had been noticed in 8 cases, accompanied by swelling in 3. Both these complications, therefore, occurred more frequently than when the serum was not used. He considered that there was no evidence of an injurious action on the kidneys.

Professor Stintzing reported 59 cases with a mortality of 20.3 per cent. A complete analysis of these and other smaller collections of statistics reported to the meeting cannot as yet be made.

ROYAL COMMISSION ON OPIUM.

THE MEMORANDUM OF SIR WILLIAM ROBERTS, M.D.,
F.R.S., ON THE MEDICAL ASPECTS OF THE OPIUM
HABIT IN INDIA.

APPENDED to the report of the Royal Commission on Opium is a memorandum by Sir William Roberts, M.D., F.R.S., on the general features and the medical aspects of the opium habit in India.

It is pointed out that the use of opium is only one manifestation of the practice, common to all human communities except the most primitive, of consuming articles of a stimulating or restorative character, such as alcohol, tobacco, opium, tea, coffee, coca, Indian hemp, betel, and others, which do not possess in their essence nutritive properties, and are not classed as true articles of food.

Among these substances opium takes a position intermediate between alcohol and tobacco; but, in regard to their effects, it is to be noted that "opium and tobacco are..... alike in not producing in their users any special organic tissue changes, even when carried beyond the verge of moderation; whereas alcohol, if used in habitual excess, produces special organic changes by which its operation can be tracked, both during life and after death."

The opium habit is disseminated all over India, and, being by its nature cryptous and undemonstrative, may be practised for years without exciting suspicion. For this reason the estimates given of the ratio of opium eaters to population must be taken with great reserve. Certainly their number is likely to be under rather than overestimated. Still, "taking India all through, it is evident that only a minority of the inhabitants, generally a small minority, even of the adult males, are opium eaters."

It seems that the natives of India have generally a higher tolerance for opium than Europeans, and this enhanced tolerance appears to be congenital, for it is as marked in infants as in adults. In the course of his evidence on this point, Dr. Crombie said: "Most of our ayahs, who are entrusted with the care of European children, are up-country women who are accustomed to deal with their own children in this way (that is, giving them opium); and when they find a feverish, fretful English child, they give it the same dose of opium they would give to their own child, and the English child dies..... We have all had experience of that kind."

Judging by the practice of opium eaters, the average tolerance of natives of India appears to range from 4 to 12 grains of opium per day. But many take far larger doses than these, and consume 20 to 40 grains a day, and not a few 50 to 80 grains a day, without any appreciable detriment to their health. Outside this general experience, however, some cases showing extraordinary tolerance were quoted. Dr. Kailas Chunder Bose stated that he had seen a religious mendicant take about 2,000 grains of crude opium, and that the man was a perfect model of health and vigour. Another native physician at Calcutta related that he was acquainted with a singer who, after singing for three or four hours, would take 300 grains of opium, and then go on singing again, keeping time and tune accurately. Sir William Roberts draws special attention to the dual action that opium has upon the human constitution. It operates as a therapeutic agent, as an anodyne and hypnotic; but it also operates as a euphoric agent, producing an enhanced sense of well-being, after the manner of alcohol and tobacco.

These two actions are not only not identical, but they are not always concurrent—that is to say, that persons may be sensitive to the pain-annulling effects of opium, and not be sensitive to its pleasure-producing influence. "The therapeutic effects of opium are much alike—tolerance apart—in all persons and in all climates, but it would seem as if only a select portion of the population were susceptible to its

euphoric effects." Tobacco offers an apt illustration of this point. Many people never smoke, or if they do never become "smokers" in the proper sense of the term, simply because they as they will they experience no enjoyment in the practice. The opium habit is mainly a habit of middle life and advancing years. Among young adults it is comparatively rare, and is only followed by persons suffering from some chronic ailment or by idle and dissipated young men. It is commonly begun between 35 and 45, when the premonitions of age begin to be felt, for it is to be noted that this epoch in life comes on much earlier among the natives of India than with Europeans.

We reserve for a future article the consideration of some of the effects of opium, its use as a household medicine, and as a remedy and prophylactic against malaria, its administration to infants, its use on ceremonial occasions, and the habit of smoking opium, which appears quite distinct from that of opium eating.

THE PREVENTION OF TYPHOID FEVER IN THE ARMY.

In a report just issued, General Zurlinden, the French Minister of War, reviews the progress made in the army since 1886, in point of prophylactic measures. The most striking results are still, as they were in M. de Freycinet's reports from 1889 to 1892, those relating to typhoid fever. In 1886 the number of cases of this disease was 7,771, being over 14 per 1,000; in 1894 it was 3,060, being under 6 per 1,000, a reduction obtained by an almost progressive decrease in each year. This result is shown by a detailed examination of the circumstances of those stations where the reduction has occurred to have invariably followed on the purification of the drinking water supplies. The report instances 29 of the garrisons most subject in earlier years to typhoid fever, in each of which the introduction of an uncontaminated water supply had been followed by the disappearance of the disease except in isolated cases, the majority of which were shown to have been contracted outside the barracks. In those cases where a new water supply had been provided and the water was drunk unfiltered, epidemics followed from time to time on the contamination of the source, and disappeared on the application of Pasteur filters. Thus at Avesnes, 105 cases in 1891 became, after installation of these filters, only one case per year for the remaining three years; at Auxerre, 129 cases in 1892 were similarly reduced to one each in 1893 and 1894; at Melun, 122 cases in 1889 fell to 7.4 for the following five years, in spite of the heavily polluted water which continues to be supplied.

At Melun in the present year the filters got frozen, and the cavalry men, who had got hold of unfiltered water instead of drinking the regulation tea, were attacked with 28 cases, while the infantry in the same barracks who had not drunk this water were unattacked. At Cherbourg, with a previous annual average of 114.5, the installation of Pasteur filters in 1890 reduced the number of cases to 21, 8, 11, 3, and 3 in the following years. At Diran, with a previous annual average of 278 cases, the installation of Pasteur filters in 1890 reduced the number of cases to 1, 2, 3, and 1. At Lorient, a hot bed of typhoid for the civil population up to the present time, a previous annual average of 175 cases fell on the installation of Pasteur filters to 58 in 1890, and in the following years to 2, 2, and 1; rising to 11 in 1894 on the use of an unfiltered supply for a short period. At the same garrison in 1893 the civil population were affected by a severe epidemic of cholera; at the barracks there was only one case, contracted while on leave. There is no object in the further quotation of figures, which only confirm conclusions already sufficiently established. The report discloses a state of affairs which might well be an example to our own military authorities. The sacrifice of 90 men out of a company of 600 in the Lucknow cholera epidemic to the infection preserved and imparted by the barrack room filter contrasts with the hundreds of lives which the Pasteur filter is annually saving for the French army; and it is much more a matter for regret than for surprise that the recent annual medical report of our War Office shows the number of typhoid cases at 9.14 per 1,000, over 60 per cent. higher than the present rate in the French army.