

**Note on the prevalence of the ankylostomum in Calcutta : (for the I.M.G. collective investigation) / by Leonard Rogers.**

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**NOTE ON THE PREVALENCE OF THE  
ANKYLOSTOMUM IN CALCUTTA**

Leonard ROGERS

Indian Medical Gazette,  
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**NOTE ON THE PREVALENCE OF THE  
ANKYLOSTOMUM IN CALCUTTA.**

By LEONARD ROGERS, M.D., M.R.C.P., L.M.S.,  
Lecturer in Pathology, Medical College,  
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DURING the last five months I have carefully counted the number of worm specimens found in post-mortems at the Calcutta Medical College. The method adopted was to wash out the contents of the small intestine with a strong stream of water which is passed through the machine and which is retained by it in thin stratum in a thin layer of water in an unobscured basin, and all the worms picked off. On opening the intestine any remaining in it can be then easily found and counted. The great majority of the worms are found in the small intestine.



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... of 75 per cent, while the ...  
... 15 to 25 per cent. ...  
... found in 74 cases from 11 ...  
... 21 to 50 in 6; from 51 to 2 ...  
... 2 to 3 the number in these ...  
... 25, 28, 124, 74 and 30 ...  
... These last five cases had ...  
... study the one with 125 worms ...  
... is believed that the worms ...  
... history cases of death. The ...  
... of worms present in that ...  
... behind them was 23.2 or 1 ...  
... 12.2. In numerous cases of ...  
... number was 14.1, and in ...  
... was 12.8 so that the number ...  
... the way in both the ...  
... and in the ...

... series of 50 cases ...  
... in 25, in number varying from 1 ...  
... the ...  
... and not ...  
... case of ...  
... No dates were ...  
... as that they appear to be ...  
... Calcutta than they are in ...

With regard to the age of the ...  
... of the ...  
... between the ages of 50 and 59 they were ...  
... 21 years and above ...  
... between ...  
... 20 and 49 they were ...  
... 20, so that they appear to be ...  
... The ...  
... at earlier ages than the ...  
... height, but they were ...  
... of the ages of 15 and 14 ...  
... and ...  
... There ...  
... not ...  
... to be of any importance in such a ...  
... small number of ...

These results agree very closely with those ...  
... previously obtained by ...  
... of Calcutta, nearly twenty years ago, and which ...  
... support to Major Gyles' statement as to the ...  
... and ...  
... The frequency of these worms in the ...  
... of such a crowded city as Calcutta is also ...  
... regarding if the ...  
... that ...  
... the ...  
... the ...  
... if such ...  
... they should be more ...  
... in ...

These results show that ...  
... the frequency of these worms in persons ...  
... of all kinds of disease, with even ...  
... appear to remove them, and emphasize the ...  
... the necessity of great ...  
... their ...  
... as a ...  
... produced by them, it being obviously ...  
... to prove that they are present in large ...  
... in any ...  
... the ...  
... of the ...  
... that they can be ...  
... the cause of any ...  
... due to that ...





[23a]

*N.B.*—Before inoculating each tube the cork was taken out aseptically and formalin well shaken off from the surface. A very inappreciable quantity of formalin must have remained with the corks.

In the experiments summarized in the above tables, two tubes were inoculated each time of testing; and if even only one showed contamination and the other no growth, the result was noted down as "contaminated."

Among the india-rubber corks for 20<sup>cc.</sup> bottles, some corks were found coated with a very thin reddish-brown material; but these were equally sterilizable with the clean corks.

The use of the ordinary corks for bottling the plague prophylactic has been discontinued since the arrival of the English bottles of measured capacity. But whenever there is an occasion to make use of these corks, the practice is to sterilize them in water at a pressure of one additional atmosphere for one hour consecutively on two days, and on the third day to transfer them in formalin lotion (2 p. c.) and keep them for three days similarly as in the case of the india-rubber corks. At the time of stoppering the bottles the (ordinary) corks are dipped in paraffin at 160° and then fixed over the bottles, the neck of the bottle being wrapped in parchment paper which has been kept soaked with carbolic lotion (1 in 20) and then sealed with paraffin. For india-rubber corks these operations are considered unnecessary as the cork can be fixed airtight without further operations.

