PUBLICATIONS RELATING TO TEXTILES

I. INTRODUCTION

1. Scope:

This letter circular provides a list of all papers relating to textiles, including those appearing in non-governmental as well as in governmental publications, written by or in collaboration with members of the staff of the Bureau of Standards. The papers are listed chronologically according to the date of publication. Author and subject indices are provided. Brief abstracts of the more important contributions are given. Subsequent to their original publication, some of the papers have appeared in other places. These copies are listed, when known, for the convenience of the reader who may have access to one journal but not another, although the Bureau can assume no responsibility for their authenticity.

A few of the more general publications of the Bureau which are often of interest to those concerned with textiles are included in the list. They are references 92, 142, 191, 257, and 270. Reference 254 is a list of publications relating to textiles which includes those from various federal agencies.

2. How to obtain publications:

In general, unless specifically stated in the list, the papers are not obtainable from the Bureau of Standards. Government publications for which a price is given, may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D.C. Orders must be accompanied by remittance which may be made in coupons (sold by the Superintendent of Documents, in sets of 20 for $1.00 and good until used in exchange for government publications), postal money order, express order, New York draft, or U. S. currency (at sender's risk). Postage stamps and uncertified checks are not accepted.

Papers appearing in non-governmental publications are available in most libraries and may sometimes be obtained from the publishers. The names and addresses of the publishers of most of the journals and a list of libraries at which they are received are given in the "Union List of Periodicals in the United States and Canada" and in the "List of Periodicals abstracted by Chemical Abstracts with key to library files", both of which may be consulted in most libraries.

3. Depository libraries:

Government publications, including those which are out of print, may be consulted at the depository libraries designated by Congress to receive, as issued, copies of all publications printed by the Government for public distribution. Many of the larger public, state, and university libraries have been thus designated. The depository libraries are listed in the "Supplementary List of Publications of the Bureau of Standards", reference 270, and in the "List of government publications relating to textiles", reference 254.

4. How to keep informed concerning work at the Bureau of Standards.

Those who wish to keep informed concerning work at the Bureau of Standards should subscribe to the "Technical News Bulletin". It is a monthly publication which lists all papers published by members of the staff, whether appearing in Bureau publications or in other journals. It contains abstracts of papers appearing in the Bureau of Standards Journal of Research, notes on progress of work in the laboratories, important conferences at the Bureau, and other items of general technical interest. Subscriptions should be sent to the Superintendent of Documents, Government Printing Office, Washington, D.C. The price is 50 cents per annum.

5. Abbreviations:

The publications of the Bureau of Standards are designated by a series letter or letters followed by a number. The significance of the letters is indicated below.

C - Circular of the Bureau of Standards. - Circulars contain compiled technical or administrative matter.

CS - Commercial Standards - Commercial Standards are specifications established by the cooperative action of manufacturers, distributors and users for commodity grades, qualities, dimensions, or tolerances.

CSM - Commercial Standards Monthly - A periodical reviewing progress in commercial standardization and simplification. Its publication by the Bureau of Standards was discontinued with the June, 1933 number. Beginning with the July 1933 issue, it is consolidated with "Industrial Standardization" under the title "Industrial Standardization and Commercial Standards Monthly", published by the American Standards Association, 29 West 39th Street, New York City. The subscription price is $4.00 per year, 35 cents per copy.

LC - Letter Circular of the Bureau of Standards. - These are mimeographed circulars of a temporary nature, designed to answer numerous inquiries on a given subject. In general single copies only are available. Requests for copies should be addressed to the Bureau of Standards, Washington, D.C.

M - Miscellaneous Publication of the Bureau of Standards. - These contain charts, conference reports, and material not suitable for other series of publications.

R - Simplified Practice Recommendation. - These are developed by the cooperative action of manufacturers, distributors, and consumers for the purpose of eliminating superfluous variety in commodities.

RP - Research Paper of the Bureau of Standards. - These are reprints of articles appearing in the "Bureau of Standards Journal of Research", a periodical containing the results of both theoretical and experimental research at the Bureau. When applying at a library, the Journal should be requested.

T - Technologic Paper of the Bureau of Standards. - This series has been superseded by the "Bureau of Standards Journal of Research". See RP.

TNB - Technical News Bulletin of the Bureau of Standards. - See section 4 above.

II. LIST OF PUBLICATIONS

Ref.	Pub.	Year	Author	Title
1	T19*	1913	Lewis, W.S.	Physical testing of cotton yarns. 31 pp. April 1, 1913.

Data are given on the size, twist, and tensile strength of single and two-ply cotton yarns, and on their behavior under different relative humidities.

2	C45*	1913		The testing of materials. 89 pp. November 1, 1913.

The work of the Bureau in testing structural and miscellaneous materials, including textiles, is described. The introduction treats of the theory of the testing of materials as leading to the development of standards of quality.

3		1913	Lewis, W.S.	Humidity effects and textile testing. Trans. Natl. Assocn. Cotton Mfrs., No. 94, pp. 164-176; 1913.

A general resume of the early activities of the Textile Section of the Bureau.

