

A MISLEADING ARTICLE ON BELTING.

In our issue of November last, we printed an article entitled "Notes on Belting," by G. R. McLeod, McGill College, Montreal, which on account of the omission of very important data in the tables of comparison, and several errors embodied in the article itself, especially in regard to "Reddaway" or "Camel Brand" hair belting, is very misleading. This has been brought to our notice by Messrs. W. A. Fleming & Co., of Montreal, agents for the "Camel Brand" hair belting.

When the matter was brought to our attention, we communicated with Prof. Bovey, Dean of the Faculty of Applied Science, McGill University, Montreal, and received in reply the following letter, wherein he points out how the table of comparison is misleading:

DEAR SIR,—The account as given by you is substantially correct, but one very important omission has been made. In all the samples of the "Reddaway" belting, the total extension was given without any statement as to the load under which this extension was produced, and consequently in the table the results are very misleading, although they are correct. For example:

In sample No. 1, the total extension in a length of 30 inches was 10.03" under a load of 7,500 lbs.

In sample No. 2, the total extension in a length of 30 inches was 10.15" under a load of 6,050 lbs.

In sample No. 3, in the same length, the total extension was 7.34" under a load of 10,000 lbs.

In sample No. 4, in the same length, the total extension was 8.27" under a load of 7,200 lbs.

In sample No. 5, the total extension in the same length was 7.18" under a load of 9,200 lbs.

In sample No. 6, the total extension in the same length was 11.4" under a load of 19,400 lbs.

If a table is constructed, it should be made so as to give the extension per cent. per square inch of sectional area, and it should be clearly stated also over what length the extension is measured. All these items are of importance in making comparative estimates.

I think it is only fair to the Reddaway Company that you should make a statement to clear up these doubtful points, as I consider the "Camel Brand" belting an extremely valuable production. I am, Yours truly,

(Signed) HENRY T. BOVEY.

We have also been authorized by Prof. Bovey to state that the tests in question were made by Mr. George R. McLeod, under Professor Cecil B. Smith, when the former was an undergraduate in the Faculty of Applied Science. The actual results of these tests were communicated by Professor Smith in a letter which has been placed at our disposal, as follows:

McGILL COLLEGE, MONTREAL,
March 30th, 1898.

W. A. FLEMING, ESQ.,
Agent F. Reddaway Belting & Hose Co., Ltd.

DEAR SIR,—The following are results of tests on pieces of Reddaway's "Camel Brand" hair belting, kindly forwarded by you for our 4th year civil engineering students to test:

Dimensions.	Weight per foot.	Area of Section.	Time of Test.	Perman- ent Set in 30 in.	Breaking Load.		Stretch in 30 inches under loads of										
					Total.	per s. in.	1000	2000	3000	4000	5000	6000	7000	8000	9000	10,000	
No. 1 Single, 4.35"x.29".....	.572	Sq Ins 1.26	Mins. 	Ins. 3.5	7520	5968	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
No. 2 Single, 5.07"x.24".....	.599	1.22	22	4.45	6800	5574	.92	1.50	2.06	2.81	3.63	5.31	7.91				
R's's'n No. 3 Double, 6.10"x.28"	.799	1.71	22	2.12	10100	5906	.77	1.18	1.55	1.96	2.28	2.72	3.29	4.11			
No. 4 Single, 5.05"x.22".....	.599	1.31		3.87	7400	5649	.84	1.24	1.82	2.82	2.87	4.17	7.09				
No. 5 Double, 6.01"x.30".....	.781	1.80			9800	5444	1.25	1.87	2.28	733	20	5.77	4.28	5.33	6.85		
No. 6 Double, 12.20"x.31".....	1.705	3.78		5.80	19600	5185	.65	1.06	1.41	1.71	1.98	2.22	2.48	2.75	3.03	3.31	

I am, Yours truly,
(Signed) CECIL B. SMITH (Professor).

We also give the following extracts from our correspondence with Messrs. W. A. Fleming & Co., and the comparative tables, furnished by them, which can be understood at a glance:

"It would be almost impossible to make a comprehensive table of comparison from the samples of different beltings, as none of the samples were of the same width and weight. The above table gives the ultimate strength (breaking load) and stretch of the "Camel Brand" samples, tested under different loads up to the ultimate strength. There is no kind of belting that will show so small a percentage of extension, under similar loads, and no belting will stand as great a strain per square inch as this table shows the "Camel Brand" capable of resisting.

