floor and open on verandahs. The roof is to be treated as a roof garden, one portion being enclosed in glass. Two buildings are to be devoted exclusively to advanced cases, which will be treated in separate rooms. Patients in all stages of the disease will be admitted. The sum already allocated for the purpose (£40,000) will, it is estimated, suffice to provide accommodation for at least 100 patients.

BEQUESTS TO MEDICAL CHARITIES.—Under the will of the late Mr. William Keeling, of Nottingham, which has now been proved, the following institutions, all in Nottingham, are to receive the income of a sum of about £20,000: The General Hospital, the General Dispensary, the Midland Institution for the Blind, the Children's Hospital, the Women's Hospital, and the Nottingham and Midland Eye Infirmary. At the end of 21 years the capital sum is to be divided between them. The same institutions are also given a contingent reversionary interest in a further sum of some £20,000.