

REASONS WHY
THE METRIC WEIGHTS AND MEASURES
SHOULD BE MADE COMPULSORY
THROUGHOUT THE BRITISH EMPIRE.

=====
MARCH, 1904.
=====

ISSUED BY THE DECIMAL ASSOCIATION,
OXFORD COURT, CANNON STREET,
LONDON, E.C.

THE
DECIMAL ASSOCIATION.

President:

SIR SAMUEL MONTAGU, BART., D.L.

Executive Committee:

J. EMERSON DOWSON M. INST. C.E., *Chairman.*

The Rt. Hon. LORD AVEBURY, P.C., F.R.S.,
F. FAITHFUL BEGG. [LL.D.]
H. J. FALK, (Liverpool)
Sir DOUGLAS FOX, Past Pres. Inst. C.E.
Professor H. S. FOXWELL, M.A.
Sir A. F. GODSON, M.P.
The Rt. Hon. LORD KELVIN OF LARGS.,
O.M., P.C., G.C.V.O., F.R.S.
ROBERT C. MILLAR, C.A. (Edinburgh).

Sir GUILFORD MOLESWORTH, K.C.I.E.
Vice-President Inst. C.E.
Professor J. S. NICHOLSON, M.A., D.Sc.
J. G. PILTER (Paris).
Sir WILLIAM H. PREECE, K.C.B. F.R.S.
WILLIAM PRINGLE.
Sir HENRY ROSCOE, F.R.S.
W. T. ROWLETT (Leicester).
ALEXANDER SIEMENS, Past Pres. Inst. E.E.
WM. ALEX. SMITH, (Glasgow).

Secretary:

EDWARD JOHNSON

Offices

OXFORD COURT, CANNON STREET, LONDON, E.C.

Reasons why the Metric Weights and Measures should be made Compulsory throughout the British Empire.

1.—The chief reason of all is that we now make difficulties for ourselves in relation to our foreign trade with metric countries, and lose business because we do not manufacture and sell in terms of the metric system. To avoid the trouble, confusion and expense of having one system of weights and measures for our home trade and another for our foreign trade, we should adopt the metric weights and measures for all purposes and so place ourselves on an equal footing with our competitors.

2.—If Great Britain were to adopt the metric weights and measures, it is certain that the United States and Russia would follow suit. There would then be an international system of weights and measures, and this would be a great gain to all concerned.

3.—In 1895 a Select Committee of the House of Commons received a large amount of evidence and reported as follows:—

- (a) That the Metric System of Weights and Measures be at once legalised for all purposes.
- (b) That after a lapse of two years the Metric System be rendered *compulsory* by Act of Parliament.
- (c) That the Metric System of Weights and Measures be taught in all public elementary schools as a necessary and integral part of arithmetic, and that decimals be introduced at an earlier period of the school curriculum than is the case at present.

Since then the metric system has been made permissive, and recommendation *c* has been carried out. It now remains to give effect to *b*.

4.—Our customers in the Metric countries, which have a population of over 483,000,000 (*see list, page 12*), do not understand quotations and specifications based on British weights and measures. Often they cannot spare the time required to calculate the metric equivalents, and prefer to deal with German and other makers who use the Metric System.

5.—At present the British manufacturer, especially of machinery, who makes goods for Metric countries as well as his own, must work to one system of weights and measures for his home trade, and to another for his foreign trade. In several trades this also involves two sets of costly patterns, while the principals, the clerks, the mechanics and others, must use both systems of measurement.

6.—This means increased trouble and expense from which our foreign competitors, who use the Metric System, and no other, are *free*.

7.—If we keep to our old Imperial weights and measures, and invoice foreign traders according to the Metric System, there must be many intricate calculations and many risks of mistakes

8.—In many branches of trade our manufacturers are seriously handicapped. They have to make and sell for the home market where our old weights and measures are still in use, and at the same time they are told that if they don't make and sell on the Metric System for abroad, they cannot compete favourably with our keen competitors from Germany and other countries. But, as already pointed out, no manufacturer can work on two systems of weights and measures without serious inconvenience.

10.—From time to time many of our Consuls abroad have urged the importance of our making and selling on the basis of the Metric System. (*See Extracts, page 13.*)

11.—In October, 1898, the Commercial, Labour and Statistical Department of the Board of Trade issued a valuable collection of "Opinions of H.M. Diplomatic and Consular Officers on British Trade Methods." Extracts were given from 171 reports received from different parts of the world since January, 1896, and in a Memorandum it is stated that "there is a general opinion among the Consuls to the effect that it is necessary for British traders to adapt themselves more to the requirements of their customers." Among the causes indicated, which tend to place British trade at a disadvantage, is the failure "to adopt the Metric System in calculations of weight, cost, etc."

12.—**The Educational Value of the Proposed Change would be Enormous.** All the present incongruous tables of Imperial weights and measures, and all the compound arithmetic they involve would be discarded. Decimal fractions would then be taught in the simplest way, immediately after the simple rules of addition, subtraction, &c. The metric weights and measures would then be taken as examples for these rules, and the whole system would be easily understood and learnt quickly. This is no mere opinion, it is what is done in France, Germany and other metric countries.

13.—A large number of Head Masters of schools have reported that, if the metric weights and measures were adopted, scholars would save several months, some say years, of useless teaching, and that this time saved could be devoted to the better teaching of more advanced arithmetic, or to other subjects.

14.—Following the recommendations of the Select Committee of 1895, the scholars in public elementary schools are now taught the principles of the metric system. The requirements of the Education Code are that:—

"The Scholars in Standards V, VI and VII should know the principles of the metric system and be able to explain the advantages to be gained

from uniformity in the method of forming multiples and sub-multiples of the unit."

But after carrying out these instructions for some years the teachers are now confronted with the difficulty that the scholars continue to learn two systems of weights and measures, whereas only one is in use for ordinary purposes. On this account several School Inspectors do not even trouble to examine in the metric system, although the scholars have been prepared for it.

15.—The importance of the question is fully recognised by the National Union of Teachers, who have passed strong resolutions in favour of the Metric System. The Association of Technical Institutions has also shown sympathy with the movement.

