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Proceedings of the Madras Government, Revenue Department,
15th June 1868.

No. 344. Read the following letter from the President and Members of the Chinchona Commission, to the Secretary to Government, Revenue Department, dated Madras, 18th April 1868.

1. This Commission having been re-assembled, with an accession of members, as noted in the margin, we have the honor, in continuation of the report submitted to Government on the 28th February 1867, to state that since that date tabular

statements exhibiting the treatment of a large number of cases of paroxysmal malarious fevers, by means of the sulphates of Quinidine, Chinchonidine, and Chinchonine, have been received from the various stations and places at which the experiments were conducted. A few of these tabular statements pertain to the year 1866; being those referred to in last year's report as having been in the hands of the printer and not in readiness to be included in the tables which accompanied that document. For the purpose of comparing the febrifuge effects of these medicines with that of chemically pure sulphate of Quinine, the medical officers engaged in carrying out the experiments have, under instructions issued to them, likewise furnished tabular returns of the treatment of fevers by that alkaloid. The whole of these reports are now before the Commission, and appear to afford data sufficient to enable us to arrive at a decisive opinion regarding these alkaloids as therapeutical agents in the fevers of this country. The result of the experimental inquiry is fully and specifically detailed in the tables given in the Appendix. Briefly enumerated, it is as follows:—

Total number of cases treated by the four alkaloids	Cured	Failed.
2,472.	2,445.	27.

2. The fevers treated occurred chiefly at stations and in localities known to be malarious, viz., at Goodaloor in Wynaad; Doomagoodiem, and other places in that vicinity, on the Upper Godavery; Goonah, in Central India; Kurnool; Labuan; Jeypore; Russelcordah; Kimeddy; Sumbulpore; and Cochin; and may, therefore, be considered fevers of the true paroxysmal character caused by malaria.

3. We submit the following abstract statements of the respective alkaloids taken from the tables in the Appendix.

Chemically pure sulphate of Quinine.—Number of cases treated 846, cured 840, failed 6. Dose varied from 2, 4, 6, 8, 10 to 20 grains, administered as shewn in the table in Appendix. The effects on the general system were deafness, singing noises in the ears, vertigo; also at times nausea, vomiting and purging; occasionally the circulation was excited, sometimes depressed. In a few instances there was headache. The check of paroxysm in a large proportion of the cases was speedy, viz., from one, two, three or four, to seven days; in the aggregate, it ranged from one day to sixteen days.

Sulphate of Quinidine.—Number of cases treated 664, cured 660, failed 4. Dose varied from 2, 5, 7, 8, 10, 20 to 30 grains. The effects on the general system were deafness, singing noises in the ears. Frequently bilious purging, occasionally vomiting. In a few cases vertigo. In some, the circulation was excited; in others, depressed. In a large majority of the cases, check of paroxysm ranged from one day to eight days; in many it was from one day to four days.

Sulphate of Chinchonidine.—Number of cases treated 403, cured 399, failed 4. Dose varied from 3, 5, 6, 8, 10 to 20 grains. The effects on the general system were deafness and singing noises in the ears, vertigo, sometimes nausea, vomiting or purging; also headache and general depression; check of paroxysm in a large number of the cases ranged from one day to four days. In the aggregate it was from one day to sixteen days.

Sulphate of Chinchonine.—Number of cases treated 559, cured 546, failed 13. Dose varied from 2, 3, 4, 5, 6, 8, 10, 20 to 30 grains. The effects on the general system were deafness, singing noises in the ears, also vertigo, nausea, vomiting and purging; occasionally general depression, dryness of throat, sometimes excitement, headache. Check of paroxysm in the greatest number of cases ranged from one day to eight days. In the aggregate it was from one day to sixteen days.

4. *Regarding the doses used and the mode of administration adopted.*—In a very large proportion of the cases the doses were 8 or 10 grains, most commonly the latter, and were given once during the intermissions, a few hours before the expected paroxysm. In a good many instances however, 4, 5, 6 or 7 grains were administered two or three times during the apyrexial period. These two modes of exhibition appear to have been equally efficacious in controlling recurring paroxysms. A few medical officers employed similar doses during the paroxysms, and occasionally gave doses of 15, 20, and even 30 grains. The effects produced on the general system by doses of 10 grains and upwards of the various alkaloids, including chemically pure sulphate of Quinine, were in all respects very similar to those caused by equal doses of ordinary sulphate of Quinine. Deafness, singing noises in the ears, and vertigo, were the symptoms most frequently observed; nausea, bilious vomiting or purging occasionally occurred. In a few instances the circulation was excited, in others depressed; in some drowsiness followed. From this general description, we except sulphate of Chinchonine, which was found generally more disturbing and particularly liable to cause nausea and vomiting. Smaller doses, from 5 to 7 grains, were better borne and were seldom followed by the disagreeable symptoms above noted.

5. In much the greatest number of fevers, shewn in the returns to have been successfully treated, the alkaloids were exhibited with speedy and marked benefit, that is, the paroxysms were checked in one, two, or three days. In many of the cases the check was established in one day and by a single dose of 10 grains; sometimes a dose of 4, 5, 6 or 7 grains produced the same effect. Most of the medical officers employed in using the alkaloids seem fully impressed with the belief that they are equally or very nearly as efficacious as ordinary Quinine; and, as already shewn, the mass of information furnished in the tabular reports proves that such belief is well founded, excepting in the case of Chinchonine, which, it will be observed, has much the largest ratio of failures. On the other hand, it must be stated that a few of the medical officers do not consider that any of the new alkaloids are, in equal doses, as efficacious as ordinary Quinine, though they admit their valuable febrifuge power.

6. It has been shewn that the total number of fevers treated by the new alkaloids and chemically pure Quinine is 2,472, of which 27 are stated to have failed. The failures, it will be observed, are but a little in excess of 1 per cent. of the aggregate number treated, which is certainly a most favorable result, especially when it is known

that many of the patients were saturated with malaria and ill-fed, as evidenced by their enlarged spleens and emaciated and anæmic condition. Such was most commonly the deteriorated health-state of the fever-stricken patients who applied for aid at Goodaloor, where the alkaloids were most fully and largely tested: many of the sick from fever treated at Cochin were in a like unfavorable state. The patients in whose cases the alkaloids were principally tried were natives of the stations and places shewn in the tables in the Appendix; but it may also be stated that they were likewise used on a small scale in fevers of the paroxysmal form affecting Europeans and East Indians. Twenty-five Europeans were treated successfully and with speedy effect: in one case only the check of paroxysm was deferred; but in this instance the remedy is stated not to have had a fair trial, in consequence of the patient having been moving about the district in the discharge of his duty. Thirty-two East Indians were cured of fever by the alkaloids. In one, the paroxysms were not fully controlled sooner than the tenth day.