4		1913	Lewis, W.S.	Report upon the Manchester Testing House, Manchester, England, December 6, 1912. Trans. Natl. Assocn. Cotton Mfrs., No. 95, pp. 90-94; 1913.

A detailed report is given of a visit to the Manchester Testing House. The staff, laboratories, equipment, and method of testing moisture content are described.

5		1913	Lewis, W.S.	Report upon the Bradford Conditioning House, September and October 1912. Trans. Natl. Assocn. Cotton Mfrs., No. 95, pp. 106-147; 1913.

A detailed report is given of a visit to the Bradford Conditioning House. The plant, testing equipment, and test procedures are described.

6	T57*	1915	Lewis, W.S.	Difference in weight between raw and clean wools. 5 pp. September 28, 1915.

This investigation was made to determine the loss on scouring of some imported raw wools; the variation in scouring losses in two samples from the same fleece; and the difference between two fleeces of the same breed of sheep grown in the same section of the country. Forty-nine fleeces were examined.

Ref.	Pub.	Year	Author	Title
7	T68*	1916	Lewis, W.S. Cleary, C.J.	Standardization of automobile tire fabric testing. 18 pp. March 17, 1916.

The reliability of the common methods in use in 1916 for testing tire fabrics of the square woven type was studied. Variations in test results were found to be due chiefly to different testing machines, size of test specimen, moisture in test specimen, method of sampling, and lack of uniformity of the fabric.

8		1916	Stratton, S.W.	The work of the National Bureau of Standards. Trans. Natl. Assocn. Cotton Mfrs., No. 100, pp. 309-351; 1916.

A talk presented before the National Association of Cotton Manufacturers. A general résumé is given of the work ofthe Bureau of Standards with particular reference to its investigations on textiles.

9		1916	Lewis, W.S.	Comparison of the strip and grab methods of testing textile fabric for tensile strength. Proc. Am. Soc. Testing Materials, vol. 16, Part I, pp. 366-369; 1916. Trans. Natl. Assocn. Cotton Mfrs., No. 100, pp. 370-377; 1916.

No general relationship was found to hold for all fabrics.

10		1916	Walen, E.D.	Comparison of the strip and grab methods of testing textile fabric for tensile strength. Proc. Am. Soc. Testing materials, vol. 16, Part I, pp. 370-376; 1916.

The strain on individual threads when tested by the strip and grab methods is analyzed.

11		1916	Walen, E.D.	Determination of tensile strength of duck by the strip method. Proc. Am. Soc. Testing Materials, vol. 16, Part I, pp. 379-382; 1916. Trans. Natl. Assocn. Cotton Mfrs., No. 100, pp. 381-384; 1916.

The strength as determined by the strip method is affected by the method of interlacing.

12	C63	1917		Specification of the transparency of paper and tracing cloth. 8 pp. May 17, 1917. 5 cents.

This circular comprises an elementary explanation of the method used at the Bureau for testing the transparency of paper and tracing cloth, a detailed description of the apparatus and experimental methods, a discussion of accuracy, a standard formula for the specification, and some general information relative to transparency of tracing cloth.

13	T96*	1917	Lewis, W.S.	Comparative tests of stitches and seams. 7 pp. June 25, 1917.

This paper describes tests of seams produced by the double-locked stitch and the shuttle stitch to show their relative strength and other characteristics.

Ref.	Pub.	Year	Author	Title
14	C70	1917		Materials for the household. 259 pp. December 5, 1917. 50 ¢

This circular describes the more common materials used by the household, comprising paint materials, cement, clay products, lime, plasters and stucco, wood, metals, bituminous roofing, inks and dyes, adhesives, paper, textiles, rubber, leather, cleansers and preservatives, fuels, illuminants, lubricants, and a concluding chapter on quantity in the purchasing of materials. Each title is treated under the general heads of composition and definition, sources, properties, uses, tests, preservation, hints as to selection and use, and references.

15 1917 Walen, E.D. Cotton airplane fabrics. Natl. Advisory Comm. Aeronaut. 3rd Ann. Rept., (Rept. No. 22, Part I), pp. 435-458; 1917.

A progress report on the work of the Bureau on the development of a substitute for linen for airplane cloth. It is concluded that cotton fabric suitable for the purpose can be made.

16 1917 Bur. Standards Balloon Fabrics Committee Balloon fabrics. Natl. Advisory Comm. Aeronaut. 3rd Ann. Rept. (Rept. No. 22, Part 2) pp. 459-478; 1917.

The following named reports form a part of this record: Methods of exposure and permeability tests, by J. D. Edwards; Chemical tests of balloon fabrics, by J. B. Tuttle; and Physical tests of balloon fabrics, by E. D. Walen.

The effects of weathering and of exposure to heat were studied. The results of tests on fabrics exposed to weather show that the changes in values for permeability, acetone extract, bursting strength, and stress-strain curves vary in the same direction. The smallest changes occur in those fabrics which in actual service show the longest life, and the greatest changes in those which show the most rapid deterioration. The results of tests on fabrics after exposure to heat fail to show any great differences between the various fabrics. The dry heat test therefore appears of little value for predicting the life of balloon fabrics.

