

THE RELATION BETWEEN THE HEIGHT AND WEIGHT OF MEN.

We clip the following correspondence from the pages of the *Journal of the Institute of Actuaries and Assurance Magazine*, which, we feel assured, will prove of much interest to Canadian Life Assurance men. The writer, Mr. T. B. Macaulay, is the Actuary of the Sun Mutual Life of Montreal.

To the Editor of the *Journal of the Institute of Actuaries* :—

SIR,—The following statistics regarding the weight of the human body, and the effect which various influences have on it, may be interesting to your readers. They are founded on 2,000 cases taken from the records of a Canadian Life Company. This number was chosen as sufficient to give reliable results, without increasing needlessly the amount of labour.

Although I am acquainted with several tables purporting to show the average weight corresponding to various heights, I have been unable to find on what basis any of them rests. Some differ very greatly from others. It thus becomes a question by what table should a Company be guided, To solve the matter I made an investigation, and give herewith the results, with very slight adjustment. Only healthy English-speaking lives were included.

Average Weight at various Heights.

Height.	Weight.	Height.	Weight.
	lbs. st. lbs.		lbs. st. lbs.
5 ft. 1 in. -	125 = 8 13	5 ft. 7 in. -	145.5 = 10 5.5
5 " 2 " -	128 = 9 2	5 " 8 " -	151 = 10 11
5 " 3 " -	131 = 9 5	5 " 9 " -	156.5 = 11 2.5
5 " 4 " -	134 = 9 8	5 " 10 " -	161.6 = 11 7.5
5 " 5 " -	137.5 = 9 11.5	5 " 11 " -	167 = 11 13
5 " 6 " -	141 = 10 1	6 " 0 " -	173 = 12 5

The average height of adult Canadians of British extraction was found to be 5 feet 8.6 inches, and their average weight 155.0 lbs. The French cases were kept separate, and their average height was found to be 5 feet 7.3 inches, and their weight 149.9 lbs. French-Canadians are, therefore, as a rule, about one and one-third inches under the English standard in height, and five pounds under it in weight. They are, however, generally heavier than English people of the same height.

The declined lives were also kept separate. Taking into consideration only those cases in which the cause of rejection was a tendency to lung disease of any kind, whether manifested in the applicant personally or in his family history, it was seen that although their average height was exactly the same as that of the healthy cases, their average weight was only 147.6 lbs.—about seven and one-half pounds under the healthy standard. Some such result was expected, but it confirms the rule that light weight generally accompanies a consumptive tendency. The other rejected cases exhibited nothing remarkable.

The influence of age is considerable, as may be seen from the following table :—

Weight at various Ages.

Ages.	Weight.	Ages.	Weight.
	lbs. st. lbs.		lbs. st. lbs.
16 to 20 -	142.5 = 10 2.5	41 to 45 -	159.2 = 11 5.2
21 " 25 -	149.6 = 10 9.6	46 " 50 -	163.5 = 11 9.5
26 " 30 -	151.3 = 10 11.3	51 " 55 -	167.7 = 11 13.7
31 " 35 -	157.3 = 11 3.3	56 " 60 -	172.4 = 12 4.4
36 " 40 -	158.2 = 11 4.2		

The weight of healthy persons thus increases about

thirty pounds in forty years, or about three-fourths of a pound for each year. By far the largest increase is at the younger ages. Whether this rule of increase holds good much after sixty, I have no means of knowing. It is, however, evident that a young man may be considerably under the tabular weight for his height and still be perfectly healthy, while the same variation in an elderly man would be very suspicious.

We have already seen that a consumptive tendency and a spare habit of body, generally go hand in hand. As weight is found to increase with age, we may, perhaps, infer that the liability to consumption is less among lives selected late in life, than among those entering at an early age, although the deaths from that disease are pretty evenly distributed over the ages, among assured lives as a class.

The influence of occupation is next to be considered. The following table shows the main results on this score :—

Average Weight of Persons engaged in various Occupations.

Occupation.	Weight.		
	lbs.	st.	lbs.
Agents, Brokers, &c. - - -	156.2	= 11	2.2
Butchers - - - - -	169.3	= 12	1.3
Barristers - - - - -	160.1	= 11	6.1
Bankers, Ins. Managers, &c. -	154.2	= 11	0.2
Blacksmiths - - - - -	155.4	= 11	1.4
Clerks and Salesmen - - -	147.4	= 10	7.1
Carpenters, Coopers, &c. - -	152.6	= 10	12.6
Commercial Travellers - - -	158.1	= 11	4.1
Clergymen - - - - -	163.7	= 11	9.7
Druggists - - - - -	148.1	= 10	8.1
Doctors - - - - -	160.6	= 11	6.6
Farmers - - - - -	160.9	= 11	6.9
Founders and Moulders - - -	151.3	= 10	11.3
Hotel-keepers, &c. - - - -	166.7	= 11	12.7
Labourers - - - - -	148.3	= 10	8.3
Merchants - - - - -	153.7	= 10	13.7
Machinists - - - - -	153.5	= 10	13.5
Masons, Bricklayers, &c. - -	162.2	= 11	8.2
Manufacturers - - - - -	151.1	= 10	11.1
Shoemakers and Saddlers - -	148.0	= 10	8
Teachers - - - - -	151.4	= 10	11.4
Tailors - - - - -	145.1	= 10	5.1
Total - - - - -	155.0	= 11	1

As these statistics are based exclusively on Canadian data, they may be compared with those of other countries, and I will be much pleased to see this done. It must be remembered, however, that the average age at entry should be taken into consideration. In the Company referred to it is 28 years.

Yours truly,

T. B. MACAULAY.

Montreal, Oct. 21, 1880.

P.S.—Since writing the above, I have noticed in Dr. Allen's *Examinations in Life Insurance*, a statement to the effect that the average height of Continental Europeans is a little less than 5 feet 6 inches; that of emigrants from Great Britain about 5 feet 7 inches, and that of Americans, about 5 feet 8 inches. We have seen that the average of English-speaking Canadians is over 5 feet 8½ inches. If Dr. Allen is correct, he strongly confirms the opinion I have always held that Canadians are a hardier, better developed, and more muscular race of men than can be found in almost any other country.