7. Of the 27 failures, 11 are recorded in the reports from Labuan, and it is observed that in 10 of these cases the paroxysms were checked by two and three 6-grain doses of Quinine, and in one by two 12-grain doses of chemically pure Quinine, by which the superior efficacy of Quinine is evidently implied. It is necessary, however, to note that the fever-patients at Labuan were invariably given only a single 8 or 6-grain dose a few hours before the expected paroxysm, which we think can scarcely be deemed a quantity sufficient to check in every instance recurring febrile attacks of a paroxysmal nature. Of the six failures shewn in the returns from Thayetmyo, it is stated that in two cases Quinine had been resorted to, but the result of the use of that remedy is not shewn. Four of these cases were treated by sulphate of Chinchonine, two by sulphate of Quinidine, nausea and vomiting having been caused by the latter alkaloid. In all these cases the failure was pronounced on the second and third days. The dose is stated to have been 10 grains given during the paroxysms. The want of success may, we think, be reasonably attributed to the unfavorable time of administering the remedy. Of the remaining 10 cases in which failure is recorded, 6 were treated by chemically pure sulphate of Quinine, and 4 by the new alkaloids.

8. In regard to the relative effects of the three new alkaloids, and with them chemically pure sulphate of Quinine, the evidence derived from their use shews that, with the exception of sulphate of Chinchonine, as already stated, they, in a remarkable degree, so closely resemble each other in therapeutical and physiological action, as to render distinctive description of little or no practical utility. In a large proportion of the cases in which they were tried, chemically pure sulphate of Quinine, and sulphates of Quinidine and Chinchonidine appeared to indicate nearly equal febrifuge power, and in equal circumstances their use produced almost the same physiological effects.

9. As surmised in the former report of the Commission, the various detailed statements of the experiments with these alkaloids shew that the difference of their therapeutical and physiological action are of degree, and not special. Either of them, and also Quinine, when administered in adequate febrifuge doses, have not unfrequently a disturbing influence on the general system, manifested by effects apparently common to all, and, excepting Chinchonine, varying very little in regard to

particular symptoms. All have a positive effect on the digestive system; generally small doses improve digestion, but with the larger doses the effect is varied, as the case may be, from loss of appetite, to nausea, bilious vomiting, or purging. According to the amount of the dose, a like gradation of action on the nervous and circulatory system was observed. In their remedial agency, the differences of the respective alkaloids is best shewn by the following table, exhibiting the ratios of failure per 1,000 cases treated, in judging of which, however, what has been already stated in paragraph 7 regarding the failures should be kept in mind:—

Chemically pure sulphate of Quinine...	7.092
Sulphate of Quinidine	6.024
„ „ Chinchonidine	9.925
„ „ Chinchonine	23.255

10. The following table shews the number of cases treated with each alkaloid by medical officers and subordinates respectively:—

	OFFICERS.		SUBORDINATES.	
	Cases.	Failures.	Cases.	Failures.
Sulphate of Quinine (chemically pure)	530	5	316	1
„ Quinidine	221	3	443	1
„ Chinchonidine	167	3	236	1
„ Chinchonine	233	13	326	...
Total...	1,151	24	1,321	3

11. In connection with the subject of this inquiry, it is important to note that in the Appendix to the report of the Government Quinologist, dated 27th November 1867, it is stated “that at least for 30 years much of the commercial Quinine employed in medicine would inevitably, from the method employed in its manufacture, be largely mixed with the sulphates of Quinidine and Chinchonidine, and would occasionally consist entirely of the later salts.” This statement, in our opinion, goes far to establish that these two alkaloids are but very little, if at all, inferior to Quinine.

12. Referring to the four reports in the Appendix, it will be observed that considerable difference of opinion exists therein as regards the efficacy of the alkaloids in comparison with Quinine. The reports from Doomagoodiem and Labuan, by Drs. Houston and Fitzgerald, state that the new alkaloids are all more or less inferior in febrifuge effect to Quinine, whilst those furnished by Dr. Whitton and Mr. Wade from Cochin and Goodaloor record a different belief, and represent the alkaloids in remedial efficacy equal to Quinine. We have already offered an opinion relative to the probable cause of the failures at Labuan, and therefore we are inclined to attach greater weight to the views entertained by Dr. Whitton and Mr. Wade, and it is satisfactory to add that their combined estimate of these agents is based on their employment in the treatment of fevers on much the largest scale.

13. As the notedly malarious stations of Doomagoodiem, Labuan, and Goodaloor, from their difference in geographical position, appear most likely to have furnished cases of paroxysmal fever of the most varied description, in regard to intensity of malarial influence, the returns from these places have been selected as data on which to form a comparative numerical estimate of the febrifuge power of the

respective alkaloids and chemically pure sulphate of Quinine. Tables Nos. 5 and 6 in the Appendix shew the per-centage of cases of fever at these places, in which less than 20 grains of the alkaloids checked the paroxysms; and the per-centage of cases which required 20 grains and upwards to effect the same purpose.

The subjoined table gives the aggregate per-centage of these cases, and may be accepted as affording a fair therapeutical value of the alkaloids in the treatment of fevers.

	Number of persons treated.	Number of cases in which less than 20 grains checked the paroxysm.	Number of cases which required 20 grains and upwards to check the paroxysm.	Per-centage of	
				Cures effected with less than 20 grains.	Cures effected with 20 grains and upwards.
Quinine, chemically pure.	416	320	96	76.92	23.07
Quinidine	412	312	100	75.72	24.27
Chinchonidine	323	242	81	74.92	25.07
Chinchonine	385	282	103	73.24	26.75

14. In reviewing the whole of the operations for testing the therapeutical effects of the Chinchona alkaloids, the result confirms generally the favorable opinion expressed by the Commission last year; and likewise conclusively establishes beyond doubt that ordinary sulphate of Quinine, chemically pure sulphate of Quinine, and sulphate of Quinidine possess equal febrifuge power; that sulphate of Chinchonidine is only slightly less efficacious; and that sulphate of Chinchonine, though considerably inferior to the other alkaloids, is notwithstanding a valuable remedial agent in fever.

15. In conclusion, the Commission beg to recommend that these alkaloids may be tested as prophylactics against fevers among European troops, and, with this view, would suggest that a supply of each of these salts may be made over to the Inspector General, British Medical Service, for distribution to the various British Regiments serving in this Presidency.

From the Officer in Medical Charge, Goodaloor, to the Officiating Secretary, Principal Inspector General, Indian Medical Department, Fort St. George, dated Goodaloor, 1st January 1868, No. 1.

1. In forwarding the accompanying two tabulated sheets for the month of December 1867, I beg to state that, in accordance with your instructions conveyed in Memorandum No. 4,591, the experiments with the alkaloids ceased on the 19th instant, owing to the last supply having been expended, and the report on its therapeutic properties as an anti-periodic is now submitted.

2. In the latter part of September 1866, Assistant Surgeon J. Keess, who was specially employed on this duty, was removed to Madras. During the four months the experiments were carried on previous to his departure, the results proved so satisfactory that I was induced to continue them.

3. Since then, 1,079 cases have been treated by these salts with success, as is shewn in the accompanying general tabular statement.