#### NOTE ON THE PREVALENCE OF THE ANKYLOSTOMUM IN CALCUTTA.

(FOR THE I. M. G. COLLECTIVE INVESTIGATION.)

By LEONARD ROGERS, M.D., M.R.C.P., I.M.S.,

Late Officiating Professor of Pathology, Medical College, Calcutta.

DURING the last five months I have carefully counted the number of ankylostoma found in *post mortems* at the Calcutta Medical College. The method adopted was to wash out the contents of the small intestine with a strong stream of water, which is passed through fine muslin, and what is retained by it is then examined in a thin layer of water in an enamelled basin, and all the worms picked out. On opening the intestine any remaining in it can be then easily found and counted. The great majority of the worms are found in the washings except when the *post mortem* is made within a few hours of death, when many may still be found to be attached. By this method few worms are likely to be overlooked.

The results were as follows:—Out of 59 bodies examined the ankylostoma were found in

44 or 74.6 per cent., while they were absent in 15 or 25.4 per cent. From 1 to 10 worms were found in 24 cases; from 11 to 20 in 7; from 21 to 30 in 6; from 31 to 50 in 2; and over 50 in 5; the numbers in these last five cases being, 88, 93, 138, 76 and 80 respectively. Two of these last five cases had died of cholera, and in only the one with 138 worms was there reason to believe that the worms were a definite contributory cause of death. The average number of worms present in those bodies which harboured them was 23.2, or in the whole series 15.2. In fourteen cases of cholera the average number was 14.1, and in six cases of phthisis it was 14.8, so that the numbers were practically the same in both the acute and the chronic affection and in the whole series.

In the same series of 59 cases round worms found were in 25, in numbers varying from 1 to 10. The *trichocephalus dispar* was found in four cases, and *bothriocephalus latus* in one case of cholera. No flukes were found in this series so that they appear to be less common in Calcutta than they are in Assam.

With regard to the ages of the patients an analysis of the figures available shows that between the ages of 20 and 39 they were present in 21 cases and absent in six, while between those of 40 and 65 they were present in ten and absent in six, so that they appear to be met with more commonly in the earlier age period. The number of cases at earlier ages were too small for comparative value, but they were found in two patients of the ages of 15 and 18 respectively, and were absent in a child of 4. There was little difference between the two sexes, not sufficient to be of any importance in such a small number of cases.

These results agree very closely with those previously obtained by the late Dr. McConnell, of Calcutta, nearly twenty years ago, and afford no support to Major Giles's statement as to the "waxing and waning of helminthic diseases." The frequency of these worms in the inhabitants of such a crowded city as Calcutta is also somewhat surprising if the same author's view that these parasites gain the access to the intestinal canal in earth is correct, for if such was the case, they should be more common in villages than in towns.

These results, then, once more confirm the frequency of these parasites in persons dying of all kinds of disease, while even cholera does not appear to remove them, and emphasise the necessity of great caution in accepting their mere presence as evidence of serious disease produced by them, it being obviously necessary to prove that they are present in larger numbers in any special disease than in the ordinary inhabitants of the district, before they can be considered the cause of any increased mortality due to that special disease.





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44 or 74 per cent, while they were about 15 or 25 per cent. From 1 to 10 women were found in 24 cases; from 11 to 20 in 7, from 21 to 30 in 2, from 31 to 40 in 1, and over 40 in 2; the number in these last 5 cases being 25, 22, 18, 18 and 85 respectively. Two of these last five cases had no children, and in only the one with 125 women was there reason to believe that the woman was a definite contributory cause of death. The average number of women present in these homes which have proved them was 23.2 or in the whole series 15.2. In fourteen cases of children the average number was 14.1 and in six cases of children it was 14.6 so that the numbers were practically the same in both the acute and the chronic infection and in the whole series.

