

tion with tartaric acid (5 grs.) every 3 hours. The muriate of quinine was used in 10-20 grs. doses by Thayer in severe and pernicious malarias. Some also recommend the use of antipyrin in conjunction with quinine. Ziemann has recently recommend intra-muscular injection, as into the glutei which is not painful when the proportion of quinine to fluid does not exceed 1 to 4. Some recommend in very pernicious cases the intravenous injection of the bimuriate of quinine (15 grs. to 5 ii of water).

Euquinine, another carbonate of quinine, is a new and tasteless product. Gray maintains that in addition to being tasteless, smaller doses are necessary to reduce the temperature. But its chief objection is that it causes tinnitus aurium, deafness and visual derangements in a more marked degree than the same dose of quinine. The dose of Euechinin should be somewhat less than twice that of quinine, says another authority.

Methylene blue has been recommended by some observers, but while it has a definite action on paludism, it is materially less efficacious than quinine.

Before closing let me add just a word about Malarial Hæmoglobinuria—the black-water fever—which was thought at one time to be due to the toxic action of quinine. Such was the opinion of Koch and many other notable authorities. Denmance asserts that while it is true that malaria is a predisposing factor to hæmoglobinuria, the latter is most likely to occur in cases which have been neglected or not properly treated at the beginning, never as a result of quinine, but because quinine has not been given at a time when it alone would have arrested the process of the malarial infection. This is a somewhat sweeping assertion. Thayer, in an article in *Progressive Medicine*, 1899, takes a more rational view. He says: "(1) If the attack has come on without quinine and there are active parasites in the blood, quinine must certainly be administered. (2) If under the same circumstances parasites are absent, quinine is uncalled for. (3) If there is reason to believe that the attack has been precipitated by quinine, the drug should certainly be stopped, unless evidence of a very severe infection continues. To treat malarial hæmoglobinuria the microscope is an absolutely indispensable adjunct."

BIBLIOGRAPHY.

1. Osler's Practice of Medicine.
2. Albutt's System of Medicine.
3. Johns Hopkins Hospital Report, Vol. V. W. S. Thayer and T. Hewetson on Malaria.
4. *Progressive Medicine*, March, 1899.
5. Sajous' Annual Encyclopedia of Practical Medicine, Vol. IV., 1899.