4. Disulphate of Quinine (chemically pure).—The experiments connected with this salt are of a later date than the other alkaloids, having been put into practice in March last. The increase of the number treated over that of Chinchonidine and Chinchonine may be attributable to the fact that

not only at the time of its introduction were paroxysmal fevers very prevalent, but its use was continued for a longer number of days monthly than the two above-named alkaloids. Out of 284 cases thus treated, one dose was sufficient to stay the attack of fever in 251 cases, while 32 required a second dose, and one solitary case complicated with congestion of left lung required the administration of a fourth dose.

5. *Quinidine*.—With this salt 300 cases have been treated, of which number one dose was sufficient in 268 cases, while 30 required a second dose, and only two a third dose, so as to effectually stay the attack of fever. It exactly, not unlike Quinine, dissolves with dilute sulphuric acid, and is very similar in its effects to that drug, if not equal to it.

6. *Chinchonidine*.—With this preparation 242 cases have been treated, one dose being sufficient in 219, while 21 had a second dose, and two a third dose. It, to some extent, creates nausea, and even induced vomiting in a few cases, leaving a disagreeable sensation for some time afterwards; nevertheless, its properties as an anti-periodic can be depended upon.

7. *Chinchinine*.—This salt was at first carefully and cautiously used, as I was led to believe that it was an irritant of the stomach and bowels, and though in a few cases vomiting was induced, and in others diarrhœa, (doubtless Quinine acting likewise in similar cases), yet its use proves that it is not a gastro-intestinal irritant. It has, in common with the other alkaloids, been used in cases complicated with diarrhœa and dysentery, in combination with laudanum, successfully:—253 cases were thus treated, 215 requiring one dose for their cure, while in 38 a second dose was administered.

8. *Decoction of Bark* was prepared with the dried leaves, twigs and bark of the Chinchona plant as supplied by the Superintendent of the Government Chinchona Plantation. It was continued for a couple of months only. Twenty-two cases were thus treated, in 20 of whom the attack was stayed, whilst in two it failed, Quinine being resorted to. Of the two failures, one case of a month's duration, complicated with anasarca and general debility, may not be surprising; but the other, which was a mild attack and of short duration, yet derived no apparent benefit from the decoction, though it was steadily continued for five days. The dose usually administered was four ounces three times a day, and though the alkaloids effect a more speedy cure, which perhaps is more desirable with a working population, yet this simple anti-periodic can be obtained by the possessors of a few Chinchona plants.

9. Chinchonine was very generally complained of by the patients treated with the alkaloids, but it was apparent that it was more readily induced by the chemically pure disulphate of Quinine and Quinidine than by Chinchonidine and Chinchonine.

10. The alkaloids, not unlike Quinine, have a tonic effect; helping digestion and increase of appetite.

11. The majority of the cases were out-patients of this Dispensary, they were bad specimens for experimentary purposes, many being half-starved and emaciated, generally with enlarged spleens, a small weak pulse, invariably anæmic, and with marked pulsation.

12. Of the number treated, 87 were in-patients of this Dispensary, and though they were for some time afterwards under treatment, either for other diseases or observation, they continued to remain free from fever while in hospital. Of the remaining number treated as out-patients, many were free from attacks, for long periods, enjoying good health, whilst many again returned to the Dispensary after the lapse of weeks for treatment for a second attack, but I submit that their return should be regarded more as a necessary consequence attributable to a continued residence in a notably malarious climate, than to the inefficiency of the salts to stay the attack.

13. The alkaloids were generally administered in 10-grain doses dissolved in water—Quinine and Quinidine being soluble, Chinchonidine and Chinchonine partially so—each dose being invariably taken in my presence.

14. In conclusion, I would beg to state that after a trial of 19 months with these salts in a malarious district, where paroxysmal fevers are very prevalent, a 10-grain dose of any of the alkaloids, as was usually given, tends either to cut short the attack of fever for some time, or mitigates markedly the severity of another paroxysm.

APPENDIX.
TABLE I.—Shewing the results of the treatment of paroxysmal malarious Fevers by sulphate of Quinine (chemically pure.)

Name of Medical Officer.	District or Station.	TYPES OF FEVER.					RESULT.	Remarks.
		Quotidian.	Tertian.	Quartan.	Remittent.	Total.		
Asst. Apoth. M. Wade.	Goodalloor, Wynaad ...	288	14	6	0	308	307 Cured. 1 Failed.	Dose, chiefly 10 grains, in water, given during the intermissions, from 2 to 4 hours before the expected paroxysm. In a few cases 2, 3, 4, 5, 7 or 8 grains were given in the manner stated. Paroxysm checked in 249 cases in 1 day, in 53 in 2 days, in 4 in 3 days, in 1 in 4 days; 1 case remained unchecked. In all the cases the patients were under observation for some time after the paroxysm had been checked. Duration of fever prior to treatment ranged from 1 to 30 days; many of the sick had previously suffered from fever. Splenic enlargement in 122 cases; effects of the remedy on the general system were deafness and singing noise in the ears. In a good many, nausea or vomiting, or purging. The various doses were effective in checking the paroxysms. The larger more certain and immediate than the small. Goodalloor is a jungly and malarious locality.
Dr. J. FitzGerald	Labuan...	35	1	0	0	36	36	Dose, 4, 6, or 8 grains, in solution, once during intermissions about 2 hours before the expected attack. Check of paroxysm varied from 3 to 16 days. The delay in the latter instance appears to have been due to the remedy not having been regularly given. Duration of fever prior to admission was from 1 to 6 days. Effects of the remedy on the system are not recorded. No decided difference apparent as regards the efficacy of the various doses. Country around station low, woody, and malarious.
Dr. J. M. Houston	Doomagoodiem	62	9	0	1	72	71	Dose, 5, 6, 8, or 10 grains generally given twice during the intermissions. In a few cases the smaller doses were given from 1 to 12 days, but in a large proportion of the cases it was from 1 day to 5 days. Duration of fever prior to admission ranged from 1 to 24 days; splenic enlargement in 1 case, effects of the remedy on the general system were acceleration of pulse. In a few instances, ringing in the ears, headache, nausea or vomiting. The various doses as administered appear to have been about equal in effect. Country around station jungly and malarious.

TABLE I.—Showing the results of the treatment of paroxysmal malarious fevers by sulphate of Quinine (chemically pure) —(Continued.)