"A sample of English oak-tanned leather belting, tested at the same time reached its breaking strain at 2200 lbs. per square inch while the limit of the "Camel Brand" was 5,968 lbs. per square inch. Before the breaking strain of the leather was reached it stretched 9 per cent. under a greater load, viz., 2460 lbs. per square inch. The single "Camel Brand" stretched only 7 per cent. Moreover, under a load of about double the breaking strain of leather the stretch of the "Camel Brand" was scarcely any greater than the ultimate strength of leather. By this it will be seen that the "Camel Brand" stretches

much less at the breaking strain of oak-tanned leather, and its breaking load is actually two and a half times greater.

"The following results of tests will be of interest, being made under the direction of Mr. Chas. Hopkinson, M. Inst. C.E., M. Inst. M.E., B.Sc., of Manchester, England, who designed a very elaborate and perfect machine, and erected a testing apparatus, enabling him to accurately ascertain the driving power of any belt up to 50 h.p.

COMPARATIVE ULTIMATE STRENGTHS OF THE "CAMEL BRAND" OR "REDDAWAY" BELT AND BEST DOUBLE LEATHER BELTS.

Width of Belt in Inches.	"Camel Brand" Belting.	Double Leather.
4	6,866 lbs.	4,908 lbs.
6	11,515 lbs.	5,641 lbs.

"In this connection it may also be of interest to give a few of the results of a series of tests to ascertain the ultimate strength of different widths of "Camel Brand" belting, which were carried out by Mr. Chas. Hopkinson:

ULTIMATE STRENGTH OF "CAMEL BRAND" BELTING.

Width of Belt in inches.	Breaking load in lbs. per inch of width.	Width of belt in inches.	Breaking load in lbs. per inch of width.
3	1,890	7	1,819
4	2,084	8	1,778
5	1,870	9	1,763
6	1,838	10	1,714

"These tests compare favorably with those made at McGill College.

"Extracts from further tests made by Mr. Hopkinson, comparing the driving power of link leather, ordinary leather (best quality) and "Camel Brand," will be of interest:

"The results are tabulated to enable the comparisons to be readily made. The belts tested were the "Reddaway" or "Camel Brand" belting, 6 and 3 inches wide, of the regular make; link leather belts, 6 and 3 inches wide; plain leather belts (best quality) 6 and 3 inches. The belts were all run for several hours under considerable tension before testing. They were, in fact, in as favorable a state as they could be. In the case of the 6 in. link leather belt, which was more difficult to get into good running order, the experiments were repeated; and the 3 in. link leather belt was run for some hours driving about 8 h.p., in addition to the same preliminary run as the "Camel Brand" and plain leather belts.

"The belts in all cases were jointed with metal fasteners, and no failure of a joint took place.

"The tests upon the 6 in. belts were repeated after altering the crowning of the pulley. At first the driving pulley was crowned 9/32 in. in 8 1/2 in. wide; after running some time, the crowning was reduced to 6/32 in.; the results of the second run were distinctly better, and the belts showed a better surface at the edges.

"In belts 3 inches wide, running 1353 feet per minute the safe load of link leather and cemented leather in both cases was 6 horse power, while that of the "Camel Brand" was 8.72 horse power. With belts 6 inches wide the results were precisely similar.

HOPKINSON'S EXPERIMENTS—FIXED CENTRES.
Belts 3 inches wide running 1353 feet per minute.