16.—The Trades and Labour Councils have shown themselves strongly in favour of the proposed change. In addition to the Trades Councils which have signified their approval, favourable resolutions have been passed at two of the Trades Union Congresses. Representatives of several Trades and Labour Councils attended a deputation to the Board of Trade on this question, 22nd March, 1899, and made stirring speeches, pressing the President of the Board of Trade to assist in bringing about the reform.

17.—The Select Committee in 1895 received from numerous Corporations, School Boards, and other public bodies, resolutions in favour of the Metric System, and none against it:

18.—The Incorporated Society of Inspectors of Weights and Measures has taken up the matter, and warmly supports the proposed change.

19.—The London Association for the Protection of Trade, the Metropolitan Grocers' and Provision Dealers' Association, the Edinburgh Merchants' Association, The National Chamber of Trade Hull, the Hull Guardian Society, the Association of Trade Protection Societies, the Manchester Guardian Society, the Munster Merchants' Association, and the Rochdale Merchants' and Tradesmen's Association, all represent-

ing retailers rather than merchants, have shown themselves decidedly in favour of the change; and similar institutions in Heckmondwike, Wimbledon, Southam, Bolton, Merthyr Tydvil, and elsewhere have passed resolutions approving the adoption of the Metric Weights and Measures.

20.—In Liverpool the Cotton Association, the Corn Trade Association, the General Brokers' Association, the Salt Chamber of Commerce, the Shipowners' Association, the West India Association, the Woolbrokers' Association, the Warehouse Association, the Provision Trade Association, and the Iron and General Metal Trades Section of the Liverpool Chamber of Commerce, have all expressed themselves in favour of the recommendations of the Select Committee of the House of Commons.

21.—At the Coronation Conference of Colonial Premiers held in London, July, 1902, a resolution in favour of the adoption of the metric weights and measures throughout the British Empire was passed. There is a strong body of public opinion in favour of the reform throughout the Empire, and it is recognised that a compulsory law is necessary to accomplish this.

22.—The Council of the Institute of Chartered Accountants, 8th July, 1903, passed a resolution strongly supporting the introduction of the metric weights and measures.

23.—In November, 1903, the Council of the Society of Accountants and Auditors passed a resolution to the effect that the Society is of opinion that the metric system should be adopted as the legal standard for the United Kingdom.



The following is a list of City, Borough, and County Councils which, in 1902, and 1903, petitioned the Board of Trade in favour of the adoption of the metric weights and measures throughout the British Empire, or in other ways showed their approval of the reform:

CITY AND BOROUGH COUNCILS.

Banbury	Glastonbury	Penrhy
Bangor	Godalming	Plymouth
Barnsley	Halifax	Preston
Barrow-in-Furness	Hammersmith	Pudsey
Battersea	Hampstead	Renfrew
Birkenhead	Hanley	Richmond (Surrey)
Bootle	Harrogate	Rochdale
Bournemouth	Huddersfield	Saffron Walden
Brighouse	Hull	Salford
Brighton	Keighley	Scarborough
Burslem	Launceston	Sheffield
Camberwell	Leamington Spa	Shoreditch
Chester	Liverpool	Smethwick
Colchester	Longton (Staffs.)	Southport
Croydon	Loughborough	Stockport
Dewsbury	Luton	Stoke-upon-Trent
Edinburgh	Manchester	Swindon
Eastbourne	Middleton	Walsall
Ecoles (Lancashire)	Morley	Wednesbury
Exeter	Newport (Mon.)	Whitehaven
Finsbury	Northampton	Wolverhampton
Fulham	Nottingham	Woolwich
Glasgow	Oswestry	Worthing

COUNTY COUNCILS.

Alston	Kesteven	Surrey
Cheshire	London	Yorkshire
Derbyshire.	Parts of Lindsey	(North Riding)
East Sussex	Merioneth	Yorkshire
Essex.	Northamptonshire.	(West Riding)

The following is a list of Members of Parliament who have signified their approval of the adoption of the metric weights and measures, most of them being in favour of a compulsory measure:—

Abrahams, W.	Bell, Richard
Allen, C. P.	Bentinck, Lord Hy.
Arnold-Forster, Rt. Hon. H. O.	Bhownaggee, Sir M. M., K.C.I.E.
Ashton, T. G.	Bignold, A.
Balfour, Major K. R.	Bill, Charles
Banes, Major G. E.	Black, Alex. W.
Barry, Sir F. T., Bart.	Boland, J. P.

Bolton, T. D.
 Boulnois, E.
 Boyle, James
 Brigg, John
 Broadhurst, Hy.
 Brotherton, Ed. A.
 Brown, G. M.
 Brunner, Sir J. T., Bart
 Bryce, Rt. Hon. James
 Bull, W. J.
 Burt, Thomas
 Cameron, Robt.
 Campbell, Rt. Hon. J. A., LL.D.
 Carlile, Walter
 Carvill, P. G. H.
 Cavendish, R. F.
 Cayzer, Sir C. W.
 Channing, F. A.
 Chapman, Edw.
 Cogan, D. J.
 Coghill, D. H.
 Cohen, B. L.
 Compton, Lord Alwynn, D.S.O.
 Corbett, A. Cameron
 Cox, I. E. B.
 Craig, Chas. C.
 Craig, R. Hunter
 Cremer, W. R.
 Crombie, J. W.
 Cross, Alex.
 Crossley, Sir Saville, Bart.
 Cullinan, J.
 Davies, Lt. Col. Sir H. D., K.C.M.G.
 Denny, Col. J. McA.
 Dewar, John A.
 Dewar, Sir T. R., J.P., D.L.
 Doogan, P. C.
 Douglas, C. H.
 Doxford, Sir W. T.
 Duffy, W. J.
 Duke, H. E., K.C.
 Duncan, J. H.
 Dunn, Sir William, Bart.
 Edwards, F.
 Ellice, Capt. E. C.
 Esmonde, Sir T., Bart.
 Evans, S. T., K.C.
 Fardell, Sir T. G.
 Farrell, James P.
 Fenwick, Chas
 Field, Wm.
 Fielden, E. B.
 Fison, F. W.
 Flavin, M. J.
 Flower, Sir Ernest
 Flynn, Jas. C.
 Fortescue-Flannery, Sir
 Foster, Sir M., K.C.B.
 Foster, P. S.
 Freeman-Thomas, F.
 French, P.
 Fuller, J. M.
 Furness, Sir Chris.
 Gladstone, Rt. Hon. H. J.
 Goddard, D. Ford
 Godson, Sir A. F.
 Gordon, W. Evans
 Gordon, Hon. J. E.
 Graham, H. R.
 Grant, Corrie
 Gray, E.
 Green, W. D.
 Greene, Rt. Hon. Sir E. W., Bart. P.C.
 Grenfell, W. H.
 Greville, Capt. Hon. R. H.
 Groves, J. Grimble
 Guest, Hon. Ivor
 Gunter, Sir R., Bart.
 Guthrie, W. M.
 Haldane, R. B., K.C., P.C.
 Hall, E. Marshall, K.C.
 Hambro, C. E.
 Hardie, J. Keir
 Harmsworth, R. L.
 Harrington, Rt. Hon. T. C.
 Harris, F. L.
 Harris, Dr. Rutherford
 Haslett, Sir J. H.
 Hayter, Rt. Hon. Sir A. D., Bart
 Healy, Tim
 Heath, J.
 Henderson, Arthur
 Henderson, Sir Alex., Bart.
 Hermon-Hodge, Sir R. T., Bart.
 Hickman, Sir A., Bart.
 Holland, Sir W. H.
 Hope, J. D.
 Hope, James F.
 Horner, Fred
 Horniman, F. J.
 Houldsworth, Sir W. M., Bart
 Hoult, J.
 Houston, R. P.
 Howard, Capt. J.
 Howard, J.
 Hudson, G. B.
 Hutton, A. E.
 Jacoby, A. J.
 Jameson, Major J. E.
 Jessel, Capt. H. M.
 Jones, D. B., K.C.
 Jordan, J.
 Kennedy, P. J.
 Kerr, John
 Kinloch, Sir J. G. S., Bart