In the same series of 25 cases of acute women found were in 13 in numbers varying from 1 to 10. The chronological order was found in four cases and four bathochromic cases in one case of children. The latter were found in the series so that they appear to be less common in Calcutta than they are in Assam.

With regard to the ages of the patients an analysis of the 13 cases available shows that between the ages of 20 and 30 they were present in 21 cases and about in their whole between those of 40 and 60 they were present in ten and about in six, so that they appear to be most common in the earlier age period. The number of cases of earlier ages were too small to compare with the comparative value, but they were found in two patients of the ages of 15 and 17 respectively and were absent in a child of 4. There was little difference between the two series, but sufficient to be of any importance as such a small number of cases.

These results agree very closely with those previously obtained by the late Dr. McClelland of Calcutta nearly twenty years ago and afford no support to Major Oliver's statement as to the "wasting and wasting of bacterial disease." The frequency of these women in the Indian parts of what is now called the Bengal is also somewhat surprising if the same opinion is held that these patients gain the virus in the Indian part in earth in contact, for it would seem the case that they should be more common in villages than in towns.

These results then give more evidence in support of those published in previous days of all kinds of disease with even children does not appear to favour them and emphasize the necessity of local infection in acquiring this acute pattern of evidence of acute disease produced by them. It being obviously necessary to prove that they are present in larger numbers in any special disease than in the ordinary infections of the district before they can be considered the cause of any increased mortality due to that special disease.

2.3.—Before taking the next steps the only way taken out completely and formally will be that of the series. A very important quantity of material must have been prepared in the series.

In the experiments arranged in the above table two tubes were inoculated each time by being held over one and allowed contact with the other in a group, the result was noted as "contaminated."