17 M19 1918 Stratton, S.W. Opening address. Proceedings of the Second Annual Textile Conference held at the Bureau of Standards, Washington, May 21-22, p. 7, 1917. 20 ¢

A society for the promotion of research work in textile technology, Idem. pp. 83-85.

18 M19 1918 Hartshorne, W.D. The results of a new method of combining fibers. Proc. 2nd Ann. Textile Conf., pp. 8-9. See ref. 17.

19 M19 1918 Cobb, F.G. Humidity in cotton mills. Proc. 2nd Ann. Textile Conf., pp. 11-12. See ref. 17.

Ref.	Pub.	Year	Author	Title
20	M19	1918	Cobb, F.G.	The difference between commercial grading of cotton and grading for spinning purposes. Proc. 2nd Ann. Textile Conf., pp. 13-14. See ref. 17.
21	M19	1918	Harmuth, L.	A key to the nomenclature of textiles. Proc. 2nd Ann. Textile Conf., pp. 15-16. See ref. 17.
22	M19	1918	Randle, W.N.	Cotton wastes. Proc. 2nd Ann. Textile Conf., pp. 18-20. See ref. 17.
23	M19	1918	Elledge, H.G.	The conservation of garments in laundering. Proc. 2nd Ann. Textile Conf., pp. 22-29. See ref. 17.
24	M19	1918	O'Brien, R.	Present and future textile laboratories in western land-grant colleges. Proc. 2nd Ann. Textile Conf., pp.30-32. See ref. 17
25	M19	1918	Haven, G.B.	Modern methods of testing blankets for heat transmission. Proc. 2nd Ann. Textile Conf., pp. 33-40. See ref. 17.
26	M19	1918	Lewis, W.S. Cleary, C.J.	Comparative service tests of cotton and wool bunting. Proc. 2nd Ann. Textile Conf., pp. 41-45. See ref. 17.
27	M19	1918	Redfield, W.C.	Opening address, second session. Proc. 2nd Ann. Textile Conf., pp. 46-47. See ref. 17.
28	M19	1918	Scheibli, J.A.	Classification of raw silks and standardization of tests. Proc. 2nd Ann. Textile Conf., pp. 48-54. See ref. 17.
29	M19	1918	Seem, W.P.	Classification of raw silks and standardization of tests. Proc. 2nd Ann. Textile Conf., pp. 55-62. See ref. 17.
30	M19	1918	Dannerth, F.	A plan for the valuation of dyes. Proc. 2nd, Ann. Textile Conf., pp. 63-66. See ref. 17.
31	M19	1918	Dannerth, F.	Plea for a standard nomenclature for organic dyes. Proc. 2nd Ann. Textile Conf., pp. 66-68. See ref. 17.
32	M19	1918	Lamb, K.B.	The testing and examination of army cloth. Proc. 2nd Ann. Textile Conf., pp. 69-73. See ref. 17.

Ref.	Pub.	Year	Author	Title
33	M19	1918	Tate, S.G.	Sewing machines and machine-made stitches. Proc. 2nd Ann. Textile Conf., pp. 75-78. See ref. 17.
34	M19	1918	Honiker, C.D.	A method for testing fabrics at a standard moisture condition. Proc. 2nd Ann. Textile Conf., pp. 79-80. See ref. 17.
35		1918	Clark, E.R.	Chemical properties of textile materials. Textile World J., vol. 53, p. 3463; January 26, 1918.

A review of the early work on textiles of the Chemistry Division of the Bureau of Standards.

36	T113*	1918	Edwards, J.D.	Determination of permeability of balloon fabrics. 31 pp. July 2, 1918.

The results of an investigation of methods for determining the permeability of balloon fabrics to hydrogen are presented.

37	C41*	1918		Testing and properties of textile materials. 3rd ed. 15 pp. September 20, 1918.

An outline is given of the procedures in use at that time for determining the identify, average length, percentage of moisture, percentage of oil, and other foreign matter of unspun fiber; the length, tensile strength and elongation, yarn number, twist, percentage of loading, sizing, and coloring material, and fiber composition of yarn, thread, and twine; and the weight, tensile strength and elongation, fiber composition, number of threads per inch, yarn number, folding endurance, and fastness of color of fabrics.

38		1919	Walen, E.D.	Textile war work of the Bureau of Standards. Textile World J., vol. 55, pp. 124, 237-242, 253; January 11, 1919.

The war work of the Bureau of Standards on airplane and balloon fabrics and inspection services are described.

39		1919	Edwards, J.D.	Balloon fabrics and their testing. Textile World J., vol. 55, pp. 31, 33 (1047, 1049); February 8, 1919.

The varied problems relating to balloon fabrics on which the Bureau has been working are briefly discussed. The paper includes a general discussion of the construction of balloon fabrics; tests for permeability, acetone extract, and bursting strength; and the significance of these tests in determining serviceability.