Labouchere, Hy.
 Langley, Batty
 Law, A. Bonar
 Law, H.
 Lawrence, Sir Joseph
 Lawrence, W. F.
 Layland-Barrett, F. L.
 Legge, Col., Hon. E. H.
 Leigh, Sir Joseph
 Leng, Sir John, L.L.D.
 Levy, Maurice
 Lewis, J. H.
 Lockie, John
 Logan, John W.
 Lough, Thomas
 Lowther, C. H. W.
 London, W.
 McArthur, Chas.
 McCalmont, Colonel James M.
 McCrae, George
 McGovern, Thos.
 McIver, David
 McLaren, Sir C. B. B., Bart., K.C.
 Macnamara, Dr. J. T.
 Macdona, Cumming
 MacVeagh, J.
 Malcolm, Ian
 Manners, Lord Cecil
 Mansfield, H. R.
 Mappin, Sir F. T., Bart.
 Mather, Sir W.
 Mellor, Right Hon. J. W., K.C.
 Melville, Beresford
 Middlemore, J. T.
 Mitchell, Edward
 Mitchell, Wm.
 Molesworth, Sir L., Bart.
 Mooney, J.
 Moore, W., K.C.
 Morgan, D. J.
 Morrell, G. Herbert
 Moss, Samuel
 Munro-Ferguson, R.
 Muntz, Sir P. Albert, Bart.
 Murphy, John
 Murray, Hon. A. O.
 Nannetti, J. P.
 Nolan, Joseph
 Norman, Hy.
 Norton, Capt. C.
 O'Brien, J. F. X.
 O'Brien, Kendall, E.
 O'Brien, P. J.
 O'Connor, James
 O'Connor, T. P.
 O'Donnell, John
 O'Donnell, Thos.
 O'Dowd, John
 O'Kelly, Conor
 O'Malley, Wm
 O'Shee, J. J.
 Ormsby-Gore, Hon. Seymour
 Osmond-Williams, A.
 Palmer, Sir C. M., Bart.
 Parker, Sir Gilbert
 Parkes, Ebenezer
 Partington, Oswald
 Paulton, J. M.
 Pearson, Sir W. D., Bart
 Pease, Joseph A.
 Perks, R. W.
 Pierpoint, Robt.
 Pilkington, Col. R.
 Pirie, D. V.
 Price, R. J.
 Priestley, Arthur
 Pryce-Jones, Lieut.-Col. E.
 Pym, C. Guy
 Quilter, Sir C., Bart.
 Randles, J. S.
 Rankin, Sir Jas., Bart
 Rea, Russell
 Reckitt, H. J.
 Reed, Sir E. J., K.C.B.
 Reid, James
 Remnant, J. F.
 Renshaw, Sir C. Bine, Bart
 Renwick, G.
 Rickett, J. C.
 Ridley, S. F.
 Rigg, Richard
 Roberts, J. B.
 Roberts, Samuel
 Robson, W. S., K.C.
 Roe, Sir Thos.
 Rolleston, Sir J. F. L.
 Royds, Col. Clement M., C.B.
 Runciman, W.
 Rutherford, W. Watson
 Sadler, S. A.
 Samuel, Herbert
 Samuel, S. M.
 Sassoon, Sir E., Bart.
 Saunderson, Col. Rt. Hon. E.
 Schwann, Chas. E.
 Scott, C. P.
 Scott-Dickson, C., K.C.
 Scott-Montagu, Hon. J. W. E.
 Seton-Carr, Sir Henry
 Shackleton, D. L.
 Sharpe, W. E. T.
 Shaw, C. E.
 Shaw, Thos., K.C.