Name of Medical Officer.	District or Station.	TYPES OF FEVER.					RESULT.		Remarks.
		Quotidian.	Tertian.	Quartan.	Remittent.	Total.	Cured.	Failed.	
Dr. H. C. Brodrick ...	Goonah (Central India.)	24	7	4	0	35	35	0	Dose, 3, 4, 5, 6, 7, 8, 10, 12, 15 or 20 grains during the intermissions, the smaller doses were given generally 3 times daily during intermissions, the large doses once about 2 hours before the expected paroxysm. Check of paroxysm varied from 2 to 9 days. Duration of fever prior to admission ranged from 1 to 23 days; splenic enlargement in 4 cases. Effects of remedy on the system not recorded. The various doses as administered were about equal in point of efficacy. Station malarious. Dose, 5 or 10 grains during intermissions, from 2 to 5 hours before the expected paroxysms. Check of paroxysm varied from 1 to 3 days. Duration of fever prior to treatment ranged from 2 days to 3 months; splenic enlargement in 6 cases. It is noted that there were no effects of the remedy on the general system observed. No material difference of the efficacy of the 5 and 10-grain doses. Surrounding district malarious.
Dr. G. E. Whitton ...	Cochin	31	7	0	0	38	38	0	Dose, 3, 5 or 10 grains, during the intermissions, the smaller doses were repeated 2 or 3 times. Check of paroxysm varied from 1 to 8 days. Duration of fever prior to treatment ranged from 1 day to 12 months; splenic enlargement in 1 case. Effects of the remedy on the system not recorded. Station occasionally malarious.
Dr. H. R. Oswald ...	Bangalore	16	0	0	0	16	16	0	Dose, 5 grains given twice during intermissions, paroxysm checked in 1 case in 3 days. In one the paroxysm was unchecked after 9 days and when 90 grains had been taken by the patient. Duration of fever prior to admission was in both cases 3 days. No effects of the remedy on the general system have been noted.
Dr. J. M. Miller ...	Thayetnyo	2	0	0	0	2	1	1	Dose, 5, 6, 8, 10, 12, 15, or 20 grains given during the intermissions, and sometimes in the hot stage of paroxysm. The smaller doses were generally repeated two or three times. Check of paroxysm varied from 1 to 7 days. Duration of fever prior to treatment ranged from 1 day to 9 months; splenic enlargement in 50 cases. Effects of the remedy on the general system were commonly singing noises in the ears and acceleration of pulse, occasionally lowering of the pulse, headache; as
Dr. J. Houston...	Mysore	164	13	23	0	200	199	1	

Asst. Apothecary H. A. Harrison.	Sumbulpore ...	4	0	0	4	8	8	0	administered the large and small doses were apparently equally effective in checking the paroxysm. District malarious. In the Quotidian type 5 or 6 grains were given three times daily during the intermissions, and in some cases during the paroxysms. In 3 cases of the remittent form of fever the doses were 2, 3, or 6 grains 3 times daily during the remissions. In one case throughout the period of fever. Effects of the remedy on the general system were giddiness, ringing in the ears, acceleration of the circulation. Check of paroxysm varied from 1 to 5 days. Duration of fever prior to treatment ranged from 3 to 12 days. Splenic enlargement in 2 cases. Station malarious. Dose, 3 or 5 grains twice during intermissions. Check of paroxysm in 4 cases from 3 to 5 days. Of the 2 failures, in one case the paroxysm was only partially checked, and in one dysentery supervened. Duration of fever prior to treatment ranged from 1 day to 3 months. Effect of remedy on the system was in one instance diarrhoea. Station occasionally malarious.
Dr. J. Henderson ...	Bangalore	6	0	0	0	6	4	2	Dose, 8, 12 or 20 grains given in the mornings without reference to the paroxysm. Check of paroxysm ranged from 2 to 10 days. Duration of fever prior to treatment ranged from 8 to 46 days. Splenic enlargement in 3 cases. Effects on the general system were singing noises in the ears, vertigo. The mode of administration is vaguely stated. The large doses appear to have had the most immediate effect. Station at times malarious.
Dr. G. W. Walters ...	Secunderabad...	7	1	0	0	8	8	0	Dose, 5, 6, 8, 10, 12 or 15 grains given during the intermissions, commonly twice during a certain period anterior to the expected paroxysm. Check of paroxysm varied from 1 to 13 days. Duration of fever prior to treatment ranged from 1 day to 8 months. Splenic enlargement in 6 cases. No effects of the remedy on the general system. The larger doses appear to have been most effectual in checking the paroxysm. Station and district malarious.
Dr. S. T. Heard ...	Shemoga	40	2	2	0	44	44	0	Dose, chiefly 10 grains given during the intermissions, about 3 hours before the expected paroxysm; on 3 occasions 20 grains were given in same manner. In a few cases 3 or 5 grains from 2 to 5 times during intermissions. In the 73 cases check of paroxysm varied from 1 to 14 days, in 70 it was from 1 to 6 days; enlargement of spleen in one case only. The effect of the remedy on the general system was slight excitement of the circulation. As administered, the respective doses were effectual in checking the paroxysms. Those of 10 grains appeared to be most immediate. Station malarious.
Dr. D. Kearney ...	Sumbulpore ...	61	12	0	0	73	73	0	
		740	66	35	5	846	840	6	

TABLE II.—Showing the results of the treatment of paroxysmal malarious Fevers by sulphate of Quinine.—(Continued.)

Name of Medical Officer.	District or Station.	TYPES OF FEVER.					RESULT.		Remarks.
		Quotidian.	Tertian.	Quartan.	Remittent.	Total.	Cured.	Failed.	
Asst. Apoth. M. Wade	Goodaloor, Wynaad ...	253	10	2	0	265	265	0	Dose, generally 10 grains in water, during the intermissions, from 1½ to 4 hours before the expected paroxysm. In a few cases 5 or 7 grains were given in like manner. In 238 cases the paroxysm was checked in one day; in 27 cases in 2 days. Sick were under observation for some time after date of check of paroxysm. 117 patients had splenic enlargement, and a large proportion of all treated had previously suffered repeatedly from fever. The duration of attack of fever prior to admission ranged from 2 days to 2 months; the effects produced by the remedy were commonly deafness and ringing noise in the ears, with occasionally nausea or bilious vomiting, or purging; in a few instances vertigo and drowsiness occurred. The smaller doses of 5 and 7 grains appear to have been equally as efficacious as the larger doses of 10 grains. Goodaloor is situated in Wynaad on the Western Ghauts. It is surrounded by dense jungle, and is notoriously malarious.
Dr. J. FitzGerald	Labuan ...	84	14	1	0	99	99	0	Dose, commonly 8 grains in solution, once during intermissions and about 2 hours before the expected paroxysms. In a few cases 6 grains were given in the manner stated. Check of paroxysm varied from 2 to 8 days. Splenic enlargement in 4 cases. Duration of fever prior to admission ranged from 1 to 10 days, not shown whether the patients had previously suffered or not from fever. Effects of remedy on the general system not recorded. Labuan is a small island near to Borneo. It is low, woody, and malarious.
Dr. J. M. Houston	Doomagoodiem ...	47	0	0	1	48	48	0	Dose, chiefly 8 or 10 grains twice during intermissions. In a few cases 3, 4 or 6 grains were given two or three times during the apyrexial period. In 21 cases paroxysm checked in 2 days. In 24 in 3 days. In 3 cases in 4, 5, and 8 days respectively, duration of fever prior to admission ranged from 1 to 10 days. Splenic enlargement in 4 cases. In 33 cases the patients had suffered previously from fever. The effects produced by the remedy, acceleration of pulse in all; in a considerable number diarrhoea; in 2 ringing in the ears; in 3 bilious vomiting,

