AN EXPERIMENT IN THE PROPHYLAXIS OF MALARIA.

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“... and then of course, there’s the ... road. When the troops in the hills change over with those in the plains at mid-season, both lots get thoroughly infected with malaria in the three lower camps and on the road between them. There’ll be another medical scandal about it some day soon. ... Good luck!”

Now when an officer who is going on leave (is it fair to remark that he developed malaria in London?) puts things thus to another who is taking over, it becomes obvious that something should at least be attempted.

The road in question leads from a railway terminus to a Punjab hill station, is some fifty miles in length and has on it four camps at which the troops halt by day, marching by night between them. The three lower camps are situated amongst some of the most intensely malarious foothills of the northern Punjab border. Passage through these hills in previous years, in spite of every attention to the use of mosquito nets and repellent oils, and of local antilarval measures, produced an immediate crop of malarial infections to decrease the value of one party’s move to the hills, and increase the strain of the other’s sojourn in the plains; the move takes place in July. The troops who occupy the hill station are drawn from two stations on the plains.

Various obstacles, of which finance was not the least, having precluded the use of motor transport in which the moves might have been carried out in the daylight of one day, it was decided to try to apply the lesson conveyed in the following paragraph from a paper by Professor Warrington Yorke (1924) ... “the experimental work conducted by Macfie and me showed that quinine has no true prophylactic action in that it does not destroy the sporozoites. Daily doses of ten grains of quinine administered for five days before, on the day of, and for seven days after, the infective feed, failed to prevent the development of the infection, as also did daily doses of thirty grains given on the day of, and for two days after, the infective meal. Further experiments indicated that, within wide limits, the amount of the daily dose of quinine was immaterial, and that in order to prevent the development of the infection, it was necessary to continue the administration of quinine for at least ten days after the bite of the infective mosquito.”

The procedure adopted was to administer a curative dose of quinine to cover the end of the normal incubation period of the disease, and the news
was finally broken to the long-suffering soldiery that for eight days commencing a week after they had quit the last of the malarious camps on the road, both up and down, they would be given, after breakfast and tea, a well-sweetened medicine to prevent them from getting malaria. When the first dose was presented, it took the old hand rather less than one second to pronounce, with a certain emphasis, that it contained quinine. He was right. In the usual disguise was "concealed" fifteen grains of quinine sulphate and three minims of the acid solution of arsenic. This dosage—thirty grains of quinine daily for eight days—was administered on parades, and was not badly received by the victims, when they realized that a term, and that a short one, was set to the period of their trials.

The histograms printed above compare the incidence of malaria amongst the troops taking part in this mid-season move with and without quinine given as described. The figures relate to the whole of the troops moving in and between the three stations concerned, and have been combined into single histograms for each year, and, further, so superimposed that the dates during which the moves took place lie in the same vertical planes. The approximate incidence by weeks is shown side by side with the finally ascertained total incidence, including cases treated both in and out of hospital, this latter total being shown as ratios per thousand.
The results, as they stand, are obviously open to so many statistical and epidemiological sources of error that no more can be said at present than that they do appear to support the findings on which the trial was based, and to provide grounds for the use of quinine scientifically and economically in the protection of persons passing through, or residing for short periods in, malarious belts of country.

The recent report by Captain Draper (1928) from Transjordania shows again that mass treatment with quinine will reduce the incidence of malarial attacks in a known heavily infected community. Experience with the British Salonika Force during the Great War provided similar findings; though the end results of prolonged courses of "prophylactic" quinine are apt to be disappointing, especially if the subjects remain exposed to the possibility of infection. The experiment now reported is an attempt to deal with a short period of probable gross infection by a method which has a definite experimental foundation and which can cause the least harm (and much harm can be done with quinine) to the subjects. It is reported in all its incompleteness because the results have appeared to be so satisfactory that it may be worth the while of others similarly situated to employ the same idea, and, in time, to pronounce as to whether it is, as it is believed to be, a practical proposition, or whether under more prolonged trial it turns out to be another—almost equally valuable—negative result in the search for knowledge concerning the control of malaria.

REFERENCES.