Sheehan, D. D.	Walton, John L., K.C.
Sheehy, David	Walton, Joseph
Shipman, J. G.	Wanklyn, J. M. L.
Skewes-Cox, T.	Warde, Col. C.
Sloan, Thos. A.	Wason, E.
Smith, H. C.	Webb, Col. W. G.
Smith, J. Parker	Weir, J. G.
Soames, A. W.	Welby, Sir C. G. E., Bart., C.B.
Spear, J. W.	White, G.
Spencer, Sir J. E., D.L., J.P.	Whiteley, George
Stanley, Hon. Arthur	Whiteley, Herbert
Stevenson, F. S.	Whitley, J. H.
Stone, Sir J. B.	Whittaker, T. P.
Sturt, Hon. H. N.	Williams, Col. R.
Taylor, Austin	Willoughby de Eresby, Lord
Taylor, T. C.	Willox, Sir J. A.
Tennant, H. J.	Wills, Sir F., Bart.
Thomas, Sir Alfred	Wilson, C. H.
Thomas, D. A.	Wilson, John (Durham)
Thomas, J. A.	Wilson, John (Falkirk)
Thomson, F. W.	Wilson, John (St. Rollox)
Toulmin, George	Wolff, G. W.
Trevelyan, C. P.	Wood, James
Tufnell, Lieut.-Col. E.	Woodhouse, Sir J. T.
Vaughan-Davies, M.	Wrightson, Sir T., Bart.
Vincent, Sir Edgar, K.C.M.G.	Yerburgh, Robert
Vincent, Col. Sir H., K.C.M.G., C.B.	Young, Samuel
Walker, Col. W. H.	Yoxall, J. H.

In addition to the above, 35 Members of Parliament have signified their approval, but withhold authority to publish their names.

TOTAL - - 333

NOTE.—The recent growth of public opinion is forcibly shown by the following statement:—

In June 1900	There were	96 M.P.s who supported the Objects of the
„ Feb., 1901	„	170 Decimal Association.
„ June, 1901	„	266
„ Oct., 1902	„	292
Feb., 1904	„	333



The following School Boards passed favourable resolutions, and petitioned the Government in support of the reform:

NAME OF BOARD.	POPULATION.	NAME OF BOARD.	POPULATION.
Aberdare	38,431	Leyton	43,906
Acton	24,206	London	4,232,118
Alston, Cumberland... ..	3,133	Longton	34,327
Arnold, Notts.	7,769	Ludgvan, Cornwall	2,334
Aston	79,624	Luton	32,401
Barnsley	35,427	Macclesfield	36,009
Barrowford, Lanc.	4,896	March	6,988
Barry, Glam.,	13,272	Merthyr Tydvil	56,080
Batley	28,719	Mitcham	12,127
Bedford	28,023	Newhaven	4,522
Bedwellty	38,953	Newport, Mon.	55,862
Birkenhead	99,857	Norwich	100,976
Birmingham	478,113	Nottingham	213,877
Blackburn	120,064	Okelhampton	2,469
Bolton	147,452	Oldham	131,463
Bradford	216,361	Over, Cheshire	6,835
Bramhall, nr. Stockport	3,365	Plymouth	86,562
Brighton	115,873	Reading	60,654
Bristol	281,452	Rochdale	71,401
Burnley	87,016	Rochester	26,290
Burslem	32,767	Rotherham	42,214
Burton-on-Trent	48,394	Ryde	10,952
Buxton	4,436	Salford... ..	198,139
Cardiff	128,915	Seacombe	14,839
Carnarvon	9,804	Sedgley, Staffs.	36,860
Carlton, Notts.	6,627	Sheffield	824,243
Colne, Lancs.	22,500	South Shields	78,391
Coventry	52,724	Southend-on-Sea	13,242
Croydon	102,695	Stanwix, near Carlisle	3,181
Derby	94,146	Stoke-on-Trent	24,027
Devonport	54,803	St. Ives	3,037
Dewsbury	29,347	Swadlincote	2,945
Dudley	45,740	Swansea	98,865
Edmonton	36,351	Wakefield	33,146
Enfield	31,536	Walsall	71,789
Exeter	37,404	Walthamstow	46,346
Gravesend	23,876	Wednesbury	25,347
Great Yarmouth	49,334	West Bromwich	59,474
Guisborough	5,623	West Ham	204,903
Halifax	89,832	West Hartlepool	42,710
Hastings	63,961	Weston-super-Mare	15,860
Heckmondwike	9,709	Whitstable	4,868
Huddersfield	95,420	Widnes	30,011
Hull	200,044	Wigan	55,013
Ipswich	57,360	Willesden	61,265
Jarrow-on-Tyne	50,858	Wolverhampton	82,262
Keighley	36,176	Workington	23,490
Kempston, Be.l.s.	4,736	Worsborough	9,905
Leeds	367,505		
Leicester	174,624		
		TOTAL	10,655,672

METRIC WEIGHTS AND MEASURES.

There is no need of elaborate Tables; for all practical purposes we need only the following:—

Length. The **METER**, divided into 1,000 millimeters.

Note.—The Meter can be squared for measures of surface, or cubed for measures of bulk or volume, just as yards or feet are squared or cubed

Capacity. The **LITER** (pronounced *lēter*) divided into deciliters.

Weight. The **KILO** divided into 1,000 grams.

USEFUL RELATIONS OF METRIC UNITS.

One cubic centimeter of water (*at its maximum density*) weighs one gram, and 1,000 cubic centimeters or one liter of water weigh 1,000 grams, or one kilo. Hence one cubic meter of water contains 1,000 liters, and weighs 1,000 kilos, or one (metric) ton.

The **Period of Transition** from our old weights and measures to those of the Metric System must necessarily be attended with some inconvenience; but the general feeling of the Chambers of Commerce, of the leading School Boards, and of a large number of public bodies and individuals throughout the country is certainly in favour of a short shrift, as in Austria, Germany, and other countries. To prolong the period of transition beyond the two years recommended by the Select Committee would be unnecessary, and would be a mistake.

Countries which have adopted the Metric Weights and Measures:—

COUNTRY	POPULATION.	COUNTRY	POPULATION
Norway and Sweden	7,010,632	Haiti	960,000
Germany	52,279,901	Colombia (Republic)	4,000,000
Foreign Dependencies	10,660,000	Venezuela	2,323,527
Holland	5,004,304	Ecuador	1,271,861
Java, &c.	34,090,000	Brazil	14,333,915
Belgium	6,589,593	Uruguay	827,485
France	38,517,975	Argentine Republic	4,094,911
French Colonies and protected countries	52,642,930	Chili	3,200,000
Portugal, Azores and Madeira	5,049,729	Peru	2,621,844
Dependencies	9,216,707	Japan	42,270,620
Spain	17,565,632	Switzerland	2,983,334
Colonial Possessions	173,600	Finland (Grand Duchy of Russia)	2,520,437
Italy	31,667,946	Mauritius and Dependencies	371,655
Italian Dependencies	1,358,800	Servia	2,312,484
Austrian Territories	42,927,296	Bolivia	2,019,549
Greece	2,483,806	Republic of St. Domingo	610,000
Roumania	5,800,000	United States Dependencies (Cuba, Porto Rico, Philippines)	10,430,262
Bulgaria	3,310,713		
Ottoman Empire and Egypt*	43,912,825		
Mexico	12,619,959		
Central America	3,053,000		
		Total	483,216,862

An Act to provide for the ultimate adoption of an uniform system of weights and measures in British India was passed by the Governor-General in Council, in 1871. This Act provided that the *seer* should be equivalent to the kilogramme, but it was never brought into operation.