Dr. H. C. Brodrick	Goonah, (Central India.)	9	5	0	0	0	14	14	0	Dose, 5, 8, 10, 15 or 20 grains. The doses of 5 or 8 grains were given three times during the intermissions. The large ones, 1 or 2 hours before the expected paroxysms. Check of paroxysm varied from 2 to 9 days. Spleen normal in every case. Duration of fever prior to admission ranged from 1 to 5 days, not stated whether the patients had been previously subject to fever. Effects of the alkaloid not recorded; no material difference in the efficacy of the repeated smaller doses and the single large dose. Station malarious.
Dr. J. Dougall	Jeypore ...	8	1	0	0	0	9	9	0	Dose, 10, 15, 20 or 30 grains, administered chiefly during the paroxysms. In 4 cases paroxysm was checked in 1 day; in 1 in 2 days; in 2 in 3 days; in 1 in 4 days; and in 1 in 8 days. Splenic enlargement in 3 cases. The sick treated had been subject to attacks of fever previously as follows:—In one case 2 months; in two 5 months; in one 6 months; in one 14 months; in one 2 years; and in three 4 years. Effects of remedy, vertigo and ringing in the ears. In a few instances feeble action of heart and lowering of pulse. In others bilious vomiting or purging. The patients were all of the Jeypore Police, and had been long and much exposed to the influence of malaria in the hilly and jungly tracts of that district.
Dr. J. McCarthy	Kurnool ...	31	0	0	0	0	31	31	0	In 12 cases, dose 10 grains twice during intermissions. In 19 cases, dose 5 grains given every hour during the three hours immediately preceding the expected paroxysm. Check of paroxysm varied from 2 to 11 days. In 24 cases the check was from 2 to 5 days. Spleen enlarged in 6 cases. Duration of fever prior to admission ranged from 1 to 27 days. Effects of alkaloid, in 4 cases vertigo, in 2 headache, in 7 diarrhoea. The two modes of administering the remedy were equal in point of efficacy. Station and district malarious.
2nd Dresser C. Appiah	Balligoodah ...	33	0	0	0	0	33	33	0	Dose, chiefly 10 grains (in a few instances 15 grains) during the paroxysms. Check of paroxysm varied from 1 to 36 days. A considerable proportion of the patients are stated to have been weak and anæmic, 1 case of splenic enlargement. Duration of fever prior to admission ranged from 1 to 30 days in 32 cases. In one case fever had prevailed 14 months. Effects of remedy, increased perspiration, vertigo. In a few instances, headache and bilious vomiting. Locality malarious.

TABLE II.—Shewing the results of the treatment of paroxysmal malarious Fevers by sulphate of Quinine.—(Continued.)

Name of Medical Officer.	District or Station.	TYPES OF FEVER.					RESULT.		Remarks.
		Quotidian.	Tertian.	Quartan.	Remittent.	Total.	Cured.	Failed.	
Apothecary T. Horrox.	Russelcondah	59	6	0	2	67	66	1	Dose, generally 10 grains during paroxysms. In a few cases the same dose was given in the intermissions. In others 3 or 5 grains during the paroxysms. Check of paroxysm in the whole of the cases varied from 1 to 4 days, but in the greatest number it took place in 1 and 2 days. Splenic enlargement in 11 cases. Duration of fever prior to admission ranged from 1 to 30 days, not recorded whether the patients had or had not fever previously. Effects of the remedy, increased perspiration, vertigo, general depression and lowering of pulse. In a few instances nausea and bilious purging, in others diarrhoea. The large doses appear to have been slightly more efficacious than the small. Russelcondah is situated at the foot of the Hill Tracts of Orissa, and is decidedly malarious.
Dr. G. E. Whitton	Cochin	4	2	0	0	6	5	1	Dose, 5 grains during intermissions from 1 to 3 hours before expected paroxysm. Check of paroxysm in 2 cases in 2 days, in 4 in 3 days. Duration of fever prior to admission ranged from 4 to 45 days. Splenic enlargement in 2 cases, no effects of remedy observed. District malarious, failure attributed to the doses being too small.
Dr. J. M. Miller	Thayetmyo	4	0	0	0	4	2	2	Dose, 10 grains during paroxysms at intervals of 4 hours. In 2 cases paroxysm checked in 3 and 8 days respectively, in 2 paroxysm unchecked after 2 days and when each patient had taken 60 grains of Quinine. Duration of fever prior to treatment in all the cases was 4 days. Spleen normal in every case. Effects of remedy were increased frequency and volume of pulse in all. In the 2 cases in which the alkaloid failed, it caused nausea and vomiting.
2nd Drer. Davood Beg.	Talook of Mangalore...	8	0	0	0	8	0	0	Dose in one case 2 grains twice daily during paroxysms. In six cases 5 grains and in one 10, in the manner stated. Paroxysm checked in 2 days by the 2-grain doses, and in 3 and 4 days by the 5 and 10-grain doses. Duration of fever prior to treatment ranged from 20 days to 4 months. Spleen stated to be normal in every case. Effect of remedy, diarrhoea in 6 cases. District malarious.

3rd Class Hospl. Assist. T. Ponumbalum.	Camp Kurakul	28	4	7	0	39	39	0	Dose, 3, 4, 5, or 8 grains twice a day during intermissions. Check of paroxysm varied from 5 to 12 days. Splenic enlargement in 6 cases. Duration of fever prior to treatment ranged from 2 days to 21 months. Effect of remedy, improved digestion; no material difference in efficacy of the various doses used.
Asst. Apoth. J. J. Watts.	Chetterpore (Ganjam)	7	1	0	0	8	8	0	Dose, 3 or 5 grains 2 or 3 times during intermissions in the Quotidian form of fever. In the Tertian 5 grains an hour before the expected paroxysm and every 6 hours on the day of fever. Check of paroxysm from 3 to 5 days. Duration of fever prior to treatment from 3 to 12 days. Splenic enlargement in 2 cases. District malarious.
Asst. Apothecary J. A. Falloon.	Kimedy	21	2	0	0	23	23	0	Dose, 3, 5, 10, 15 or 20 grains during the paroxysms. Check of paroxysm varied from 1 to 5 days; in most of the cases it took place in 1 and 2 days. Duration of fever prior to treatment varied from 1 day to 12 months and upwards. Splenic enlargement in 6 cases. Effects of remedy, ringing in the ears, frontal headache, lowered action of heart and pulse. In a few instances bilious vomiting or diarrhoea. The large doses slightly more efficacious than the smaller. Mr. Falloon considers Quinine more efficacious than Quinine. Station notably malarious.
Dr. D. Kearney	Sumbulpore	9	1	0	0	10	10	0	Dose, generally 10 grains, once during intermissions, 3 hours before the expected attack. In 2 cases, 10 grains were twice given in the intermissions. Check of paroxysm from 3 to 6 days. Duration of fever prior to admission from 2 to 6 days. Effects of remedy were slight excitement in all the cases. In 1 vertigo, in 3 vomiting and purging. Country around station jungly and malarious.
		665	46	10	3	664	660	4	

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TABLE III.—Shewing the results of the treatment of paroxysmal malarious fevers by sulphate of Chinchonidine.—(Continued.)