40	T128	1919	Edwards, J.D. Long, M.B.	Effect of solar radiation upon balloons. 29 pp. June 13,1919. 5 ¢

This paper describes briefly the effect of solar radiation upon balloons, including measurements of the temperature of balloon fabrics in sunlight, the radiation characteristics of balloon fabrics, the temperature of the gas in the balloon under various conditions, and methods for determining this temperature. The application of these results to aeronautical construction and navigation are pointed out.

Ref.	Pub.	Year	Author	Title
41		1919	Lofton, R.E.	German substitutes for wool and cotton. Cotton vol. 83, pp. 697-702; September 1919.

A report of an examination of 13 samples of German substitutes is given. A bibliography on the subject is included.

42		1919	Walen, E.D.	Properties of airplane fabrics. Am. Soc. Mech. Engrs. Trans. (1918) vol. 40, pp. 509-530; 1919.

A brief historical résumé of the development of cotton airplane fabrics is presented. The methods for determining the properties of airplane fabrics, the apparatus used, and the interpretation of the results are discussed. A few typical examples of satisfactory and unsatisfactory fabrics are discussed.

43		1920	Walen, E.D.	The structure of airplane fabrics. Natl. Advisory Committee for Aeronautics, 4th Ann. Rept. (Rept. No. 36), pp. 362-399; 1918.

Data for standard A grade linen and a large variety of cotton fabrics show that cotton airplane fabrics are satisfactory. They are giving service tests equal to if not better than the conventional linen fabrics. The test methods used are described and discussed critically. A brief history of the development of cotton airplane fabrics is given.

44		1920	Walen, E.D. Fisher, R.T.	Fabric fastenings. Natl. Advisory Comm. Aeronaut., 4th Ann. Rept. (Rept. No. 37), pp. 400-409; 1918.

A report of studies on the methods of fastening wing fabrics, the strength and suitability of cotton lacing cords as opposed to linen, the efficiency of the pasted lap and the sewed trailing edge seam, increasing the tear resistance by reinforcing the fabric, and various methods of making seams in the envelopes of balloons.

45		1920	Smith, W.H.	Airplane dopes and doping. Natl. Advisory Comm. Aeronaut., 4th Ann. Rept. (Rept. No. 38), pp. 410-414; 1918.

This report covers the historical development of the use of airplane dopes, the composition of dopes, the properties of cellulose nitrate and cellulose acetate dopes, dope covers containing pigments to exclude light rays, and the application of dopes, including fireproofed dopes.

46		1920	Edwards, J.D. Moore, I.L.	The testing of balloon fabrics. Part I. - Characteristic exposure tests of balloon fabrics. Part II. - Use of ultraviolet light for testing balloon fabrics. Natl. Advisory Comm. Aeronaut., 4th Ann. Rept. (Rept. No. 39), pp. 415-428; 1918.

Results of tests indicate that outdoor exposure gives a better indication of the relative value of balloon fabrics than does exposure to ultraviolet light.

Ref.	Pub.	Year	Author	Title
47		1920	Fisher, R.T.	Textile mill of U. S.Bureau of Standards. Textile World.J., vol. 57, pp. 422a-422b; February 7, 1920.

The cotton and wool mill equipment at the Bureau are described.

Ref.	Pub.	Year	Author	Title
48	T154*	1920	Epstein, S.W. Moore, R.L.	Determination of cellulose in rubber goods. 16 pp. February 20, 1920.

The method described is applicable to the determination of fabrics in rubber sheeting, raincoat materials, waterproofed fabrics, spread goods, and frictioned and calendered fabrics in general. The results which are obtained by this method have been found to be accurate by analysis of known compounds. The method is shown to be useful in the detection and determination of cellulose in reclaims. The determination and detection of leather, wood, jute, and cork in rubber mixings are also considered.

Ref.	Pub.	Year	Author	Title
49	M46	1921		War work of the Bureau of Standards. 299 pp. April 1, 1921. 70 ¢.

Pages 276 to 285 describe the war work of the Bureau on cotton fabrics, woolen and mixed fabrics and felts, waterproofed canvas, airplane fabrics, cordage, military textile equipment including uniforms, blankets, etc., and dyestuff chemistry.

Ref.	Pub.	Year	Author	Title
50		1921	Schoffstall, C.W.	A scientific basis for judging blankets. Hotel Review; April 1921.

The value of warmth, strength, thickness, and fiber content of blankets for hotel and similar purposes is discussed briefly.

Ref.	Pub.	Year	Author	Title
51		1921	Houston, P. L.	Suitability of paper and cotton bags in relation to burlap bags for sand. Paper Trade J., vol. 72, No. 21, pp. 47-54; May 19,1921.

Data are given on the bursting strength, tensile strength, and stretch of a large variety of papers, cotton, and burlap suitable for bagging. Tests were made on material before and after immersion for 1 hour and draining 5 minutes and after immersion for 1 hour and drying. The folding endurance of the papers, the thread count of the cotton andburlap, and the absorption of all these materials after 1, 2, 3, and 22 hours are also reported. An outdoor weathering test and an underground test on some of the fabrics were conducted. All the tests except those on wet material indicate that the rope paper would be a good substitute for burlap. Its weakness when wet might be overcome by a suitable waterproofing treatment.