* Officially adopted in the Egyptian Customs Department: in 1893.

EXTRACTS FROM BRITISH CONSULAR REPORTS.

ROTTERDAM, 22nd October, 1894.—“The simplicity of the Decimal System is so obvious, that its adoption in England cannot fail to be of great advantage to all interested in the Trade with those Countries where it already is in vogue.”

MILAN, ITALY, 18th October, 1894.—“As an Engineer of some 20 years' residence upon the Continent I have no hesitation whatever in stating that the present system of English Weights and Measures is detrimental to British Commercial interests in countries like this, where the Decimal and Metrical system is in force.

“The sooner the Decimal System is adopted by Great Britain the more advantageous for her commercial interests when trading with the Continent in particular, as also to facilitate home calculations, especially in Engineering Departments, where excessive accuracy is an absolute necessity.”

VARNA, 23rd October, 1894.—“If the quotations and specifications in Trade Lists are made out in English Standards of Weights and Measures, intending purchasers here generally throw them aside and consult others which give the required information in metres, kilogrammes, &c.

“In the Varna Trade Report for 1892 it is mentioned that it is especially in Hardware and Machinery that the non-adoption of the Metrical System acts most prejudicially against British manufactured goods.

“Commission agents here have repeatedly told me that though they represent British Firms also, they have, when a customer requires precise data as to the working and capabilities of a machine, to refer to some rival foreign maker's catalogue, with the result that the order is often placed with the latter.

“Not long ago a man came to me with the price list of a British machinery maker, and I converted for him the specifications into their metrical equivalents. He then said that the machine in question seemed just what he wanted, and that he would order one for trial, and give repeat orders if it turned out satisfactory. Meeting him again some time after he told me that although he would have preferred buying the English machine, he had imported one of German make, firstly because he could not be bothered with recurring calculations based on an unfamiliar system, and secondly, because the measurements did not properly coincide with his existing machinery plant of Continental make.”

CONSTANTINOPLE, October 22nd, 1894.—“There is no doubt that the complicated and puzzling system of weights and measures still obtaining in England is long out of date, and has become more and more of an anachronism as England has increased her foreign trade.”

“Personally I have, during my long official career, seen so frequently the inconvenience of the old system that I have for very many years been a convert to the ideas of your Association.”

ROUEN, October 24th, 1894.—“Within the past 16 years I have served as H.M.'s Consul in three countries using the Metric and Decimal Systems, and I have not unfrequently had occasion to observe the maze into which an English trade prospectus or circular, if drawn up only on the British system, throws a foreigner accustomed from childhood to the perfect simplicity of the Metric System. And there is no doubt in my mind that the uncertainty and confusion thus created at times lead to the rejection, by a would-be purchaser, of a British manufacturer's circular or offers of sale.

“The British Customs Tariff is a model of brief simplicity, and yet we are often called upon to explain it. Within the past month I have been asked to explain ‘what a duty of 14/6 a gallon means,’ and what is 7/- a cwt. for Dried Fruit? That is to say, what are their equivalents in Metric Weights and Measures and Decimal Currency. Foreign exporters to the United Kingdom would be thankful for a simple table of the British Customs Tariff in which the equivalent duties and units of Continental Metric Systems were shown in parallel columns beside our own.”

FLUSHING, October 20th, 1894.—“The adoption of the Metric System of Weights and Measures in Great Britain and her Dependencies would, to my conviction, greatly benefit English manufacturers and tradesmen, and would certainly contribute to facilitate and extend business with this country.”

MARSEILLES, October 23rd, 1894.—“Very often French merchants have complained of the great difficulty they had in reducing English Weights or Measures into those of the Metric System; and I have not the slightest doubt that if the said system were adopted in England it would greatly facilitate trade with this country.”

ALGIERS, October 24th, 1894.—“I have no doubt whatever that our antiquated and most irrational system has had an injurious effect wherever it has been employed.”

VIENNA, October 26th, 1894.—“I believe the adoption of the Metric System of Weights and Measures in Great Britain and her Dependencies would highly benefit English importers and exporters.”

MALAGA, *October 23rd, 1894.*—"I have heard purchasers here say that they bought German goods in preference to English ones because German merchants sent out their Price Lists made out with the prices in Spanish Currency and Weights according to the Metric System, whereas the British Merchant always sent his made out according to English Weights and Currency.

"I consider that British trade with Spain would increase if we adopted the Metric System."

CHERBOURG, *October 27th, 1894.*—"I am convinced that a Metrical System of Measurement and a Decimal System of Coinage were established in England it would materially benefit British trade, especially with countries such as France, where those systems are adopted."

LISBON, *October 24th, 1894.*—"I am of opinion that our industries are materially handicapped in the competition with foreign manufacturers by the isolation of our system of Weights and Measures.

"The small tradesmen are therefore the real representatives of trade abroad, or at all events are fast becoming so. We should therefore cater for their requirements, and cultivate their custom, for their friendship to the full extent of the word is of 'value' to us.

"In this regard I think I may safely say that to the tradesmen of foreign countries our system of Weights and Measures is a constant stumbling-block, and acts as a deterrent. Not one in a thousand understands it, and rather than suffer the perplexity of it, or risk the loss that an erroneous computation would entail, pass on to our neighbours, who speak and write to him in his native language of Metres and Kilos. He thereby knows what he buys, knows what he has to clear through the Custom House without risk of fine or forfeiture, and knows the length and cube which leaves him a profit when he sells.

"For these reasons I doubt not but that we lose in the aggregate much valuable trade."