Name of Medical Officer.	District or Station.	TYPES OF FEVER.					RESULT.		Remarks.
		Quotidian.	Tertian.	Quartan.	Remittent.	Total.	Cured.	Failed.	
Asst. Apoth. M. Wade	Goodaloor, Wynaad ...	206	4	1	1	212	212	0	Dose, chiefly 10 grains, in water, during intermissions from 2 to 4 hours before the expected paroxysm. In a few cases 4, 5, 7 or 8 grains were given in same manner. In 193 cases paroxysms checked in 1 day; in 17 cases in 2 days; in 2 in 3 days. In 97 cases there was enlargement of the spleen. Duration of fever prior to admission ranged from 1 to 30 days; effects of the remedy were generally deafness and ringing noise in the ears. In a few instances vomiting or diarrhoea. The various doses appear to have been equal in efficacy. Station jungly and malarious.
Dr. J. Fitzgerald	Labuan ...	57	6	0	0	63	60	3	Dose, 8 grains in solution, given once during the intermissions, about 2 hours before the expected paroxysm. Check of paroxysm from 1 to 11 days. Splenic enlargement in 4 cases. Duration of fever prior to admission ranged from 1 to 5 days. Effects of remedy on the general system not recorded. Of the 3 failures, in 2 the paroxysms are stated to have been subsequently checked by two 6-grain doses of ordinary Quinine. In 1 by two 12-grain doses of chemically pure Quinine. Country around station low, woody, and malarious.
Dr. J. M. Houston	Doomagoodiem ...	43	4	0	1	48	48	0	Dose, 4, 6, 8 or 10 grains, the smaller doses were given 2 or 3 times during intermissions, the larger twice in same manner. Check of paroxysm varied from 2 to 5 days—1 case of splenic enlargement. Duration of fever prior to admission ranged from 1 to 9 days; effects of remedy were acceleration of pulse in all the cases. In a few instances, deafness, vertigo, nausea, vomiting, thirst. The various doses appear to have been equal in efficacy. Station jungly and malarious.
Dr. J. Dougall	Jeyapore ...	8	1	0	0	9	9	0	Dose, in 7 cases, 20 or 30 grains given during the paroxysm. In 2, the same quantities were given during paroxysms and intermissions. In 4 cases, paroxysm checked in 1 day; in 3 in 2 days; in 2 in 4 days. Splenic enlargement in 1 case. Duration of fever prior to treatment, ranged from 1 day to 22 months. Effects of the remedy were generally ringing in the ears, vertigo, headache, in 2 nausea, in 3 bilious vomiting and purging. Station notably malarious.
Dr. D. J. McCarthy	Kurnool ...	32	0	0	0	32	32	0	In 19 cases the dose was 5 grains in solution, every hour, during three hours immediately preceding the expected paroxysm. In 13 cases, 10 grains were given twice during the two hours before the expected attack.

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Dr. G. E. Whitton	Cochin ...	3	1	2	0	6	6	0	The 5 and 10-grain doses, as administered, were about equal in point of efficacy. Splenic enlargement in 3 cases. Duration of fever prior to treatment ranged from 1 to 15 days; effects of the remedy were in a few cases headache and diarrhoea. Station and district malarious.
2nd Dresser C. Appiah	Balligoodah ...	9	0	0	0	9	9	0	In the Quotidian type, 5 grains 2 hours before expected attack. In the Tertian and Quartan, 5 grains daily during the intermissions. Check of paroxysm from 1 day to 5. Enlargement of spleen in 1 case. Duration of fever prior to treatment from 3 days to 4 months; no effects from the remedy were observed. District malarious.
Apothy. T. Horrox	Russelcondah ...	9	0	0	0	9	9	0	Dose, 10 grains, given during paroxysm. Check of paroxysm varied from 3 to 11 days, viz., 3 cases in 3, 4 and 5 days respectively, 3 in 6 days each, 1 in 9 and 2 in 11 days. Duration of fever prior to treatment, from 2 to 3 days. Effects of the remedy on the general system were in 6 cases vertigo. In all, lowering of the circulation, in 5 nausea, in 2 relaxation of the bowels. Locality malarious.
Assistant Apothecary J. J. Watts.	Chatterpore (Ganjam.)	3	0	0	0	3	2	1	Dose, 5 or 10 grains given during the paroxysm. Check of paroxysm in 4 cases in 1 day; in 5 in 2 days. Splenic enlargement in 3 cases. Duration of fever prior to treatment, from 1 to 4 days; effect of the remedy on the general system in all, lowering of pulse; in 4 headache; in 1 vertigo; in 4 bilious vomiting, accompanied by purging in 2. Station malarious.
Assistant Apothecary J. A. Falloon.	Kimedy ...	3	0	0	0	3	3	0	Dose, 3 or 5 grains 3 times a day during intermissions. Paroxysm checked in 2 cases in 3 days. In the failure the paroxysm was checked for the time, but recurred when Quinine was given. One case of splenic enlargement. Duration of fever prior to treatment from 2 to 10 days. District malarious.
Dr. D. Kearney	Sunbulpore ...	7	0	0	0	7	7	0	In two cases, dose 15 grains in powder, during the paroxysm. In one, 20 grains during paroxysm. In the two former, fever checked in 1 and 2 days respectively. In the latter, in 4 days. Effects of the remedy were ringing in the ears, lowering of the action of heart. Duration of fever prior to admission ranged from 5 to 12 days. Station notably malarious.
Dr. H. R. Oswald	Bangalore ...	1	0	1	0	2	2	0	Dose, 10 grains once or twice during intermissions. In 2 cases paroxysm was checked in 3 days. In 1 in 4 days; in 2 in 5; and in 2 in 7 days. Duration of fever prior to treatment ranged from 3 to 5 days. Effect on the general system was slight excitement. Station jungly and malarious.
		381	16	4	2	403	399	4	Dose, 5 grains 3 times daily during intermission. In the case of the Quartan type, 1 dose of 10 grains was given. Paroxysm checked in both cases in 3 days. Duration of fever prior to treatment, from 9 days to 3 months. Station, at times malarious.

TABLE IV.—Shewing the results of the treatment of paroxysmal malarious Fevers by sulphate of Chinchonine.—(Continued.)

