

TABLE I.

Serial Number.	Name.	Age.	Sex.	Nationality.	Residence.	Duration of stay at Coonoor unbroken.	HISTORY.		Spleen.	Result of microscopical examination.
							Previous.	Present.		
1	2	3	4	5	6	7	8	9	10	11
1.	Kuppan.	32	M.	O. C.	Dhoby Ghat, Coonoor.	* 12 years.	Nil.	First attack.	Just palpable and tender.	B. T. and M. T. mixed.
2.	Nagamony.	25	F.	H.	Mount Pleasant, Coonoor.	* From birth.	Nil.	First attack.	Just palpable and tender.	B. T. and M. T. mixed.
3.	Michael.	7	M. C.	O. C.	Dhoby Ghat, Coonoor.	* From birth.	An attack of fever one month before present attack.	Second attack.	2 fingers breadth below costal margin.	M. T.
4.	Muthu.	5	M. C.	O. C.	Dhoby Ghat, Coonoor.	* 3 years.	Nil.	First attack.	Just palpable and tender.	B. T. and M. T. mixed.
5.	Mari	11	M. C.	O. C.	Mount Pleasant, Coonoor.	* From birth.	Nil.	First attack lasting for a month.	2 fingers breadth below costal margin.	B. T. and M. T. mixed.
6.	Mariappan.	12	M.	H.	Dhoby Ghat, Coonoor.	* 2 years.	Nil.	First attack lasting for 4 days.	Just palpable and tender.	M. T.
7.	Anthoni-ammal.	30	F.	O. C.	Mount Pleasant, Coonoor.	* From birth in high altitudes.	Attacks of fever, probably malaria.	Pain in the splenic area.	Level of umbilicus.	M. T.
8.	Pedhan.	30	M.	H.	Dhoby Ghat, Coonoor.	* 15 years.	Nil.	First attack of fever lasting for a month.	2 fingers breadth below costal margin.	B. T.
9.	Yesu.	35	M.	O. C.	Alwarpet, Coonoor.	* From birth.	Nil.	First attack lasting for two months.	Just palpable and tender.	M. T.
10.	Veerappan.	36	M.	O. C.	D'Chamscherri.	* From birth.	Nil.	First attack.	Just palpable and tender.	B. T.

Remarks. * Never been off the Nilgiris, never been at any point lower than 5,500 feet above sea-level.

A NEW DILUENT FOR PARIS GREEN.

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SINCE the publication of our paper on "Bombay Mill Ponds and Anopheline Control" in the *Indian Medical Gazette* of August 1926, our efforts have been directed towards the control of mosquito-breeding in the mill compounds. We propose in this paper to record a few points of general interest that have emerged during this enquiry.

Besides the large ponds or "lodges" referred to in the previous paper, the cotton mills in Bombay maintain a supply of water for fire purposes in big cisterns known as "sprinkler tanks," built on high towers, so that in case of fire the premises may be flooded by gravity flow through

automatically-working pipe connections which are fitted overhead in the various departments. The number and size of the sprinkler tanks vary according to the requirements of each mill, but on an average each tank is from 30 feet to 60 feet either way, and carries permanently about 6 feet of water. The water is mostly a clean supply derived from the municipal mains, though an emergency connection with the mill-pond by means of a pump is also provided. Besides the sprinkler tanks, other cisterns, small and large, are also kept filled with clean water for various purposes. The majority of these cisterns are roofed over, but none of them seen by us so far are mosquito-proof, and malaria-carrying Anopheles are found breeding in some of them. Any measures devised to control such breeding will have a direct bearing on the general problems of malaria in Bombay city, as one of the most potent sources of Anopheles is the large number of household supply cisterns on the tops of Bombay houses. Of course the latter could

be made harmless by simpler measures, but in practice very few are really mosquito-proof.

