DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS
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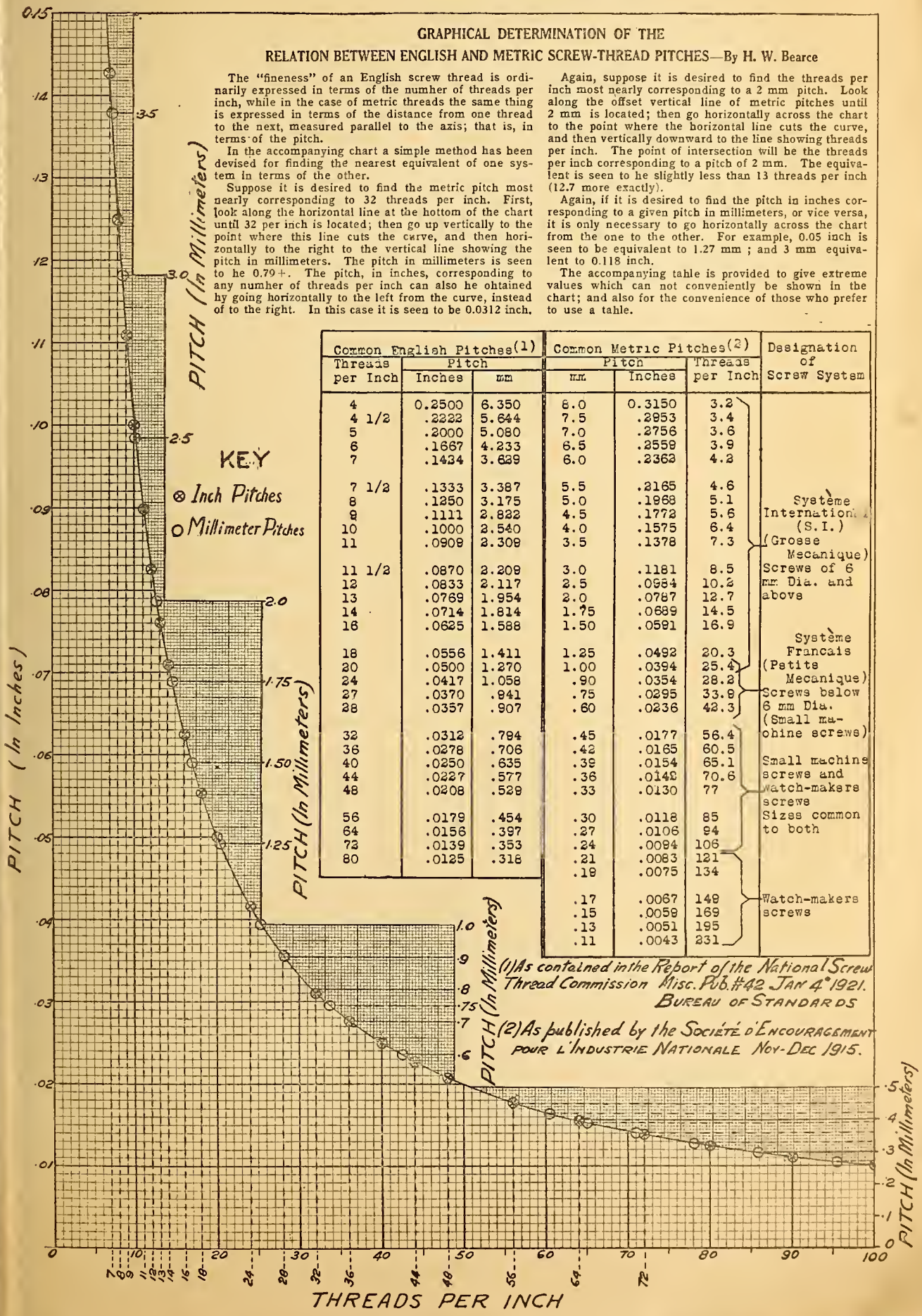
Miscellaneous Publications No. 49
April 18, 1922.