Name of Medical Officer.	District or Station.	TYPES OF FEVER.					RESULT.		Remarks.
		Quotidian.	Tertian.	Quartan.	Remittent.	Total.	Cured.	Failed.	
Asst. Apoth. M. Wade	Goodalloor, Wynaad ...	249	10	0	0	259	259	0	Dose, generally 10 grains, in water, given during intermissions from 2 to 4 hours before the expected paroxysm. In a few cases 3, 5, or 7 grains were given in the same manner. In 225 cases paroxysm was checked in 1 day; in 34 cases in 2 days. The patients were kept for some time under observation subsequent to the check of paroxysm. Splenic enlargement in 81 cases. Duration of fever prior to treatment ranged from 1 to 30 days; a large proportion of the sick treated had previously suffered from fever. Effects of the remedy on the general system were most commonly deafness and singing noise in the ears; in a few cases, drowsiness and vertigo, or vomiting or purging. The various doses appear to have been equally effective in checking the paroxysm. Country around Goodalloor jungly and malarious.
Dr. J. FitzGerald	Labuan ...	64	13	1	0	78	70	8	Dose, 8 grains in solution once during the intermission, about 2 hours before the expected paroxysm. Check of paroxysm in the total number of cases from 3 to 16 days. In 53 of these cases it was from 3 to 7 days. In the 8 failures the paroxysms are stated to have been subsequently checked, in 3 instances by two 6-grain doses of Quinine, and in 1 by three 6 grain-doses; in three by two 6-grain doses of chemically pure Quinine and in 1 by three 6-grain doses. Duration of fever prior to admission ranged from 1 to 8 days. Splenic enlargement in 5 cases. Effect of the remedy on the general system not stated. Country around station low, woody, and malarious.
Dr. J. M. Houston	Doomagoodiem ...	46	2	0	0	48	48	0	Dose, 4, 5 or 6 grains 2 or 3 times during intermissions, or 8 or 10 grains, and an additional dose of 5 grains, in the apyrexial period. Paroxysm checked in 20 cases in 2 days; in 21 in 3 days; in 6 in 4 days; in 1 in 6 days. Duration of fever prior to treatment varied from 1 to 7 days; in 42 cases the patients had previously suffered from fever. Effects of the remedy on the general system were acceleration of pulse, vertigo; in a few instances nausea or vomiting, dryness of throat, thirst. The small and larger doses administered, as stated, appear to have been of equal efficacy. Country around station, jungly and malarious.

Dr. H. C. Brodrick	Goenah (Central India)	12	2	0	1	15	14	1	Dose, 3, 5, 8, 10 or 20 grains during intermissions, in a good many instances both small and large doses were given. In the cases in which the small doses only were employed, the dose was administered two or three times daily. The large doses were commonly given from 1 to 2 hours before the expected paroxysm. In all the cases, check of paroxysm varied from 2 to 11 days; in 12 cases it was from 2 to 5 days. Duration of fever prior to treatment, from 1 day to 8 days. There were 2 cases of splenic enlargement. Effects of the remedy on the general system were, by the large doses, in 7 cases vomiting, in 1 extreme nausea. In the failure recorded, the remedy had only the effect of changing the type of fever, viz., from Tertian to Quartan. The large and small doses, as administered, appear to have been equal in efficacy. Station malarious.
Dr. J. Dougall	Jeypore ...	7	1	0	0	8	8	0	Dose, 20 or 30 grains during paroxysm and intermissions. Paroxysm checked in four cases in 1 day. In 2 in 2 days; in 1 in 3 days; in 1 in 4 days. Duration of fever prior to treatment from 1 day to 12 months. Effects of the remedy on the general system were in six cases vertigo, 3 of which had also ringing in the ears. In 2, circulation excited; in 2, depressed circulation. In 5 cases there was nausea. Station very malarious.
Dr. D. J. McCarthy	Kurnool ...	32	0	0	0	32	32	0	Dose, 10 grains given twice during the 2 hours immediately preceding the expected paroxysm. In 28 cases, paroxysm checked, from 2 to 5 days. In 4 cases from 6 to 8 days. Duration of fever prior to treatment from 1 day to 10 days. One case of splenic enlargement. Effect of remedy on the general system vertigo, headache, diarrhoea. Station and district malarious.
2nd Dresser C. Appiah	Balligoodah ...	14	0	0	0	14	14	0	Dose, 8 or 10 grains given during the paroxysms. Check of paroxysm varied from 2 to 8 days in all the cases; in 12, from 2 to 5 days. Duration of fever prior to admission from 1 to 10 days. Effects of remedy on the general system were vertigo, headache, nausea, vomiting or diarrhoea. Station and district malarious.
Apothecary T. Horrox.	Russelcondah ...	6	0	0	0	6	6	0	Dose, 10 grains given during the paroxysms. Paroxysm checked in 2 cases in 1 day, in 4 in 3 days. Duration of fever prior to treatment ranged from 1 day to 10 days; 4 cases of splenic enlargement. The effects of remedy on the general system in all the cases were lowering of the pulse. In a few instances, vertigo, vomiting, or purging with increased perspiration. Station malarious.
Dr. G. E. Whitton	Cochin ...	14	3	0	0	17	17	0	Dose, 5, 10 or 20 grains from 2 to 4 hours before expected paroxysm. In 2 cases the doses were given during the hot stage of the attack. Paroxysm checked in 12 cases in 1 day; in 2 in 2 days; in 3 in 3 days. Two cases of splenic enlargement, 6 had tenderness in region of spleen.

TABLE IV.—Showing the results of the treatment of paroxysmal malarious Fevers by sulphate of Chinchonine.—(Concluded.)

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15th June 1868.

Name of Medical Officer.	District or Station.	TYPES OF FEVER.					RESULT.		Remarks.
		Quotidian.	Tertian.	Quartan.	Remittent.	Total.	Cured.	Failed.	
Dr. J. M. Miller	Thayetmyo	17	0	0	0	17	13	4	Duration of fever prior to treatment ranged from 3 days to 8 months, and the majority of the patients had previously suffered from fever. Effects of the remedy on the general system were vertigo, deafness, diarrhoea, or nausea and vomiting. The large doses checked the return of paroxysm at once. The small doses also acted effectively, but less immediate than the large. District malarious.
Dr. J. Henderson	Bangalore	6	0	0	0	6	6	0	Dose, 10 grains given at intervals of 4 hours throughout paroxysms in 15 cases. In 2 cases the same dose was given 3 times during intermissions. Check of paroxysm varied from 1 to 10 days. In the 4 failures, Quinine was subsequently given to the patients, but the result is not shown. One case was complicated with rheumatism which probably retarded the cure. Duration of fever prior to admission ranged from 2 to 5 days. Effects of the remedy on the general system were in 2 cases vertigo and tremor of limbs; in 2 nausea and vomiting; in 5 acceleration of pulse.
3rd Class Hosp'l. Asst. T. Ponambalum.	Camp, Karakal	29	9	2	0	40	40	0	Dose, 5 grains in solution 3 or 4 times during intermissions. In 2 cases paroxysm checked in 2 days; in 4 cases in 4, 5, 7 and 8 days respectively. Duration of fever prior to admission from 7 days to 4 months. Two cases of enlarged spleen; no effects of the remedy on the general system observed. Station at times malarious.
Assistant Apothecary J. J. Watts.	Chettipore (Ganjam)	2	1	0	0	3	3	0	Dose, 2, 3, 4, 5 or 7 grains two or three times daily during intermissions. Check of paroxysm in all the cases varied from 3 to 10 days. In 25 cases it was from 3 to 7 days. Duration of fever prior to treatment ranged from 7 days to 7 months. Splenic enlargement in 5 cases. The only effects of the remedy stated are that it improved digestion. Locality malarious.
									Dose, 5 grains in solution once or twice daily during intermissions. Paroxysm checked in 2 cases in 3 days; in 1 in 6 days. Duration of fever prior to treatment from 6 to 10 days. Splenic enlargement in 1 case. Effects of remedy on the system not stated. District malarious.