For dealing with the mill-cistern problem, "oiling," which had proved so effective in the case of the ponds had to be ruled out for obvious reasons, and some efficient substitute had to be found. In some basin-experiments in the laboratory, the insect-powders with a pyrethrum base that are on the market under different trade names were found to be fairly effective. Of the three brands tried, viz., Katol, Imazu, and Keating's powder, all were distinctly less effective against anopheline than against *Culex* and *Stegomyia* larvæ, and under working conditions in a small cistern where fresh water is replaced as the old supply is used up, they were ineffective in preventing anopheline larvæ from coming to maturity. None of them had any effect on the eggs, and very little on the pupæ.

The next substance to which attention was directed was Paris green. The question of finding a suitable diluent to suit our conditions was considered to be of some importance. It is believed that Paris green is a specific poison for anopheline larvæ and acts most probably by ingestion. The anopheline larva being a surface feeder, means have to be devised to keep the particles of the drug floating on the surface. It was thought that the longer the poison could be kept floating, the more effective it would be, and under the conditions obtaining in the cistern under experiment, some diluent had to be used which would be least affected by the strong breeze blowing across the open tank, and further, would withstand the drowning action set up by the agitation of the surface water caused by a one-inch main pouring into it full-bore during refilling.

Different materials were thought of and tried out, first in basin experiments, and then under working conditions. Of these,

- (a) Cork powder was suitable but too expensive;
- (b) Sawdust had a tendency to sink after a short time and form a layer at the bottom which had to be cleaned often;
- (c) Fine road-dust sinks too quickly and does not withstand agitation or wind action;
- (d) Flue-dust—the very fine powder obtained after cleaning the boiler flues—was better in floating qualities, and worked quite satisfactorily in destroying larvæ.

But the best material for the purpose in view proved to be

- (e) French chalk. It forms a very thin even film on the surface, which lasts for about four days if the water is undisturbed as in the case of a closed tank, and almost refuses to be drowned by agitation.

[French chalk is finely powdered magnesium silicate, and in its crude form of steatite, is readily obtainable in the Indian bazaar as smooth

hard pieces under the name of *Sangjiru*; the pieces can be easily ground in a mortar into a fine powder which can be passed through muslin to ensure uniformity; it is cheaper than the imported powder.]

The cistern in which these experiments were carried out is 32' × 16' × 6' deep, and holds about 13,000 gallons of water. It is about 50' from the ground level, and has no roof or cover. It is known as a hydrant tank, and unlike the sprinkler tanks above referred to, the water is in daily use and is being constantly replenished. Larvæ of *Anopheles stephensi* were found again and again in it, though in the stagnant water of a sprinkler tank next door, none could be found.

According to the quantity of Paris green recommended for wells and cisterns by L. W. Hackett (from the Stazione Sperimentale per la Antimalarica, Roma) 40 grains of the drug were incorporated with 8 oz. of French chalk and sprinkled on the water (about 500 sq. ft. of surface). When seen after two hours, a strong breeze was blowing across the open mouth of the cistern, and the thin film of the powder could be seen to be repeatedly broken, but would as often re-form as soon as the force of the wind abated a little. We look upon this as a very important physical property of French chalk for our purpose. On examining the cistern the next day, no larvæ could be found: on the third day, a few very early larvæ again appeared, showing as is already known, that the eggs were not affected. On the other hand, in a closed cistern of similar construction which was treated with a similar quantity of the Paris green French chalk mixture, the powder formed a thin scum on the surface for five days, and no larvæ were detected for a week. The water of this latter cistern was stagnant, there was no disturbance of the surface, and *Anopheles* were breeding profusely before treatment.

We have also tried sublimed sulphur as a diluent of Paris green in basin experiments, and found it quite suitable for the purpose: but it has no special advantage over French chalk.

Conclusion.

For use on a small scale in cisterns and wells, French chalk is an ideal diluent for Paris green.

QUALITY OF MILK OF SOME SPECIAL BREEDS OF HIMALAYAN COWS.

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THE extraordinarily high percentage of fat in the milk of certain varieties of Darjeeling cows was first noticed in a sample of milk sent up for examination, in which no less than 7.5 per cent. of fat was determined. Subsequently, an attempt was made to collect some data from which the actual quality of milk obtained from certain breeds of cows might be arrived at.