Ref.	Pub.	Year	Author	Title
52	T198*	1921	Stang, A.H. Strickenberg, L.R.	Results of some tests of Manila rope. 11 pp, September 15,1921.

The results of tensile tests of 368 specimens of Manila rope are summarized. A formula is given by means of which the breaking load for any diameter of rope may be estimated. Most of the ropes represented material submitted on purchase orders for government departments. They were all three-strand regular lay Manila rope having diameters from 1/2 to 4 1/2 inches.

Ref.	Pub.	Year	Author	Title
53		1921	McGowan, F.R.	Standardization in the textile industry. Trans. Natl. Assocn. Cotton Mfrs., Nos. 110-111, pp. 374-383; 1921. Textile World, vol. 60, pp. 2673, 2675; November 5, 1921.

54 M51 1922 Smith, R.W. Proposed procedure for field test of fabric-measuring devices. Weights and Measures 15th Annual Conference of Representatives from Various States held at the Bureau of Standards, Washington, D.C., May 23, 24, 25, and 26, 1922. pp. 93-101. 15 ¢.

This report covers the results of an investigation made by the Bureau to prepare a simple and effective field test plan for fabric-measuring devices. A study of the applicability of different types of fabrics for use as a standard in testing the devices is reported.

55 1922 Consider a standard method of measuring size of hosiery. Daily News Record, No. 122 (whole No. 8946), p. 9; May 25, 1922.

A preliminary report. See ref. 62.

56 1922 McGowan, F. R. What standardization will do for the cordage business. Cord Age, vol. 1, pp. 11-12; May 1922.

57 R2 1922 Bedsteads, springs, and mattresses. R2. 9 pp. Issued November 25, 1922. R2-30. (2nd ed.) 14 pp. Issued January 21, 1931. Effective date, September 1, 1922. 5 ¢.

This recommendation provides for a reduction in the number of sizes from 78 to 4.

58 1923 McGowan, F. R. The opportunity of the wool industry to carry on research with the aid of the Bureau of Standards. Bull. Natl. Assocn. Wool Mfrs., vol. 53, pp. 47-59; January 1923.

59 T231 1923 McGowan, F. R. Schoffstall, C.W. Tentative standard test methods and percentages of oil and moisture in hair press cloths. 20 pp. March 10, 1923. 5 ¢.

Hair press cloth is used in the oil-pressing industries in the extraction of the oil from the pulpy matter. Hair fibers are more generally used than others on account of the resiliency required. Since the fabric is bought on a weight basis, the moisture and oil which are added to permit efficient manufacturing become important items. This paper outlines means of ascertaining the various contents. The petroleum ether extraction method is used for obtaining the oil content. The results of testing 27 samples are given. The following percentages are suggested for standards in buying and selling transactions: moisture, 11%; oil, 5%; water-soluble material, 2 1/2%.

Ref.	Pub.	Year	Author	Title
60		1923	McGowan, F.R. Sale, P.D.	Heat-retaining properties of fabrics. Textile World, vol. 63, pp. 2607, 2609, 3041, 3043; April 21, and May 5, 1923.

Special apparatus developed and built at the Bureau for measuring heat transmission, air permeability, and hygroscopic properties of textile fabrics are described. Their application for evaluating the warmth or comforting value is discussed. See ref. 73 and 74.

61		1923	McCullaugh, J. N. Schenke, E.M.	Report on standardization of hosiery boxes. Textile World, vol. 64, pp. 947-948, 963-969, 1069-1070; August 18 and August 25, 1923.

A detailed preliminary report. See ref. 63.

62	C149	1924		A standardized method of measuring the size of hosiery. 5 pp. February 1, 1924. 5 ¢.

A description with diagrams of a standard method for measuring the size of hosiery.

63	T253	1924	Schoffstall, C.W. Schenke, E.M.	Standardization of hosiery box dimensions. 13 pp. March 1,1924. 10 ¢.

Hosiery boxes in use at the present time are represented by photographs and a series of graphs which show waste, defects in packing, breakage, etc. A list of the proposed standard dimensions is given for men's, women's, and children's hosiery boxes. A new method of packing men's hosiery is shown.

64		1924		Textile heat insulating. Textiles, vol. 24, pp. 41, 54; March 1924.
65	T250	1924	Merritt, M.F.	Pulp and paper fiber composition standards. Reference standards showing the color reactions of common paper-making fibers and standard fiber mixtures with various stains for use in identification and estimation of fiber composition of paper. 5 pp. April 25, 1924. 15 ¢.

In standardizing the microanalysis of paper fibers there are no colored charts or plates of 100% pure pulps or standard percentage mixtures of standard pulps. This publication covers eight fiber compositions and one plate of the color reactions produced by the stains. Standard pulps and pulp compositions used in the estimation of fiber content were selected for the micrographs, different stains being used to bring out various characteristics of the fibers. The four stains employed were Delafield's hematoxylin, malachite green, Herzberg stain and the Lofton-Merritt stain. A list of water colors that matched the stained fibers is given.