ROUSTCHOUK, BULGARIA, *November 19th, 1894.*—"I know of cases where British trade has suffered because English goods offered for sale here have been made to English instead of Metric Weights and Measures.

"In Textiles all the British firms having establishments here have found it to their interests to have their pieces measured in Manchester, and labelled there to a scale of Metres. Woollen Cloths mostly come from Germany. An importer for whom I had obtained samples of Scotch Tweeds informed me that he found so much bother about the calculations that no business resulted.

"Since the Bulgarian Government adopted the Metric System it is evident that the Metre has a great advantage; and it is a fact that British imports have fallen off, while Austrian and German have increased."

LEGHORN, *November 16th, 1894.*—"I have personally had one practical experience of the drawbacks of our system of measures. The Italian Customs Duty on spirits in bottles is fixed for bottles containing half-a-litre or a litre. Any quantity between the two pays duty as for a litre bottle. The ordinary English bottle contains less than a litre and consequently there is an unnecessary loss in the duty paid on all bottles imported.

"The leading English Merchants here whom I have consulted on the subject are all of opinion that the introduction into England of a Metric System of Weights and Measures would greatly tend to benefit English commerce abroad. Indeed, so self-evident are the advantages of the system, that its adoption in England can only be regarded as a matter of time."

BALLIA, *November 23rd, 1894.*—"After careful consideration I have to state as follows:—

Question No. 1.—"Decidedly in many cases English Exporters find themselves handicapped by their quotations being made in English Weights and Measures, and as a proof of the preference buyers here have for the Metric System, I may mention that all goods imported to this place are marked in yards and metres, and in lbs. and kilos where weights are requisite."

Question No. 2.—"Dealers here will often throw down an English catalogue or price list owing to the difficulty they experience in calculating the cost of goods per metre or per kilo, when the quotations are made per yard or pound."

Question No. 3.—"Whether English trade would benefit by the adoption in England of Metric Weights and Measures, I am hardly able to state, the question being one of pure competition, but that the opportunity and facility for competing with foreign trade would be better I feel quite assured."

TURIN, *January 1st, 1895.*—"Several cases of misunderstanding between English and Italian firms have been caused by the difference of the Systems of Weights and Measures. Many Italian merchants find a great difficulty in making up the reduction of their invoices into the English System, and also in understanding the invoices of English merchants. The Decimal system is so plain and generally used that I strongly hope to see it adopted as soon as possible."

TOKIO, *December 19th, 1894.*—"I believe most confidently that the adoption of Metric Weights and Measures for English manufactures would be of benefit so far as regards their import into Japan."

TENERIFFE, *September 10th, 1896.*—"The customer, instead of seeking British firms to whom to give his orders, now has the goods of other countries brought daily and cleverly to his immediate notice by adroit commercial travellers or by extensive catalogues, in the language which he understands, which give him every particular of the article he wants in the weights and measures and currency of his own country. What English firms carry commercial enterprise to this extent? Some doubtless do; the great majority do not. But these things must now be done, and many others, unless we are willing to give up without a struggle our well-earned commercial and industrial supremacy."

SOFIA, *October 14th, 1896.*—"I have several times referred in previous reports to the difficulties which arise, to hindrance of commerce, in consequence of the obstinacy of Great Britain in adhering to its antiquated system of weights and measures and money."

BREST, *October 19th, 1896.*—"The advantages of the Metric System are recognised by all, and, were it adopted in England, the British tradesman would greatly benefit by it in his transactions with France, as, at present, a Frenchman will not take the trouble to calculate the value of English Weights and Measures into French equivalents. Hence no business is done."

BORDEAUX, *October 20th, 1896.*—"If the views of the Decimal Association were adopted by our legislative authorities, they would, I believe, greatly contribute towards facilitating, and consequently towards extending, British commercial relations with foreign countries."

BOSTOCK, *October 20th, 1896.*—"I can only say that if such a measure as the Metric Weights and Measures Bill be adopted *compulsorily*, it would be greatly beneficial to all who have to do business with Great Britain, and also to all British subjects who have to do business with the Continent."

BERNE, *October 21st, 1896.*—"In transacting my official business I have frequently observed that the present English system of weights and measures is certainly detrimental to British trade in my Consular district, I should, therefore, strongly urge and advocate the compulsory adoption of the metric weights and measures in Great Britain and Ireland."

BREMEN, *October 22nd, 1896.*—"I can confirm that, for instance measuring cotton prints in yards, and laying the cloth in folds of yards, simply ruins exportations of British manufactures to countries of the metric system, because the retailer who has ultimately to distribute the manufactures has to sell by the meter."

VIENNA, *October 22nd, 1896.*—"I do not hesitate to follow the recommendation of the Select Committee that the adoption of the metric system should be *compulsory*, as I can only see beneficial results arising therefrom for British foreign trade."

MADRID, *October 25th, 1896.*—"You have my sincerest sympathy in your endeavours to make the metric system *compulsory* in England. The numerous advantages of such a system are obvious, and, moreover, its adoption would greatly facilitate the commercial relations of Great Britain with the rest of Europe."

SEVILLE, *October 30th, 1896.*—"I heartily sympathise with the objects of your Association, and in many commercial reports have drawn attention to the loss of British trade through tendering by British weights and measures."

KIEL, *November 12th, 1896.*—"The inconvenience which was felt when the change was made in this country was soon overcome, and the reform met with universal appreciation."

AMOY, *November 17th, 1896.*—"For many years I have been convinced that the introduction of the decimal system into our weights, measures, and money would effect an immense saving of labour, and would vastly increase the wealth of our country, and that it would greatly facilitate the sale of our commodities to foreign countries. I am very rejoiced that an Association has been formed to educate public opinion at home as to the advantages of the decimal system, and to bring the matter to the cognizance of our Government."

VERA CRUZ, *December 3rd, 1896.*—"The *compulsory* use of metric weights and measures with regard to British goods exported to foreign countries, and their use in quotations and advertisements in such goods, in lieu of Imperial weights and measures, would greatly tend to the benefit of British export trade."

AUTOFAGOSTA, *January 9th, 1897.*—"Fully convinced by experience of same in this country that decimal coinage and metric weights and measures are the simplest and most convenient of all systems in existence—facilitating the every-day calculations of all, from the banker to the very humblest in life—I shall have great pleasure in backing, so far as lies in my power, the endeavours of your body towards the worthy object it has in view."