Among the tubes which were for 20-25-30-40-50-60-70-80-90-100-110-120-130-140-150-160-170-180-190-200-210-220-230-240-250-260-270-280-290-300-310-320-330-340-350-360-370-380-390-400-410-420-430-440-450-460-470-480-490-500-510-520-530-540-550-560-570-580-590-600-610-620-630-640-650-660-670-680-690-700-710-720-730-740-750-760-770-780-790-800-810-820-830-840-850-860-870-880-890-900-910-920-930-940-950-960-970-980-990-1000-1010-1020-1030-1040-1050-1060-1070-1080-1090-1100-1110-1120-1130-1140-1150-1160-1170-1180-1190-1200-1210-1220-1230-1240-1250-1260-1270-1280-1290-1300-1310-1320-1330-1340-1350-1360-1370-1380-1390-1400-1410-1420-1430-1440-1450-1460-1470-1480-1490-1500-1510-1520-1530-1540-1550-1560-1570-1580-1590-1600-1610-1620-1630-1640-1650-1660-1670-1680-1690-1700-1710-1720-1730-1740-1750-1760-1770-1780-1790-1800-1810-1820-1830-1840-1850-1860-1870-1880-1890-1900-1910-1920-1930-1940-1950-1960-1970-1980-1990-2000-2010-2020-2030-2040-2050-2060-2070-2080-2090-2100-2110-2120-2130-2140-2150-2160-2170-2180-2190-2200-2210-2220-2230-2240-2250-2260-2270-2280-2290-2300-2310-2320-2330-2340-2350-2360-2370-2380-2390-2400-2410-2420-2430-2440-2450-2460-2470-2480-2490-2500-2510-2520-2530-2540-2550-2560-2570-2580-2590-2600-2610-2620-2630-2640-2650-2660-2670-2680-2690-2700-2710-2720-2730-2740-2750-2760-2770-2780-2790-2800-2810-2820-2830-2840-2850-2860-2870-2880-2890-2900-2910-2920-2930-2940-2950-2960-2970-2980-2990-3000-3010-3020-3030-3040-3050-3060-3070-3080-3090-3100-3110-3120-3130-3140-3150-3160-3170-3180-3190-3200-3210-3220-3230-3240-3250-3260-3270-3280-3290-3300-3310-3320-3330-3340-3350-3360-3370-3380-3390-3400-3410-3420-3430-3440-3450-3460-3470-3480-3490-3500-3510-3520-3530-3540-3550-3560-3570-3580-3590-3600-3610-3620-3630-3640-3650-3660-3670-3680-3690-3700-3710-3720-3730-3740-3750-3760-3770-3780-3790-3800-3810-3820-3830-3840-3850-3860-3870-3880-3890-3900-3910-3920-3930-3940-3950-3960-3970-3980-3990-4000-4010-4020-4030-4040-4050-4060-4070-4080-4090-4100-4110-4120-4130-4140-4150-4160-4170-4180-4190-4200-4210-4220-4230-4240-4250-4260-4270-4280-4290-4300-4310-4320-4330-4340-4350-4360-4370-4380-4390-4400-4410-4420-4430-4440-4450-4460-4470-4480-4490-4500-4510-4520-4530-4540-4550-4560-4570-4580-4590-4600-4610-4620-4630-4640-4650-4660-4670-4680-4690-4700-4710-4720-4730-4740-4750-4760-4770-4780-4790-4800-4810-4820-4830-4840-4850-4860-4870-4880-4890-4900-4910-4920-4930-4940-4950-4960-4970-4980-4990-5000-5010-5020-5030-5040-5050-5060-5070-5080-5090-5100-5110-5120-5130-5140-5150-5160-5170-5180-5190-5200-5210-5220-5230-5240-5250-5260-5270-5280-5290-5300-5310-5320-5330-5340-5350-5360-5370-5380-5390-5400-5410-5420-5430-5440-5450-5460-5470-5480-5490-5500-5510-5520-5530-5540-5550-5560-5570-5580-5590-5600-5610-5620-5630-5640-5650-5660-5670-5680-5690-5700-5710-5720-5730-5740-5750-5760-5770-5780-5790-5800-5810-5820-5830-5840-5850-5860-5870-5880-5890-5900-5910-5920-5930-5940-5950-5960-5970-5980-5990-6000-6010-6020-6030-6040-6050-6060-6070-6080-6090-6100-6110-6120-6130-6140-6150-6160-6170-6180-6190-6200-6210-6220-6230-6240-6250-6260-6270-6280-6290-6300-6310-6320-6330-6340-6350-6360-6370-6380-6390-6400-6410-6420-6430-6440-6450-6460-6470-6480-6490-6500-6510-6520-6530-6540-6550-6560-6570-6580-6590-6600-6610-6620-6630-6640-6650-6660-6670-6680-6690-6700-6710-6720-6730-6740-6750-6760-6770-6780-6790-6800-6810-6820-6830-6840-6850-6860-6870-6880