Ref.	Pub.	Year	Author	Title
66	LC122	1924		Memorandum on specimens for fiber rope. 1 p. May 27, 1924. Obtainable from the Bureau of Standards on request.

This letter circular describes the eye splice required for ropes to be tested for breaking strength.

67 R11 1924 Bed blankets, 7 ppl June 2, 1924. 5 ¢.

This recommendation provides for a reduction from 78 to 12 sizes of cotton, wool, and cotton and wool mixed bed blankets.

68 1924 Appel, W.D. The elimination of variables in the dyeing method of testing dyes. Am. Dyestuff Reptr., vol. 13, pp. 507-510; August 11,1924.

The object of this work was to devise a laboratory method for dyeing which would eliminate the variables or make their control possible so that results might be duplicated at will. The variables include the fiber itself, initial and final temperature of dye bath, rate at which temperature is raised or lowered, uneven heating, the way in which the ingredients are added to the bath, the way in which the fiber is worked in the bath, rinsing, wringing, drying, and finally the conditions under which the dyeings are compared.

It is proposed to dye loose fibers out into very short lengths in a closed dye bath equipped with reflux condenser and agitation in the bath. The temperature is controlled by means of an outer jacket containing a liquid of constant boiling point. The method should make possible the duplication of results and lead to improved standard dyeing methods for testing the strength and quality of dyes. Dyeings prepared by the method are particularly suited for reflectance and transmittance measurements.

69 C169 1924 Methods of calculating hosiery shipping case dimensions. 37 pp. August 12,1924. 10 ¢.

Methods for calculating the most economical dimensions of hosiery shipping cases are given when either the proposed standard inside dimensions of the hosiery boxes or when other sizes of boxes are used. The development of the equation of a minimum surface of a hexahedron for a given volume is shown, and use is made of it in selecting the most economical case. Considerations involving the use of these boxes are given, listing, in addition, the most common sizes which might be used by a manufacturer of all styles of hosiery. The dimensions of the most suitable arrangements only are given. The feature is the saving resulting from reduction of the surface in the construction of the case.

Ref.	Pub.	Year	Author	Title
70	T264	1924	Schoffstall, C.W. Fisher, R.T.	Development of the standard numbered cotton duck specification. 22 pp. September 26,1924. 10 ¢.

A study was made of numbered duck, ranging for the medium texture from 2/0 to 6 and for the hard texture from 2/0 to 12. The test methods are described. For breaking strength, the strip and three variations of the grab method were used. The results for construction and breaking-strength are given in tables. Graphs illustrate the significance of the data. The resulting specification for numbered cotton duck is given.

71	T273	1924	McGowan, F.R. Smither, F.W. Schoffstall, C.W.	Performance tests of a liquid laundry soap used with textile materials. 26 pp. October 8, 1924. 10 ¢.

The purpose of this investigation was to determine the utility of a liquid laundry soap containing 15% volatile organic solvent and about 25% anhydrous soap as a laundry cleaning agent. Comparative tests on a variety of fabrics using this soap and other washing and scouring agents indicated its superiority with particular reference to shrinkage, fading, and cleaning efficiency.

72	T268	1924	McGowan, F.R. Schoffstall, C.W. Mercier, A.A.	A study of silk waste used for cartridge-bag cloth, with an appendix on the general classification of waste silk. 28 pp. December 4, 1924. 15 ¢.

A study was made of the waste silk used in the spun-silk industry in comparison with the waste silk purchased by the Government for the manufacture of cartridge-bag cloth in order to find if the surplus of this cartridge-bag waste silk which remained on hand after the war was of use in connection with the normal textile requirements of the country. It was shown that this cartridge-bag waste silk was not suitable for use in the usual spun-silk processes of manufacture. Since this necessitated a continuance of the manufacture of this material on a system which combined the cotton and woolen systems of manufacture, as was the case during the war, a commercial use adaptable to the normal requirements of the country was extremely desirable. A fabric was woven using this material as a single yarn in the warp direction, unsized, with a wool yarn as the filling. Tests showed the resulting fabric to be suiting material well balanced in regard to wear. The general types of spun silk are given, and the system of grading is outlined in the appendix. Figures show the various grades of spun silk and the waste silk used for cartridge-bag cloth.

73	T266*	1924	Sale, P.D. Hedrick, A.F.	Measurement of heat insulation and related properties of blankets. 18 pp. December 5, 1924.

The principal factors influencing the heat insulation of fabrics are discussed. Apparatus is described and methods proposed for the measurement of this and other related properties of blankets, viz., permeability to air and water vapor. Standard test conditions are recommended simulating those to which fabrics are subjected in service. Data illustrative of the results of tests made on new blankets, typical of the variety to be obtained in the trade, are presented. The details for the construction of the apparatus described are given in T269, ref. 74.

