

### Medical Matters.

#### THE ETIOLOGY OF BERI-BERI AND THE PRESENCE OF ARSIN IN RICE.

Dr. C. N. Saldanha, formerly medical examiner of Statutory Indian Emigrants, contributes an interesting note on the above subject to the *British Medical Journal*, in which he says in part:—

Rice, as harvested and with the husk still on, is called "paddy"; rice exhibits more varieties than any other known grain, and incidentally is subject to many ailments. Among them is a fungoid disease, which causes beri-beri in man, the active principle of which I have called "arsin."

In the process of curing rice, arsin undergoes fermentative changes, and is rendered inert and innocuous. If, out of a stack of diseased and arsin-containing paddy, one half be prepared as rice for the market by the "cured" process and the other half be converted into "uncured rice" by machinery, the cured rice will be comparatively safe, whereas the uncured will contain active arsin, mostly in the rice dust, which is simply fine bran not removed by winnowing, but bagged with the rice for the market.

Uncured rice has a more pearly and otherwise more attractive appearance than the cured; the custom is to pass the rice direct into the cooking pot as bought from the shop, dust and all. The poorer classes among the Chinese consume not only the rice but also the water in which it is boiled, which would contain most of the dissolved arsin. Hence beri-beri is generally prevalent among the poor Chinese, Malay, and other Mongolian races, who habitually use uncured rice. And at each meal they take unwittingly a small dose of arsin when their rice supply comes from mildewed paddy.

Arsin-containing rice emits an alliaceous odour when boiling. The fumes inhaled cause a pleasant sensation of fullness and exhilaration, somewhat resembling the effects of minute doses of alcohol. Arsin is a cumulative poison. In its initial action it is a cardiac sedative. The bran and the rice dust consist of the desiccated reddish-brown inner capsule of the white rice seed, and it is this capsule that is primarily affected by the beri-beri fungus.

Beri-beri is said to stick to certain ships and localities. The truth is that once diseased rice gets into a bin the rice dust sticks there, and infects subsequent stocks from clean sources.

The constant factor in the disease is vasomotor paralysis of terminal branches with tendency to chronic congestions of organs, in which they ramify.

### The Causes of Puerperal Infection Before Time of Delivery and Subsequently.

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In the last lecture we saw that puerperal fever was simply wound fever, and that in every labour both the wound and the micro-organisms were present, but that, in cases where no interference whatever with labour takes place, the organisms have no opportunity of reaching the wound, which consequently does not become infected.

Under the conditions of modern civilisation, however, normal labour, in the strict sense of the word, scarcely ever occurs. There is almost always interference of some kind, which is necessary in the majority of cases, if the patient is not to die undelivered, or become unduly exhausted, with consequent danger both to mother and child. Puerperal infection is, therefore, possible in the vast majority of labours. It cannot be doubted, however, that this interference of one kind or another, takes place far too frequently at the present time, and that this is a very fruitful source of subsequent infection.

We will now proceed to study in detail the methods by which infection of the wound, wherever it may be, takes place, and it will be convenient at once to draw a line between infection that occurs at the time of delivery, and that which arises from something that has taken place during the puerperium, which I will define, for this purpose, as the interval between the completion of delivery and the cessation of the lochial discharges.

It is, however, possible, for the patient to be infected before delivery by the organisms of gonorrhoea. What usually happens then is that the woman has suffered from an attack of this disease, some time—it may be many months—before her pregnancy, from which she has to all appearances recovered. Some few organisms are, however, left in the vagina, which are conveyed to the surface of the wound in the same way as the other vaginal organisms which I have mentioned, with the consequence that the disease is lighted up afresh, and may be followed by the most disastrous consequences.

Coming now to the more common time of infection, namely, during delivery, it will first

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