Total Initial Tension.	Link Leather.		Leather.		Camel Brand.	
	Indicated Horse Power.	Slip % Loss of Power & Speed.	Indicated Horse Power.	Slip % Loss of Power & Speed.	Indicated Horse Power.	Slip % Loss of Power & Speed.
457 lbs.—76 lbs. per inch width of belt of slack and tight parts.	8.4	1.65				
	10.43	1.95				
	12.54	2.65	12.83	2.1	12.75	1.0
	14.6	3.16			14.08	1.15
			15.09	3.0	15.8	1.26
			16.24	3.4	16.69	1.48
					18.65	1.9
					19.66	2.4
Initial arcs of contact, 180°.						
	16.65	2.05	16.81	2.1	16.73	1.15
	20.82	2.56	20.82	3.6	20.75	1.4
	22.94	3.16			22.67	1.48
793 lbs.—132 lbs. per inch of width.					25.62	1.75
					28.5	2.35
					30.4	3.0

"Remarks: With less tension than 457 lb. the linked leather belt would not drive steadily.

"The loss of speed by slip and creep of the belts, is for any given load twice as much with the leather belt as with the "Camel Brand" belt.

"With the initial tension of 132 lb. per inch of width, which is very high for a leather belt, the leather belts showed less inferiority relatively to the "Camel Brand" belts.

"The results indicate that the usual allowance of 2 per cent. for slip and creep is sufficient for leather belts, and that 1 per cent. would be equally ample for the "Camel Brand" belts.

COMPARISONS OF DRIVING POWERS OF BELTS 6 IN. WIDE
RUNNING 1353 FEET PER MINUTE.

Total Initial Tension.	Link Leather.		Leather.		Camel Brand.	
	Indicated Horse Power.	Slip % Loss of Power & Speed.	Indicated Horse Power.	Slip % Loss of Power & Speed.	Indicated Horse Power.	Slip % Loss of Power & Speed.
121 lbs.—10.08 lbs. per inch width of belt slack and tight parts.						
Lbs. Lbs.						
233—19.4 do.	Would not drive.		Would not drive.		16.73	1.46
345—28.75 do.	wd not driv		14.69	3.7		
457—38.08 do.	19.8	2.66			30.44	1.81
793—64.41 do.	23.73	4.18	32.68	2.94	30.82	1.84
	Arc 197					
1129—94.08 do.	36.24	3.5	40.43	2.77	47.07	2.27

"With regard to the construction of the "Camel Brand" belting in your article of November it is stated "the belting is made partly of cotton and partly of coarse camel hair. The cotton is the material which forms the chief strength and therefore the longitudinal fibres are cotton. The hair yarn forms a wool, although in some of the specimens tested there were strands of hair running longitudinally as well as transversely. This statement is entirely in error; on the slightest examination anyone will see that just the contrary is the case; the hair forming the chief strength of the fabric, the cotton is simply the wool, no longitudinal strain bearing on a whatever.

DECREASED PRODUCTION OF LOGS.

LITTLE CURRENT, Nov. 17th, 1898.

To the Editor of the CANADA LUMBERMAN:

DEAR SIR,—In your November monthly edition you state that it is reported that J. & T. Charlton intend to cut ten million feet of logs the coming winter for exportation to Michigan. The report is not correct, as their cut will be less than one-half of that amount, and in regard to towing the logs to Michigan, it is very likely they will do so providing the manufacturing embargo is removed; if not, of course they will have to manufacture in Canada. The reason I refer to this matter is, first, because the amount is far too large, and secondly, because Mr. John Charlton is a member of the Joint High Commission now sitting in Washington, and that the report might influence American operators to increase their output perhaps to their sorrow.

Yours truly,
J. C. WELLS,
Manager for J. & T. Charlton & Co.

ONE DOLLAR.

THE above sum represents the yearly subscription price of the CANADA LUMBERMAN, including both weekly and monthly editions, mailed to any address in Canada or the United States. Owing to postal charges, the subscription price to foreign subscribers is two dollars per year. Persons in foreign countries interested in Canadian timber products can invest that sum to no better advantage than by becoming a subscriber. Likewise every mill owner in Canada should read the columns of the CANADA LUMBERMAN. A sample copy will be furnished upon request.

The Lloyd Mfg. Co., of Kentville, N. S., advise us that their business was started in a small way fifteen years ago by Mr. J. L. Lloyd, the present proprietor, and gradually increased as capital and demand would warrant. Their plant was greatly increased last fall. The factory has a frontage of 90 feet by 120 feet, is two stories, and employment is given to about 25 skilled mechanics. Shipments of machinery are now made to Newfoundland, Quebec, New Brunswick, and Pacific coast.