measurements of the superior strait as found in Mrs. R.—the transverse diameter is half an inch, and the oblique nearly as much, below the average, the obstetrical effect is about the same as in a flat pelvis with a conjugate of 2½ inches or less.

I am confident that that child could, neither by turning nor by forceps, have been brought out living; and if, with the comparatively mild operation of symphysiotomy, we had so severe a case of puerperal infection, there is no doubt in my mind but that, with the same infection added to the bruising inherent in difficult forceps and version operations, the mother would have succumbed, too.

(To be continued.)

COCAINE IN THE TREATMENT OF VARIOLOUS AND VARIOLOID INFECTION.

BY EDWARD PEPPER, M.D.,
OF ALGIERES.

In 1889 we published a report of an epidemic of smallpox and varioloid whose spread was promptly arrested under the most unfavorable circumstances.¹ The ancient, and therefore firmly fixed, habit of the Arabs of inoculating smallpox (generally between the thumb and the index) is well known, and constitutes a permanent source of danger to all communities dwelling in their neighborhood, as well as to those residing in their midst. This practice is one of the many factors—perhaps not the least—of the difficult problem offered to Europeans in their actual attempts at African colonization and improvement. In the United States vast territories, such as New Mexico, containing a mixed population composed, as yet, largely of Mexicans and Indians, among whom vaccination and, indeed, all hygienic measures are rare, pay a large annual tribute to the scourge.

Simply recalling the principal means employed to alleviate or to arrest the extension of the disease, such as the immediate isolation of the contaminated, and, when practicable, the application to a whole region, if necessary, of other rigid sanatory measures, generally even more difficult of enforcement, we consider that a short reference to the treatment first recommended by Luton will not be found wholly devoid of interest. This treatment consists, as is well

¹ A Contribution to the Study of Epidemic Diseases. P. Fontana & Co., Algiers, 1889.

known, in the judicious use of cocaine, given by the mouth or in the form of suppositories. The observations which we published at the time (1889) cannot be reproduced in a communication of the nature of this article, and reference simply is made to them, as well as to the subsequent observations, some quite recent, which we have related upon the same subject.

The benefit to be derived from the judicious use of cocaine in smallpox and in varioloid is such, from our personal experience covering the last four years, that we deem it important to recall the attention of the medical public to a mode of treatment offering such special advantages. Our conclusions, published four years ago, were and are yet as follows:

1. By the use of cocaine, variolous and, *à fortiori*, varioloid poisoning can frequently be arrested in a marked degree—strongly attenuated.

In smallpox the disorganization of the blood seems to be generally less rapid and less extensive after the careful administration of the drug; the fever is less severe and of shorter duration in most cases, secondary fever not being manifest sometimes; an incomplete evolution, a semi abortion of the vesico-pustules, or of the pustules, being of frequent occurrence when cocaine has been regularly employed during the second period of the disease, and that as soon as the eruption is clearly characterized; finally, the divers visceral congestions and inflammations are less frequent and less intense. Briefly, the whole course of the disease appears to be favorably modified in most if not in all cases.

2. As in all other diseases, so in smallpox, the actual stamping-out of the disease *ab incipio* can never be clearly proven to have been accomplished by any treatment; in smallpox the eruption must have become distinctive before the diagnosis can be firmly established. During an epidemic of the disease it would be interesting to study the possible action of the drug as a prophylactic when given to those who are particularly exposed to the contagion, such as the members of families where smallpox reigns, the unvaccinated, etc.

3. In variolous poisoning, toleration is strongly marked for a substance presenting special dangers when given under other circumstances and without due discernment—that is, without regard to the laws of posology and to possible idiosyncrasies.

4. When cocaine is given by the stomach, a 4 per cent. solution is conveniently administered four times in each twenty-four hours to a patient of five years of age; at the age of ten years ten drops four times in twenty-four hours, and so forth, increasing the doses by one drop four times during each twenty-four hours for each year of age; at twenty years of age twenty drops are to be given four times in the twenty-four hours. With the normal droppers to be procured from all chemists, this dose is quite sufficient. Each dose is to be given in a small quantity of

water or otherwise, according to taste. One-half of the above quantities is frequently sufficient to obtain the desired results. An agreeable mode of administering the medicine to children and to fastidious patients generally, although the drug is practically tasteless, is that which consists in giving it in the form of sweetened pastilles, each pastille containing the twenty-fourth part of a grain of cocaine, with or without a small quantity of pepsin.

Such are the posological scale and the mode of administering the medicine by the mouth which experience has taught us to employ in average cases.

5. The doses of cocaine given in the form of suppositories are not to be considered as being necessarily absorbed *ex integro*; in this latter form there is naturally an unknown quantity absorbed. The suppositories should be used at intervals of six or eight hours apart, the quantity of the medicine thus administered in twenty-four hours never being greater than that given by the mouth.

6. When given hypodermatically, a mode of giving cocaine scarcely to be recommended except in incipient cases of smallpox, where it could not be given by the mouth or by the rectum, the doses above recommended should be one-fourth of the doses indicated for ingestion in average cases.

7. The effects of all doses, in whatever manner given, should be attentively watched, idiosyncrasies as to the tolerance of all powerful drugs, and especially of cocaine, being of so frequent occurrence. At the first sign of a physical action being produced, the giving of the cocaine should be stopped and the well-known means of arresting its toxic effects should be employed.

8. Of course this treatment does not exclude the use of almost any of the usual means properly employed to combat the disease; but the field should be left free, as far as possible, to the full—and frequently so to speak, exclusive—development of the useful effects that we have a right to expect from cocaine when employed against smallpox in its second and third stages. As to topical remedies, whether camellol, salicylic acid or lactic acid, or any other substance be preferred, they are generally useful, frequently an indispensable adjunct to this as well as to any other internal treatment of smallpox or of varioloid. In many cases where cocaine has been methodically given, topical treatment has been slight, and sometimes unnecessary.