Ref.	Pub.	Year	Author	Title
74	T269	1924	Sale, P.D.	Specifications for constructing and operating heat-transmission apparatus for testing heat-insulating value of fabrics. 13 pp. December 16,1924. 10 ¢. See ref. 73.
75		1924	Schenke, E.M.	Report on standard hosiery lengths. Textile World, vol. 66, pp. 3573, 3591, 3593; December 20, 1924.

A detailed preliminary report, published for the purpose of soliciting criticism and comment; also published in Daily News Record, p. 7, December 20, 1924, under title "Standard hosiery lengths as recommended by Bureau of Standards for adoption by hosiery manufacturers of United States". See T324, ref. 108.

76	T277	1925	McGowan, F.R. Schoffstall, C.W Mercier, A.A.	Comparative wearing qualities of Pima and ordinary cotton used in mail bags, 11 pp. February 2, 1925. 10 ¢.

The general characteristics of Pima cotton are discussed, together with the reasons for attempting to find new uses for this type. The purpose of this investigation was to compare mail bags made from Pima cotton with those made from ordinary cotton in the regular catcher-pouch service. The details of the mill organization used for making the yarn are given. The tests and results are described and discussed. They indicate that Pima cotton mail bags stand service wear decidedly better than ordinary cotton bags.

77	T278	1925	McGowan, F.R. Schoffstall, C.W. Mercier, A.A.	Effect of twist on the physical properties of a number 7s yarn. 11 pp. February 11, 1925. 10 ¢.

This investigation was made to determine the most suitable twist for manufacturing the yarn to be used in the Pima cotton mail bag investigation. Data were obtained on the relation of the twist to the breaking strength, diameter of the yarn, yarn count, contraction, and angle of twist. While these data were not sufficiently extensive to attempt to fix definite formulas for these relations they will be useful to the cotton manufacturer. The most suitable twist for the yarn to be used in the Pima mail bags was found to be about 12 turns per inch.

78	T280	1925	Hubbard, C.C.	Reclamation of gasoline used in drycleaning. 13 pp. March 31, 1925. 5 ¢.

This paper discusses briefly the processes that have been used in the drycleaning industry for the "purification" and recovery of gasoline used in drycleaning. The work reported includes both laboratory experiments and large scale plant tests. A "settling and decanting" process using activated carbon and an aqueous solution of trisodium phosphate is recommended.

79	T282	1925	Mercier, A.A.	Technology of cotton machinery. Part I. Calculations on pickers. 39 pp. April 2, 1925. 10 ¢.

Ref. Pub. Year Author Title

A study was made of the calculations on cotton pickers which may be applied to similar machines in the industry or to like machines used in experimental or research work. Methods are given for finding the revolutions per minute of certain moving parts, ratio of one part to another, production resulting when using certain speeds and ratios of speeds and amount of beating given the cotton. The calculations allow for a wide range of speeds, various size pulleys, and different changes in the weight of the product. They were prepared for the purpose of eliminating waste of time in determining the pulleys and gears to be used to obtain required speeds, drafts, production, and amount of beating, as well as to give information which at present is not readily accessible.

80 1925 Burgess, G.K. The Bureau of Standards. Textile World, vol. 67, pp. 2533-2537; April 11, 1925.

A resumé of the functions and activities of the Bureau with reference to textiles. Federal specifications, Simplified Practice recommendations, research and testing, and the research associate plan are discussed.

81 1925 McGowan, F.R.
Hamlin, C.H. Method of testing knitted fabric. Textile World, vol. 67, pp. 3285, 3287; May 16, 1925.

The applicability of the grab test to knitted fabrics was studied. As a result, the one by one inch grab test is recommended. This method has been formally adopted by the Associated Knit Underwear Manufacturers of America and approved by the Sub-Committee on Knit Goods of the American Society for Testing Materials.

82 TNB97* 1925 Variation in the method of obtaining breaking strength of rope. TNB, No. 97, p. 4; May 1925.

83 1925 Hedrick, A.F. Improving alkali test for cotton-wool mixes. Textile World, vol. 67, pp. 3725-3729; June 6, 1925.

84 1925 Schoffstall, C.W. Rope test methods studied. Cord Age, vol. 7, No. 1, pp. 22-23; June 1925.

The results of a questionnaire relative to type of machine, capacity, speed used in testing, possible speeds of machine (maximum and minimum), and methods of holding, sent to 80 manufacturers are presented and discussed.

85 TNB98* 1925 Quality of curled hair. TNB, No. 98, p. 6; June 1925.

86 TNB98* 1925 Standard method of measuring knit underwear. TNB, No. 98, pp. 6-7; June 1925.

87 TNB99* 1925 Bending fatigue of rope yarn. TNB, No. 99, p. 3; July 1925. See ref. 96.

Ref.	Pub.	Year	Author	Title
88	T292	1925	Morris, R.J.	Relative merits of cotton and jute cement sacks. 22 pp. August 7, 1925. 10 ¢.