GRAPHIC COMPARISON OF SCREW THREAD PITCHES

Showing the Number of Threads per Inch and Pitch in Millimeters for both Inch and Millimeter Systems



GRAPHICAL DETERMINATION OF THE RELATION BETWEEN ENGLISH AND METRIC SCREW-THREAD PITCHES—By H. W. Bearce

The "fineness" of an English screw thread is ordinarily expressed in terms of the number of threads per inch, while in the case of metric threads the same thing is expressed in terms of the distance from one thread to the next, measured parallel to the axis; that is, in terms of the pitch.

In the accompanying chart a simple method has been devised for finding the nearest equivalent of one system in terms of the other.

Suppose it is desired to find the metric pitch most nearly corresponding to 32 threads per inch. First, look along the horizontal line at the bottom of the chart until 32 per inch is located; then go up vertically to the point where this line cuts the curve, and then horizontally to the right to the vertical line showing the pitch in millimeters. The pitch in millimeters is seen to be 0.79+. The pitch, in inches, corresponding to any number of threads per inch can also be obtained by going horizontally to the left from the curve, instead of to the right. In this case it is seen to be 0.0312 inch.

Again, suppose it is desired to find the threads per inch most nearly corresponding to a 2 mm pitch. Look along the offset vertical line of metric pitches until 2 mm is located; then go horizontally across the chart to the point where the horizontal line cuts the curve, and then vertically downward to the line showing threads per inch. The point of intersection will be the threads per inch corresponding to a pitch of 2 mm. The equivalent is seen to be slightly less than 13 threads per inch (12.7 more exactly).

Again, if it is desired to find the pitch in inches corresponding to a given pitch in millimeters, or vice versa, it is only necessary to go horizontally across the chart from the one to the other. For example, 0.05 inch is seen to be equivalent to 1.27 mm ; and 3 mm equivalent to 0.118 inch.

The accompanying table is provided to give extreme values which can not conveniently be shown in the chart; and also for the convenience of those who prefer to use a table.

Common English Pitches(1)			Common Metric Pitches(2)			Designation of Screw System
Threads per Inch	Pitch Inches	Pitch mm	Pitch mm	Pitch Inches	Threads per Inch	
4	0.2500	6.350	8.0	0.3150	3.2	Système International (S.I.) (Grosse Mecanique) Screws of 6 mm Dia. and above
4 1/2	.2222	5.644	7.5	.2953	3.4	
5	.2000	5.080	7.0	.2756	3.6	
6	.1667	4.233	6.5	.2559	3.9	
7	.1434	3.629	6.0	.2362	4.2	
7 1/2	.1333	3.387	5.5	.2165	4.6	
8	.1250	3.175	5.0	.1968	5.1	
9	.1111	2.822	4.5	.1772	5.6	
10	.1000	2.540	4.0	.1575	6.4	
11	.0909	2.309	3.5	.1378	7.3	
11 1/2	.0870	2.209	3.0	.1181	8.5	
12	.0833	2.117	2.5	.0984	10.2	
13	.0769	1.954	2.0	.0787	12.7	
14	.0714	1.814	1.75	.0689	14.5	
16	.0625	1.588	1.50	.0591	16.9	
18	.0556	1.411	1.25	.0492	20.3	Système Francais (Petite Mecanique) Screws below 6 mm Dia. (Small machine screws)
20	.0500	1.270	1.00	.0394	25.4	
24	.0417	1.058	.90	.0354	28.2	
27	.0370	.941	.75	.0295	33.9	
28	.0357	.907	.60	.0236	42.3	
32	.0312	.794	.45	.0177	56.4	Small machine screws and watch-makers screws Sizes common to both
36	.0278	.706	.42	.0165	60.5	
40	.0250	.635	.39	.0154	65.1	
44	.0227	.577	.36	.0142	70.6	
48	.0208	.529	.33	.0130	77	
56	.0179	.454	.30	.0118	85	
64	.0156	.397	.27	.0106	94	
72	.0139	.353	.24	.0094	106	
80	.0125	.318	.21	.0083	121	Watch-makers screws
			.19	.0075	134	
			.17	.0067	149	
			.15	.0059	169	
			.13	.0051	195	
			.11	.0043	231	

(1) As contained in the Report of the National Screw Thread Commission Misc. Pub. #42 Jan 4 1921. Bureau of Standards

(2) As published by the Société d'Encouragement pour l'Industrie Nationale Nov-Dec 1915.

GOVERNMENT PRINTING OFFICE