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Dr. D. Kearney	Sumbulpore	8	0	0	0	8	8	0	Dose, 10 grains given once or twice daily during intermissions. Check of paroxysm in 4 cases in 3 days; in 2 in 4 days; in 1 in 5, and 1 in 8 days. Duration of fever prior to treatment ranged from 3 to 10 days. Splenic enlargement in 1 case. Effects of remedy on the general system were slight excitement in all the cases. In one vertigo. Station and district malarious.
Dr. H. R. Oswald	Bangalore	1	1	2	0	4	4	0	Dose, 3, 5, or 10 grains repeatedly during intermissions. Check of paroxysm in 1 case in 2 days, in 2 in 3, and in 1 in 4 days. Duration of fever prior to treatment from 15 days to 2 months. Splenic enlargement in 1 case. Effects of remedy not recorded. The various doses, as administered, were effective in checking return of paroxysm. The large, most immediate. Station, occasionally malarious.
Assistant Apothecary J. A. Faloon.	Kimedy	4	0	0	0	4	4	0	Dose 10, 15 or 20 grains given during the paroxysms. Check of paroxysm in 1 case in 1 day; in 2 in 2 days; in 1 in 4 days. Splenic enlargement in 2 cases. Effects of the remedy on the general system were in 3 cases, ringing in ears, with frontal headache in 1 instance; in 2 nausea; in 2 bilious vomiting. Duration of fever prior to treatment ranged from 1 month to 2 years. Station, notably malarious.
		511	42	5	1	559	546	13	

TABLE V.

Sulphate of	Total number of persons treated.	Number of cases in which less than 20 grains checked the paroxysm.	Number of cases which required 20 grains and upwards to check the paroxysm.	PER-CENTAGE OF	
				Cures effected with less than 20 grains.	Cures effected with 20 grains and upwards.
Dr. Houston, Doonagoodiem	72	29	43	40.27	59.72
	48	15	33	31.25	68.75
	48	26	22	54.16	45.83
	48	28	20	58.33	41.66
Dr. FitzGerald, Labuan	36	30	6	83.33	16.66
	99	53	41	53.58	41.41
	63	22	41	34.92	65.07
	78	24	54	30.76	69.23
Mr. Wade, Goodaloor	308	261	47	84.74	15.25
	265	239	26	90.18	9.81
	273	194	18	91.50	8.49
	259	230	29	88.80	11.19

TABLE VI.

	Total number of persons treated.	Number of cases in which less than 20 grains checked the paroxysm.	Number of cases which required 20 grains and upwards to check the paroxysm.	PER-CENTAGE OF	
				Cures effected with less than 20 grains.	Cures effected with 20 grains and upwards.
Quinine, chemically pure...	72	29	43	40.27	59.72
	36	30	6	83.33	16.66
	308	261	47	84.74	15.25
	416	320	96	76.92	23.07
Quinidine ...	48	15	33	31.25	68.75
	29	58	41	58.58	41.41
	265	239	26	90.18	9.81
	412	312	100	75.72	24.27
Chinchonidine ...	48	26	22	54.16	45.83
	63	22	41	34.92	65.07
	333	194	18	91.50	8.49
	333	242	81	71.92	28.07
Chinchonine ...	48	28	20	58.33	41.66
	78	24	54	30.76	69.23
	259	230	29	88.80	11.19
	385	282	103	73.24	26.75

No. 345.

ORDER THEREON, 15th June 1868, No. 1,671.

Miscellaneous.

1. Ordered that these papers be transmitted to the Secretary of State, in continuation of those recorded in the

Proceedings of Government, dated 19th March 1867, No. 652.

2. The results of the trial of the Chinchona alkaloids in a large number of cases of paroxysmal malarious fevers, reported by the President and Members of the Chinchona Commission, are satisfactory.

3. The suggestion made by the Commission in paragraph 15 of their report is approved, and the necessary orders will be issued to the Inspector General, British Medical Service, through the Military Department. The Inspector General, Indian Medical Department, will put that Officer in possession of a supply of the alkaloids.

(True Extract.)

(Signed) W. HUDLESTON,

Secretary to Government.

To the President and Members of the Chinchona Commission.
,, the Military Department.
,, the Principal Inspector General, Indian Medical Department.
,, the Superintendent, Government Chinchona Plantations.
,, J. Broughton, Esq.

Exd. F. R. Bantleman.

Rev^d Department

22-1671.

Proceedings of the Madras Government
Under date the 15th June 1868.

Read the following
letter from the President
and members of the Chinchona
Commission.

Submits result of the
experimental treatment of
malarious fever by means of
the sulphate of Quinidine, Chin-
-coridine and Chincorine.

(Here enter 18th April 1868)

Ordered that these
papers be transmitted to
the Secy. of State, in continua-
-tion of those recorded in
the Proceedings of Govern-
-ment, dated 19th March
1867, No. 652.

The results of
the trial of the Chinchona
alkaloids in

number of cases of pa-
roxysmal malarious fevers
reported by the President
and members of the Chinchoro
Commission are satisfactory.

The suggestion
made by the Commission
in para 15 of their report
is approved, and the neces-
sary orders will be issued
to the Inspector General,
British Medical Service,
through the military depart-
ment. The Inspector
General Indian Medical
Department will put
that Officer in possession of a sup-
ply of the alkaloids.

L.R.
President & members of Chinchoro Commission
to be sent to the Secretary.

Wm. H. to England
24th June 1868 No 26/68

Revenue 1868 Sept
No of Govt for June

No 1671.

No of the Madras Govt
15 June 1868.

Cir
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No 344-345

Pro 19 March by 10 Dec 314
" 13 December by 240 + 241

Report to England
24 June 1868

Revenue 1868. Oct
Pro of Govt for June
1788
From

The President and
Members of the
Chinchona
Comm.

Dated 18 Oct 2
Received 26 May 1868

L. B. Smith Jr.

R. 26 May

Oct 1868. 15 June

Submits result of
the experimental treat-
ment of malarious fever
by means of the sulphate
of Quinidine, Chinchonidine
+ Chinconine.

AC 344

Is this a printed

copy of a report to the

Academy of Medicine

Not a copy

No 6 June 1868 Rg.