FROM THE FOREIGN OFFICE, LONDON.

November 17th, 1896.—"I am directed by the Marquis of Salisbury to inform you that a dispatch has been received from Her Majesty's Agent and Consul-General at Cairo. Lord Cromer considers that a very general opinion undoubtedly exists in Egypt that British trade with that country would benefit by the adoption of the metric system of weights and measures."

AMSTERDAM, April, 1898.—"At the risk of being considered a pessimist I can but again and again point out the rapidly increasing necessity of adopting the metric system in measurement and prices.

"Competition with foreign countries must be met by new measures and methods, otherwise Great Britain must lose ground, and must eventually lag sadly behind in the race."

CHRISTIANIA, May, 1898.—"I think the trade between Great Britain and Norway would be greatly facilitated if the United Kingdom adopted the decimal system in money, weights, and other measures."

BOSNIA, August, 1898.—"English firms must make up their minds to adopt the metric system in their dealings with foreigners."

FROM THE REPORT OF THE SPECIAL COMMISSIONER
APPOINTED BY THE BOARD OF TRADE TO REPORT
UPON BRITISH TRADE IN CERTAIN SOUTH AMERICAN
COUNTRIES.

BUENOS AIRES, August 18th, 1898.—"The want, in Great Britain, of the use of the metric system, which is the basis of the great bulk of first hand business here, is undoubtedly a great drawback to British trade especially in estimates for engineering work and such like."

FROM THE BOARD OF TRADE JOURNAL (OFFICIAL),

For December 1898

"LOSS OF TRADE THROUGH THE NON-ADOPTION OF THE METRIC SYSTEM.

"The Board of Trade have received information that a large amount of iron-work for bridges in Norway has been ordered from Antwerp. The contractors state that they would gladly have placed the order in England, but have lately gone over to order all their iron from the Continent, because they cannot get English makers to supply the work according to the metric system, and it is too complicated for them to work it all out into English measurement, feet and inches."

In the *Board of Trade Journal* of 15th February, 1900, a report was published which had been forwarded to the Wolverhampton Chamber of Commerce by the British Consul at Amsterdam. This report dealt with the commercial value of the Metric System, with special reference to the classification of German iron manufactures, and the following extracts will be read with interest:—

"The Iron and Steel Manufacturers' Unions of Germany have adopted a uniform system of dimensions (based on Metric Weights and Measures) The classifications are making more and more progress in Germany, not in the iron trades alone, but in other manufactures In the future, Germany and the Continent generally will have a constantly increasing advantage over British manufactures in foreign countries, unless the Metric System be fully and entirely adopted by Great Britain. I may instance as an undoubted fact that the preference which Germany has obtained here over Great Britain as regards railway bridges and other railway material is mainly owing to the existence of this Metric classification."

In July, 1900, Part I, of a Report was issued by the Foreign Office which contained the replies of Her Majesty's Representatives in Europe to a circular addressed to them by the Marquis of Salisbury, asking for information as to the actual experience of nations which had adopted the Metric System. The replies shewed that in all cases the change was made without much difficulty, that there had never been any desire to return to the former system in use, and that the adoption of the Metric System had assisted in the development of the trade of the countries which had adopted it. Part II., issued in February, 1901, shows that in several other countries the change has had beneficial results.

EXTRACTS FROM CONSULAR REPORTS—(Continued)

DUNKIRK, May, 1901.—"The introduction of the metric system of weights and measures would, I think, help our manufacturers to hold their own in the increasing competition for trade, for buyers are much annoyed when they have to convert their orders from the metric system into our complicated weights and measures. A short time ago a large order was sent to a British firm, but as metrical weights and measures were given, it was returned with the request that, to have it executed, the buyers must reduce them into English weights and measurements. Comment upon this is scarcely necessary."

EXTRACTS FROM CONSULAR REPORTS—(Continued.)

BAHIA (Brazil), August, 1901.—“I have seen orders given to our competitors which were intended for British firms, solely owing to the difficulty experienced by foreigners in turning British liquid measures into their equivalents in those used in his country.”

MEXICO, August, 1901.—“Still another point that deserves the attention of the British trader in general, is the failure to give estimates or descriptions when asked for. In such cases an order may depend upon a full and intelligible description being given to the would-be customer in the weights and measures of the metrical system that is now so universally accepted.”

BOULOGNE, (Letter from British Consul to Secretary of Decimal Association, 4th November, 1901.)—“Weights and measures, rather than coinage, keep us out of touch with foreigners.”

HAMBURG, November 11th, 1901.—“The introduction of the metric weights and measures for the United Kingdom is urgently necessary in the interests of many branches of British commerce, but I am perfectly certain that its general adoption would soon be appreciated as a great boon by all classes of the population. I passed some years in Germany when the metric system was introduced, and I can say from my own experience that it was quite astonishing how quickly and smoothly the adoption of the new system was carried out.”

TRIESTE, November 13th, 1901.—“I sincerely trust that the measures you have in view will be adopted; which in my opinion will undoubtedly greatly assist British Commerce abroad.”

CHILI, December, 1901.—“The average ignorance of the metric system on the part of British people is unfortunate. The metric system should be thoroughly taught in every school in the British Empire. Without a good and conversational knowledge of foreign languages and a perfect understanding of the metric system and foreign monies we are poorly equipped for attacking foreign markets.”

EXTRACTS FROM CONSULAR REPORTS—(Continued.)

CORUNNA, March, 1902.—“If manufacturers desire even to retain the position they now hold, they must endeavour to give quicker and cheaper delivery, and bring their catalogues up to date by changing the antiquated system of weights and measures, thereby making them intelligible to foreigners.”