-6890-6900-6910-6920-6930-6940-6950-6960-6970-6980-6990-7000-7010-7020-7030-7040-7050-7060-7070-7080-7090-7100-7110-7120-7130-7140-7150-7160-7170-7180-7190-7200-7210-7220-7230-7240-7250-7260-7270-7280-7290-7300-7310-7320-7330-7340-7350-7360-7370-7380-7390-7400-7410-7420-7430-7440-7450-7460-7470-7480-7490-7500-7510-7520-7530-7540-7550-7560-7570-7580-7590-7600-7610-7620-7630-7640-7650-7660-7670-7680-7690-7700-7710-7720-7730-7740-7750-7760-7770-7780-7790-7800-7810-7820-7830-7840-7850-7860-7870-7880-7890-7900-7910-7920-7930-7940-7950-7960-7970-7980-7990-8000-8010-8020-8030-8040-8050-8060-8070-8080-8090-8100-8110-8120-8130-8140-8150-8160-8170-8180-8190-8200-8210-8220-8230-8240-8250-8260-8270-8280-8290-8300-8310-8320-8330-8340-8350-8360-8370-8380-8390-8400-8410-8420-8430-8440-8450-8460-8470-8480-8490-8500-8510-8520-8530-8540-8550-8560-8570-8580-8590-8600-8610-8620-8630-8640-8650-8660-8670-8680-8690-8700-8710-8720-8730-8740-8750-8760-8770-8780-8790-8800-8810-8820-8830-8840-8850-8860-8870-8880-8890-8900-8910-8920-8930-8940-8950-8960-8970-8980-8990-9000-9010-9020-9030-9040-9050-9060-9070-9080-9090-9100-9110-9120-9130-9140-9150-9160-9170-9180-9190-9200-9210-9220-9230-9240-9250-9260-9270-9280-9290-9300-9310-9320-9330-9340-9350-9360-9370-9380-9390-9400-9410-9420-9430-9440-9450-9460-9470-9480-9490-9500-9510-9520-9530-9540-9550-9560-9570-9580-9590-9600-9610-9620-9630-9640-9650-9660-9670-9680-9690-9700-9710-9720-9730-9740-9750-9760-9770-9780-9790-9800-9810-9820-9830-9840-9850-9860-9870-9880-9890-9900-9910-9920-9930-9940-9950-9960-9970-9980-9990-10000-10010-10020-10030-10040-10050-10060-10070-10080-10090-10100-10110-10120-10130-10140-10150-10160-10170-10180-10190-10200-10210-10220-10230-10240-10250-10260-10270-10280-10290-10300-10310-10320-10330-10340-10350-10360-10370-10380-10390-10400-10410-10420-10430-10440-10450-10460-10470-10480-10490-10500-10510-10520-10530-10540-10550-10560-10570-10580-10590-10600-10610-10620-10630-10640-10650-10660-10670-10680-10690-10700-10710-10720-10730-10740-10750-10760-10770-10780-10790-10800-10810-10820-10830-10840-10850-10860-10870-10880-10890-10900-10910-10920-10930-10940-10950-10960-10970-10980-10990-11000-11010-11020-11030-11040-11050-11060-11070-11080-11090-11100-11110-11120-11130-11140-11150-11160-11170-11180-11190-11200-11210-11220-11230-11240-11250-11260-11270-11280-11290-11300-11310-11320-11330-11340-11350-11360-11370-11380-11390-11400-11410-11420-11430-11440-11450-11460-11470-11480-11490-11500-11510-11520-11530-11540-11550-11560-11570-11580-11590-11600-11610-11620-11630-11640-11650-11660-11670-11680-11690-11700-11710-11720-11730-11740-11750-11760-11770-11780-11790-11800-11810-11820-11830-11840-11850-11860-11870-11880-11890-11900-11910-11920-11930-11940-11950-11960-11970-11980-11990-12000-12010-12020-12030-12040-12050-12060-12070-12080-12090-12100-12110-12120-12130-12140-12150-12160-12170-12180-12190-12200-12210-12220-12230-12240-12250-12260-12270-12280-12290-12300-12310-12320-12330-12340-12350-12360-12370-12380-12390-12400-12410-12420-12430-12440-12450-12460-12470-12480-12490-12500-12510-12520-12530-12540-12550-12560-12570-12580-12590-12600-12610-12620-12630-12640-12650-12660-12670-12680-12690-12700-12710-12720-12730-12740-12750-12760-12770-12780-12790-12800-12810-12820-12830-12840-12850-12860-12870-12880-12890-12900-12910-12920-12930-12940-12950-12960-12970-12980-12990-13000-13010-13020-13030-13040-13050-13060-13070-13080-13090-13100-13110-13120-13130-13140-13150-13160-13170-13180-13190-13200-13210-13220-13230-13240-13250-13260-13270-13280-13290-13300-13310-13320-13330-13340-13350-13360-13370-13380-13390-13400-13410-13420-13430-13440-13450-13460-13470-13480-13490-13500-13510-13520-13530-13540-13550-13560-13570-13580-13590-13600-13610-13620-13630-13640-13650-13660-13670-13680-13690-13700-13710-13720-13730-13740-13750-13760-13770-13780-13790-13800-13810-13820-13830-13840-13850-13860-13870-13880-13890-13900-13910-13920-13930-13940-13950-13960-13970-13980-13990-14000-14010-14020-14030-14040-14050-14060-14070-14080-14090-14100-14110-14120-14130-14140-14150-14160-14170-14180-14190-14200-14210-14220-14230-14240-14250-14260-14270-14280-14290-14300-14310-14320-14330-14340-14350-14360-14370-14380-14390-14400-14410-14420-14430-14440-14450-14460-14470-14480-14490-14500-14510-14520-14530-14540-14550-14560-14570-14580-14590-14600-14610-14620-14630-14640-14650-14660-14670-14680-14690-14700-14710-14720-14730-14740-14750-14760-14770-14780-14790-14800-14810-14820-14830-14840-14850-14860-14870-14880-14890-14900-14910-14920-14930-14940-14950-14960-14970-14980-14990-15000-15010-15020-15030-15040-15050-15060-15070-15080-15090-15100-15110-15120-15130-15140-15150-15160-15170-15180-15190-15200-15210-15220-15230-15240-15250-15260-15270-15280-15290-15300-15310-15320-15330-15340-15350-15360-15370-15380-15390-15400-15410-15420-15430-15440-15450-15460-15470-15480-15490-15500-15510-15520-15530-15540-15550-15560-15570-15580-15590-15600-15610-15620-15630-15640-15650-15660-15670-15680-15690-15700-15710-15720-15730-15740-15750-15760-15770-15780-15790-15800-15810-15820-15830-15840-15850-15860-15870-15880-15890-15900-15910-15920-15930-15940-15950-15960-15970-15980-15990-16000-16010-16020-16030-16040-16050-16060-16070-16080-16090-16100-16110-16120-16130-16140-16150-16160-16170-16180-16190-16200-16210-16220-16230-16240-16250-16260-16270-16280-16290-16300-16310-16320-16330-16340-16350-16360-16370-16380-16390-16400-16410-16420-16430-16440-16450-16460-16470-16480-16490-16500-16510-16520-16530-16540-16550-16560-16570-16580-16590-16600-16610-16620-16630-16640-16650-16660-16670-16680-16690-16700-16710-16720-16730-16740-16750-16760-16770-16780-16790-16800-16810-16820-16830-16840-16850-16860-16870-16880-16890-16900-16910-16920-16930-16940-16950-16960-16970-16980-16990-17000-17010-17020-17030-17040-17050-17060-17070-17080-17090-17100-17110-17120-17130-17140-17150-17160-17170-17180-17190-17200-17210-17220-17230-17240-17250-17260-17270-17280-17290-17300-17310-17320-17330-17340-17350-17360-17370-17380-17390-17400-17410-17420-17430-17440-17450-17460-17470-17480-17490-17500-17510-17520-17530-17540-17550-17560-17570-17580-17590-17600-17610-17620-17630-17640-17650-17660-17670-17680-17690-17700-17710-17720-17730-17740-17750-17760-17770-17780-17790-17800-17810-17820-17830-17840-17850-17860-17870-17880-17890-17900-17910-17920-17930-17940-17950-17960-17970-17980-17990-18000-18010-18020-18030-18040-18050-18060-18070-18080-18090-18100-18110-18120-18130-18140-18150-18160-18170-18180-18190-18200-18210-18220-18230-18240-18250-18260-18270-18280-18290-18300-18310-18320-18330-18340-18350-18360-18370-18380-18390-18400-18410-18420-18430-18440-18450-18460-18470-18480-18490-18500-18510-1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