

A CHEAP ANTI-MALARIAL DRUG IN INDIA

THE history of cinchona cultivation in the British Empire constitutes a tragedy of mismanagement. During the closing years of the last century, India and Ceylon led the world to an extent that over-production occurred and the inevitable crash brought about the extinction of the cinchona industry in the British Empire; but owing to climatic advantages and more scientifically regulated control, the Dutch industry in Java survived. To-day that island has a virtual world monopoly, while India produces 70,000 pounds a year against her real requirements of at least 1,000,000 pounds. Again, as in 1914, India is seriously alarmed at the prospect of a quinine famine in the face of the threat of war. The adoption of some intelligent forward policy in this direction is an urgent matter, but even if cinchona cultivation were immediately extended, appreciable results would not be obtained for at least ten years. With the awakening of interest in the pharmaceutical industry in India, a demand has arisen for the revival of cinchona cultivation. It is not suggested that Java should be ousted from her present position of world monopoly, but that at least India should cater for her own needs. The object of supplying a cheap anti-malarial drug for the people should be kept clearly in mind. Sir R. N. Chopra's recommendation that the Cinchona Department should cultivate on a large enough scale that species of cinchona best suited to the Indian climate has not been acted upon. The main obstacle to the problem of distribution to the needy is the high price of quinine fixed by the Java monopoly.

Even if cinchona cultivation were extended in India, the price would remain relatively high, but it is pointed out in a recent issue of the *Indian Medical Gazette* that a preparation of mixed cinchona alkaloids of the "totaquina" standard could be produced at a cost of one-seventh that of quinine. The "totaquina" standard rivals in efficiency that of pure quinine, and wherever it has been tried out on an extensive scale this has been confirmed, while there are many who believe that the mixed alkaloids are even more efficacious than

quinine in certain forms of malaria. This standard originated with the Malaria Commission of the League of Nations as being an efficient anti-malaria drug that could be prepared from the hardier cinchona plants in the form of crystallisable alkaloids mixed in the proportion in which they occur naturally in cinchona bark. It is not generally realised that the preparation known as "cinchona febrifuge" contains the mixed alkaloids remaining after the removal of the valuable quinine, and its universal use in malaria is therefore to be deprecated, but the British Pharmacopœia standard for totaquina demands that it shall contain at least 70 per cent. of crystallisable alkaloids, of which at least 15 per cent. shall be quinine. The essence of the whole matter would appear to be that, owing to the failure to realize the urgency and magnitude of the problem, generations of doctors and the public have been educated to believe that only one alkaloid—quinine—is of any value in the treatment of malaria, when, on the contrary, it is probable that powdered cinchona bark gives every bit as good a result and could be manufactured at a price at which universal distribution to the malaria-stricken millions of India would become a possibility.

In 1937, on the recommendation of the Indian Research Fund Association, the Government of India appointed an officer to determine what areas in India are best suited to cinchona cultivation, and what would be the cost of production in such areas. In this investigation the land considered suitable for *Cinchona ledgeriana* has been chosen on the grounds that it yields the maximum quantities of quinine. The contention is that the Government in India should extend their present plantations, still growing the high-quinine-yielding *C. ledgeriana* in suitable areas, grow *C. robusta* and other hardier species in other areas, and in their factories manufacture a large preponderance of totaquina and smaller amounts of pure alkaloids. No real progress can be made, it is argued with some force, until the commercial has been made subservient to the medical point of view.

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