The relative merits of one type of cotton osnaburg and several types of jute burlap sacks for use as containers for cement were studied. The practical tests included use of the sacks in actual service; resistance to failure from dropping or rough handling; the hot-cement test, in which the sacks were filled with hot, freshly ground cement; the humidity test, in which samples were exposed to various atmospheric conditions; and the moisture test, during which the sacks of cement were subjected to excessively damp conditions. The physical properties of the original bags are given.

89 TNB100*1925 The relative merits of cotton and jute cement sacks. TNB, No. 100, p. 6; August 1925. See ref. 88.

90 1925 Schoffstall, C.W. Cordage work at Bureau of Standards. Cord Age, vol. 7, No. 3, pp. 10, 33; September, 1925.

The rope bending machine developed at the Bureau for studying the bending fatigue of a rope yarn is discussed.

91 TNB101*1925 Gray discoloration on white woolens in drycleaning. TNB, No. 101, pp. 5-6; September 1925.

92 C1 1925 National Bureau of Standards. Its functions and activities. 2nd ed. 113 pp. October 29, 1925. 50 ¢.

This circular gives general information concerning the organization, functions, and work of the Bureau. It cites accomplishments and includes illustrations typical of the work and facilities of the laboratories.

93 TNB102*1925 Combustion tests on rayon and cotton yarns. TNB, No. 102, p. 2; October 1925.

94 C296 1925 Research associates at the Bureau of Standards. 20 pp. November 18, 1925. 10 ¢.

This circular gives the history of the research associate plan at the Bureau, and discusses cooperation with the industries and advantages offered for research work at the Bureau. It gives a list of organizations accorded research associate privileges, general fields of research, specific problems, and names of research associates. Specific illustrations of problems undertaken and value of results are given. For a list of research associates currently employed at the Bureau, see the latest number of the Standards Year Book, ref. 142.

Ref.	Pub.	Year	Author	Title
95	TNB103*	1925		Uneven silk causes streaky hosiery. TNB. No.103, p. 7; November 1925.
96	T300	1925	Schoffstall, C.W. Boyden, R.C.	Development of a standard bending test for rope yarns. 10 pp. December 1, 1925. 10 ¢.

A standardized apparatus for bending test for rope yarn is described. The yarn under tension is bent repeatedly over a cross arm.

97		1925	Appel, W. D.	A new lamp for fading tests. Am. Dyestuff Reptr., vol. 14, pp. 882-883; December 28, 1925.

The radiation from a nitrogen filled tungsten lamp after passage through an aqueous solution of copper sulfate is used as an approximation to sunlight for accelerated tests for fastness to light of dyed fabrics. Quantitative data show the accelerating effect of increased humidity in fading tests.

98	TNB104*	1925		Heat-retaining value of blankets covered with sheeting. TNB, No. 104, p. 6; December 1925.
99	C24	1925		Publications of the Bureau of Standards, 1901-1925. 271 pp. 1925. 25 ¢.

This circular gives a complete list of the scientific papers, technologic papers, circulars, handbooks, and miscellaneous publications of the Bureau issued between its establishment in 1901 and June 30, 1925. See also ref. 270.

100	LC193	1926		Influence of sheeting upon the heat-retaining properties of blankets. 2 pp. February 8, 1926. Obtainable from the Bureau of Standards on request.
101	TNB106*	1926		Cross streaks in rayon tubing. TNB, No. 106, p. 4; February 1926.
102	TNB107*	1926		Rayon made with hollow filaments. TNB, No. 107, p. 7; March 1926.
103	TNB108*	1926		Specifications for stitches, seams, and stitching. TNB, No. 108, p. 3; April 1926.
104	TNB108*	1926		Fastness of dye on tent duck. TNB, No. 108, p. 3; April 1926.
105	TNB109*	1926		Rayon conference. TNB, No. 109, p. 7; May 1926.

Ref.	Pub.	Year	Author	Title
106	T320	1926	Tuckerman, L.B. Keulegan, G.H. Eaton, H.N.	A fabric tension meter for use on aircraft. 16 pp. July 24, 1926. 10 ¢.

The fabric tension meter described in this paper was developed at the Bureau of Standards for the Bureau of Aeronautics, United States Navy, for the purpose of measuring the stresses in the cover fabrics of rigid airships. The operation of the instrument is based on the deflection of an isolated portion of the fabric of known shape. The relation between the hydrostatic pressure used to deflect the fabric, the tensions, and the principal radii of curvature of the fabric when deflected can be solved under proper conditions for the stresses. The mathematical theory of the instrument is developed, its construction and method of operation are described, and the accuracy obtained in service use are discussed

107	T322	1926	Goldman, M.H. Hubbard, C.C. Schoffstall, C.W.	Effect of drycleaning on silks. A comparison of the effect of drycleaning and some service conditions on the strength of silk. 30 pp. August 17, 1926 15 ¢.

Samples of silk and weighted silk were treated with artificial perspiration, drycleaning solvents, ironing, etc., and then exposed to sunlight. Strength tests were made at intervals. Deterioration resulted from sunlight exposure and perspiration. Apparently no deterioration was caused by the drycleaning solvents.

108	T324	1926	Schenke, E.M. