

## CORRESPONDENCE.

## INDIAN UNCOVENANTED SERVICE LIFE TABLES.

*To the Editor of the Journal of the Institute of Actuaries.*

SIR,—I enclose tables of annuity values and single and annual premiums deduced from the table marked F in Mr. Finlaison's paper, "On the Rate of Mortality in India found to prevail among the Subscribers to the Uncovenanted Service Family Pension Fund between the years 1837—1872" (vol. 18, p. 153), which, as the rates of premium for the assurance of persons resident in India have lately been the subject of discussion, may be considered of sufficient interest to warrant insertion in the *Journal*.

A comparison between the premiums lately deduced (vol. 18, p. 374) by Mr. H. A. Smith from the late Mr. Samuel Brown's Indian table, marked A(4), and those which I now send, shows that the latter, as might be expected from the class of lives which Mr. Finlaison had under observation, are higher at all ages above 22.

I am, Sir,

Your obedient servant,

THOS. H. COOKE.

1 Moorgate Street,

1 September 1875.

Mr. A. H. Bailey writes to us as follows:—

Having had last year to make a report on the Indian Uncovenanted Service Fund, I came to the conclusion that the mortality experience of the members of that Fund would for several reasons form a better basis than any now existing for life assurance in India. I therefore suggested that Mr. Cooke should compute these tables and send them to the *Journal*.

The tables must be used with caution. The experience shows a much lower mortality between 20 and 30, and a much higher mortality above 70, than was to have been expected. It should therefore be remembered that the number of deaths at the former period was 20, and at the latter 10 only.

MALE MORTALITY IN INDIA.—*The Experience of the Subscribers to the Uncovenanted Service Family Pension Fund. Interest 3 per-cent.*

Age.	<i>a</i>	A	$\pi$	Age.	<i>a</i>	A	$\pi$
21	19·1075	·414345	·020607	53	9·4471	·695715	·066594
22	18·8008	·423277	·021377	54	9·1593	·704098	·069306
23	18·4950	·432185	·022169	55	8·8509	·713082	·072388
24	18·1890	·441097	·022987	56	8·5194	·722736	·075923
25	17·8814	·450056	·023836	57	8·1683	·732962	·079946
26	17·5711	·459095	·024721	58	7·8107	·743378	·084372
27	17·2589	·468187	·025642	59	7·4617	·753544	·089054
28	16·9450	·477331	·026600	60	7·1351	·763054	·093797
29	16·6304	·486493	·027594	61	6·8389	·771683	·098443
30	16·3168	·495627	·028621	62	6·5756	·779352	·102877
31	16·0068	·504656	·029674	63	6·3371	·786299	·107168
32	15·7013	·513554	·030749	64	6·1106	·792895	·111509
33	15·4011	·522298	·031845	65	5·8827	·799534	·116166
34	15·1067	·530872	·032960	66	5·6435	·806500	·121397
35	14·8167	·539319	·034098	67	5·3861	·813997	·127464
36	14·5287	·547708	·035271	68	5·1141	·821920	·134431
37	14·2397	·556126	·036492	69	4·8393	·829922	·142126
38	13·9465	·564665	·037779	70	4·5617	·838010	·150676
39	13·6463	·573409	·039151	71	4·2815	·846171	·160215
40	13·3384	·582376	·040617	72	3·9983	·854418	·170941
41	13·0232	·591557	·042184	73	3·7122	·862750	·183087
42	12·7038	·600864	·043847	74	3·4230	·871175	·196965
43	12·3828	·610211	·045597	75	3·1307	·879688	·212963
44	12·0642	·619489	·047419	76	2·8350	·888300	·231628
45	11·7493	·628662	·049310	77	2·5361	·897006	·253670
46	11·4402	·637664	·051258	78	2·2342	·905800	·280066
47	11·1363	·646515	·053271	79	1·9284	·914706	·312356
48	10·8394	·655163	·055337	80	1·6195	·923705	·352631
49	10·5494	·663610	·057458	81	1·3061	·932831	·404499
50	10·2678	·671812	·059622	82	·9880	·942097	·473893
51	9·9929	·679819	·061842	83	·6666	·951457	·570888
52	9·7222	·687703	·064138	84	·3379	·961032	·718314

MALE MORTALITY IN INDIA.—*The Experience of the Subscribers to the Uncovenanted Service Pension Fund. Interest 3 per-cent.*

Age.	D	N	Age.	D	N
20	...	1080877·1	53	11067·1	104551·9
21	53754·9	1027122·2	54	10291·2	94260·71
22	51873·0	975249·2	55	9568·75	84691·96
23	50025·7	925223·5	56	8896·78	75795·18
24	48216·5	877007·0	57	8267·10	67528·08
25	46448·3	830558·7	58	7664·33	59863·75
26	44723·4	785835·3	59	7074·70	52789·05
27	43038·7	742796·6			
28	41393·2	701403·4	60	6489·02	46300·03
29	39784·1	661619·3	61	5906·44	40393·59
			62	5332·09	35061·50
30	38207·0	623412·3	63	4778·69	30282·81
31	36656·8	586755·5	64	4258·84	26023·97
32	35132·6	551622·9	65	3781·10	22242·87
33	33633·5	517989·4	66	3348·08	18894·79
34	32160·1	485829·3	67	2958·75	15936·04
35	30716·3	455113·0	68	2606·46	13329·58
36	29307·9	425805·1	69	2282·73	11046·85
37	27940·6	397864·5			
38	26619·2	371245·3	70	1986·26	9060·59
39	25347·4	345897·9	71	1715·55	7345·04
			72	1469·51	5875·53
40	24123·9	321774·0	73	1246·87	4628·66
41	22945·8	298828·2	74	1046·50	3582·161
42	21806·3	277021·9	75	867·206	2714·955
43	20699·9	256322·0	76	707·935	2007·020
44	19620·2	236701·8	77	567·579	1439·441
45	18565·9	218135·9	78	445·063	994·378
46	17534·9	200601·0	79	339·562	654·816
47	16529·0	184072·0			
48	15547·4	168524·6	80	249·981	404·835
49	14591·7	153932·9	81	175·547	229·288
			82	115·336	113·952
50	13661·4	140271·5	83	68·3729	45·579
51	12760·2	127511·3	84	34·0676	11·512
52	11892·3	115619·0	85	11·5116	

MALE MORTALITY IN INDIA.—*The Experience of the Subscribers to the Uncovenanted Family Pension Fund. Interest 4 per-cent.*

Age.	$\alpha$	$\Lambda$	$\varpi$	Age.	$\alpha$	$\Lambda$	$\varpi$
21	16·5678	·324315	·018460	53	8·7574	·624715	·064024
22	16·3356	·333246	·019223	54	8·5091	·634265	·066701
23	16·1033	·342180	·020006	55	8·2404	·644599	·069758
24	15·8697	·351166	·020816	56	7·9488	·655815	·073285
25	15·6337	·360241	·021657	57	7·6373	·667796	·077315
26	15·3943	·369450	·022535	58	7·3179	·680080	·081761
27	15·1522	·378761	·023449	59	7·0048	·692123	·086463
28	14·9075	·388173	·024401	60	6·7112	·703415	·091220
29	14·6610	·397654	·025391	61	6·4447	·713665	·095862
30	14·4144	·407137	·026412	62	6·2082	·722761	·100269
31	14·1698	·416546	·027458	63	5·9944	·730985	·104510
32	13·9281	·425841	·028526	64	5·7914	·738792	·108783
33	13·6901	·434995	·029611	65	5·5865	·746673	·113364
34	13·4563	·443989	·030712	66	5·3702	·754992	·118519
35	13·2256	·452860	·031834	67	5·1359	·764004	·124513
36	12·9957	·461703	·032989	68	4·8866	·773592	·131415
37	12·7639	·470619	·034192	69	4·6338	·783316	·139038
38	12·5276	·479707	·035461	70	4·3772	·793185	·147508
39	12·2839	·489080	·036817	71	4·1171	·803188	·156961
40	12·0322	·498761	·038271	72	3·8530	·813346	·167596
41	11·7728	·508738	·039829	73	3·5851	·823650	·179636
42	11·5082	·518914	·041486	74	3·3130	·834115	·193395
43	11·2410	·529192	·043231	75	3·0368	·844739	·209259
44	10·9747	·539434	·045047	76	2·7561	·855535	·227772
45	10·7105	·549595	·046931	77	2·4710	·866500	·249639
46	10·4503	·559604	·048872	78	2·1818	·877623	·275825
47	10·1938	·569469	·050873	79	1·8875	·888942	·307858
48	9·9426	·579131	·052924	80	1·5887	·900435	·347832
49	9·6967	·588588	·055025	81	1·2843	·912142	·399309
50	9·4576	·597785	·057162	82	·9738	·924085	·468176
51	9·2238	·606777	·059349	83	·6586	·936208	·564456
52	8·9930	·615654	·061608	84	·3347	·948665	·710770

MALE MORTALITY IN INDIA.—*The Experience of the Subscribers to the Uncovenanted Service Pension Fund. Interest 4 per-cent.*

Age.	D	N	Age.	D	N
20	...	770923·8	53	6631·93	58078·27
21	43883·4	727040·4	54	6107·69	51970·58
22	41939·9	685100·5	55	5624·30	46346·28
23	40057·4	645043·1	56	5179·06	41167·22
24	38237·5	606805·6	57	4766·23	36400·99
25	36481·1	570324·5	58	4376·22	32024·77
26	34788·5	535536·0	59	4000·71	28024·06
27	33156·2	502379·8			
28	31581·8	470798·0	60	3634·23	24389·83
29	30062·3	440735·7	61	3276·15	21113·68
			62	2929·13	18184·55
30	28593·0	412142·7	63	2599·88	15584·67
31	27169·1	384973·6	64	2294·77	13289·90
32	25788·9	359184·7	65	2017·77	11272·13
33	24451·2	334733·5	66	1769·50	9502·63
34	23155·2	311578·3	67	1548·71	7953·92
35	21903·1	289675·2	68	1351·19	6602·73
36	20697·8	268977·4	69	1171·99	5430·74
37	19542·5	249434·9			
38	18439·2	230995·7	70	1009·97	4420·771
39	17389·4	213606·3	71	863·932	3556·839
			72	732·913	2823·926
40	16390·9	197215·4	73	615·894	2208·032
41	15440·5	181774·9	74	511·950	1696·082
42	14532·7	167242·2	75	420·159	1275·923
43	13662·6	153579·6	76	339·694	936·229
44	12825·5	140754·1	77	269·728	666·501
45	12019·6	128734·5	78	209·472	457·029
46	11243·0	117491·5	79	158·280	298·749
47	10496·2	106995·3			
48	9777·9	97217·39	80	115·403	183·346
49	9088·56	88128·83	81	80·2616	103·084
			82	52·2256	50·858
50	8427·30	79701·53	83	30·6625	20·195
51	7795·73	71905·80	84	15·1310	5·064
52	7195·60	64710·20	85	5·0637	