

under discussion. Dr. Malloy's experience has been sufficient to entitle him to a keen insight into the subject. I appreciate his favorable discussion.

The advent of salvarsan into this country and its almost universal use has made it imperative that the average practitioner acquaint himself with the technique of intravenous therapy. This situation is very promising when we consider the outlook for a more general use of quinine intravenously in malaria.

One feature of the treatment I desire especially to mention here: Expensive and complicated material is not only superfluous, but will interfere many times in the decision of the physician to administer the treatment. One experience coming a few weeks ago I believe is permissible here: A patient was found with all evidences of pernicious malaria, blood examination having been made a few hours previously showed many plasmodia. With an ordinary fountain syringe, a salvarsan needle, a bottle of quinine tablets, some absorbent cotton, nearly all of which one of the physicians had in his car, an intravenous treatment with quinine was administered. River water was used, having been double filtered through cotton, boiling before and after. As mentioned in the paper, when the solution is made up of water not freshly distilled we can expect a reaction. In this case the reaction was rather severe, but the patient's temperature was normal within twelve hours, and the delirium had completely cleared up.

In closing this discussion I am especially desirous of impressing the average practitioner with the importance of this method of treatment, especially in the pernicious cases. A careless doctor, without attention to detail, especially with reference to asepsis, should not attempt this method. The usual average care in working out and handling any method, as we usually put into our cases, is sufficient, and yet the method is not without its dangers in the hands of a careless and incompetent man.

As I have mentioned in my paper, there are many things yet to be worked out. Among these we find such unsettled questions as the best possible dilution to make. I have used to date only very dilute solutions, fifteen grains in 250 to 300 cc. of saline. It is not claimed that this dilution is the best. Other men have given much more concentrated solutions even down to a one to twelve or fourteen. Possibly a most convenient and probably safe dilution would be to give ten grains in a 20 cc. syringe. This has been given without bad results. Just whether its effect is better than a higher dilution cannot at present be claimed. Certainly the convenience in administration by this method is distinctly to its credit. Another point yet to be settled is the number of treatments necessary to effect a cure in a given case, and for the different types, and for the varying degrees of severity in each type. These questions along with many others can be worked out, and I believe we can be safe in saying these problems will be worked out by the men in the South if they will give sufficient time and attention to detail in their study of malaria.

When you have a serious case of malaria, so

serious that one dose of quinine may be a deciding factor in the treatment, I would suggest that you try this plan, using the best method you can work out with whatever safe material is at hand, watching the result carefully. I think you will give another treatment soon afterwards.

THE ORGANISM PROBABLY CAUSING PELLAGRA.

By T. E. SANDERS, M.D.,
City Health Officer, Hot Springs, Ark.

On July 14, 1914, I withdrew the spinal fluid from a pellagrin, who had died one hour previous from a violent case of pellagra, exhibiting marked cerebral symptoms. I took all the aseptic precautions that I could. Part of the fluid I examined and the other part I incubated. The part that I examined showed a very few organisms that appeared to be oval in shape and the periphery stained more intensely than the center with Giemsa stain. The other part of the spinal fluid was incubated for about a week before it showed any apparent growth. I made a smear and found it to be the same organism. I made a transfer from the growth in the spinal fluid to Agar-Bouillon and Loeffler's Blood Serum. There was no growth on the Agar-Bouillon, but it grew on the blood serum. I kept the growth alive on blood serum by transplanting for quite a while then it finally died out. I did not report it publicly for fear that the culture might possibly have been from contamination.

On July 31, 1914, a similar case presented itself and I went through the same routine and obtained the same organism. In both cases the organism finally died out on Loeffler's blood serum after many transplants.

On October 18, 1914, I held an autopsy on a pellagrin, who had died of a violent typhoidal type of pellagra with marked skin lesions of the wet ulcerative type. The abdominal fat was very little, if any, reduced. The

spleen was comparatively small to the pella-grin's weight. I split the spleen with a sterile knife and inoculated a special media, consisting of a saturated corn meal and agar bouillon faintly acid with hydrochloric acid. Upon culturing I obtained the same organism and it has been growing upon that special media ever since.