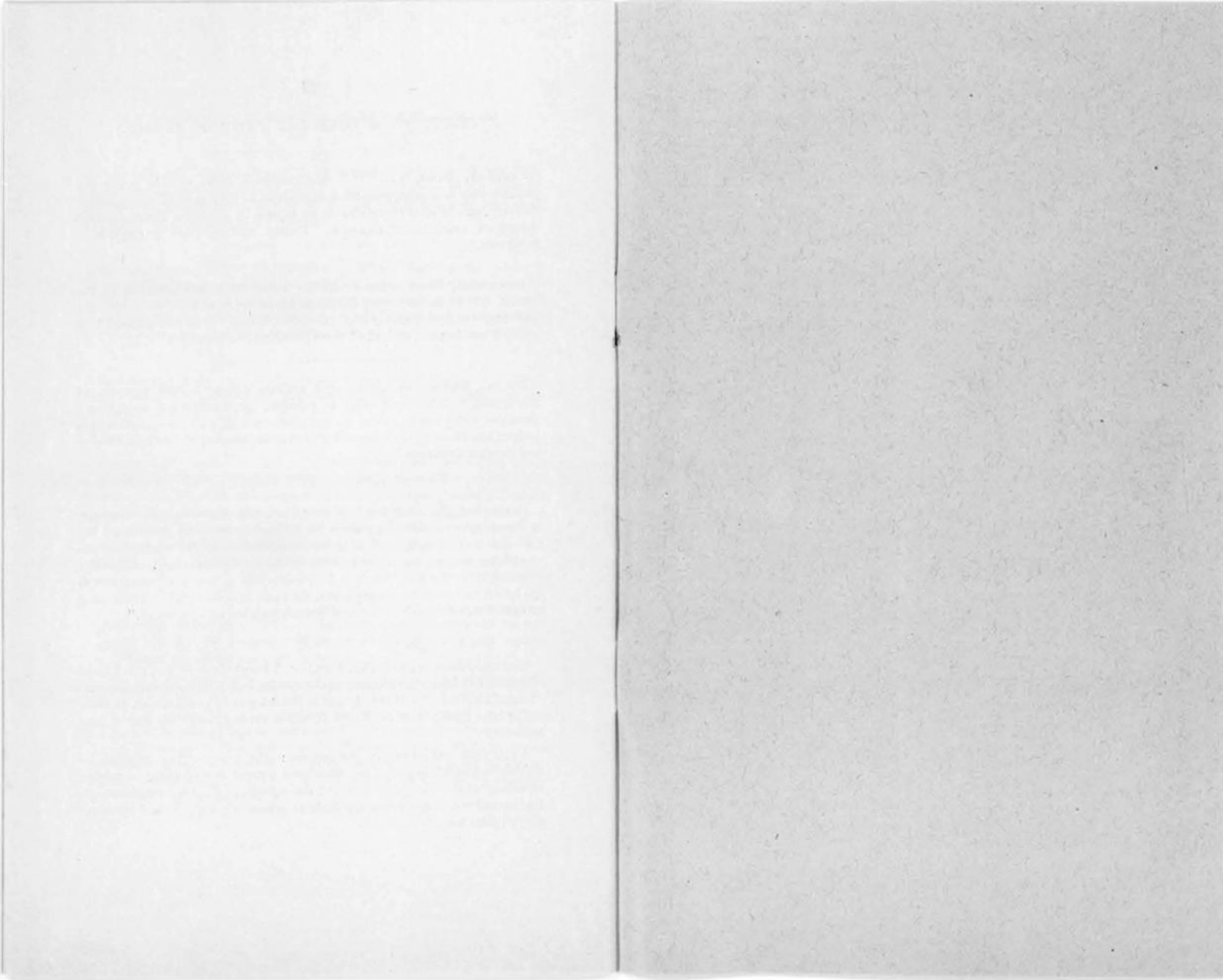
STOCKHOLM, March, 1902.—“Among other things the adoption of the metric system in the United Kingdom continues to be most desirable. As an example of the benefits of good education, it ought to be remembered how easily it was introduced into all three Scandinavian countries.”

CALLAO, November 24th, 1902.—“I entirely concur in the necessity of discarding, with as little delay as possible, the inconvenient weights and measures which are in use at present, inasmuch as they are undoubtedly a serious hindrance to the transaction of business between the British Empire and Foreign Countries.”

FRANKFORT, July, 1903 (No. 3042.)—“The advantages which would accrue to the exporters of British goods, if the decimal system were adopted for the export at least of such goods as go to countries enjoying the decimal system of weights and measures, have been repeatedly demonstrated. Generally speaking it is clear that the more intimately this system is connected with the habits and customs of the people, the more difficult will, in days of close competition, be the sale of goods differently weighed and measured.”

SARDINIA, December, 1903 (No. 3110.)—“Though in 1902 too, the United Kingdom has been foremost among the nations in the imports into the province of Cagliari, that is merely due to the amount of coal entered, as there still is but a trifling trade in British industrial products, which one was of great importance.”

“The principal causes of the fall are:—the heavy duties imposed on British industrial imports; the successful competition of other countries, especially of Germany and France; the refusal of British manufacturers, traders and merchants to use the decimal system for weights and measures for the sales here.”



LIST OF PUBLICATIONS.



	PRICE.
THE COMING OF THE KILOGRAM, by H. O. Arnold-Forster, M.P.	6d.
—:—	
Molesworth's Metrical Tables (for conversion) ...	2/-
—:—	
METRIC WEIGHTS & MEASURES, an Address delivered before the London Chamber of Commerce by Mr. J. Emerson Dowson, C.E., in Feb., 1897	3d.
—:—	
Reply to Herbert Spencer, by Professor Mendenhall	3d.
—:—	
Report of Proceedings at a deputation to Rt. Hon. A. J. Balfour, M.P., First Lord of the Treasury, 20th November, 1895	3d.
—:—	
Report of Proceedings at a deputation to the President of the Board of Trade, March 22nd, 1899	3d
—:—	
Commercial Intelligence Conversion Tables ...	2/-
—:—	
International Yarn Tables, by Messrs. McLennan Blair & Co., Glasgow	1/-
—:—	
Explanatory Chart of the Metric System ...	6d.
—:—	
Specimen Decimeter Scale in Case	9d.
—:—	
Steel Measuring Tape, one meter in length (inches, and $\frac{1}{8}$ ^{ths} on reverse side)	3/-
Do. do. two meters in length	4/3
—:—	
Steel Measuring Tape, one and a half meters in length, (inches, and $\frac{1}{8}$ ^{ths} on reverse side,) extra finish, in leather case 7/-, postage extra.	