The growth upon that media appears as a grayish white, but a slightly darker shade than a growth of typhoid bacilli. It does not spread much on the surface of the media. It is aerobic and requires a great deal of moisture.

The organism is highly motile and seems to pass through a definite cycle of some kind. It is characterized by a multiplicity of forms changing from a small oval cell-like form to small bacilli, thread-like bodies, and comparatively large bacilli. Most anyone upon first examination would naturally think that it was an impure or contaminated culture. Every day it appears different but appears to come back to the same forms. I have been growing it for over four months and the growth appears the same as when it started. It seems reasonable that if it was an impure or contaminated culture one form would have outgrown and killed out the other.

After becoming familiar with the different forms of the organism I began to study a large number of fecal smears that I had gathered from pellagrins in the diarrheal stage of the disease and found that they contained large quantities of the same organism.

About the first of last December Mr. Harvil, a representative of Park Davis Co., requested me to let him send the culture to the P. D. Research Laboratory for investigation. It was sent and they referred it to Dr. Joseph Goldberger of the U. S. Public Health Service. Dr. Goldberger wrote me that he was sending it back as he was so busy that he did not have any spare time to make the investigation at present.

After reading Dr. B. W. Page's paper in the February issue of the SOUTHERN MEDICAL JOURNAL, I am convinced that we have

both isolated the same organism, although going at it in different methods.

AUTHORS' ABSTRACTS.

Tropical Diseases and Public Health.

Mosquitoes and Sewerage Disposal. By Frederick Knab and August Busch, Washington, D. C. American Journal of Tropical Diseases and Preventive Medicine, November, 1914, pp. 332-343.

Certain species of mosquitoes, particularly *Culex pipiens* and *C. quinquefasciatus*, are associates of man and multiply most rapidly in the presence of highly polluted water. The bearing of this relation on many mosquito outbreaks has not been sufficiently appreciated. The authors present a striking case in that of certain suburbs of one of our large eastern cities, where the installment of contrivances for the sanitary disposal of sewage brought with it a great mosquito invasion. The region is hilly and natural mosquito breeding places conspicuously absent. Two tanks in which the sewage is collected for bacterial reduction were the principal breeding places. In one of these the number of mosquito eggs found floating was estimated at 5,000, with an average of 200 eggs each. Outside of these, mosquitoes were breeding in lesser numbers in many places, but in every case the relation to sewage was obvious. Some small streams were found to contain no water larvae wherever they were polluted by sewage discharging into them. In such places, contrary to usual experience, the larvae occurred even in rapidly flowing water, while some distance beyond, where the water had become purified, no larvae could be found. Thus the existence of the mosquitoes is bound up in the two food supplies furnished by man, his blood for the females, his waste products for the larvae. A problem still to be solved is how to control the mosquito breeding in the tanks without inhibiting the bacterial sewage reduction process.

Pernicious Malarial Fever. By Thomas D. Coleman, Augusta, Ga. Journal of the Medical Association of Georgia, December, 1914, pp. 240-243.

Malaria has been a bar to man's progress for many centuries. It is caused by the bite of a mosquito which has bitten some one affected with malaria, and from no other source; two hosts being necessary, viz., a human being and an insect. For its prevention two procedures are necessary—draining or potolizing pools, and isolating infected human beings.

Any of the malarial organisms may at times produce pernicious symptoms. The chief causes of pernity, according to Pastionalli and Bignani, being due to localization of the parasites in the brain or other important organs. Most pernicious attacks occur in patients who have suffered repeatedly from malarial paroxysms that have not been treated properly; briefly, it is an acute exacerbation of a chronic process. All varieties may be adequately included under three types, viz.: (a)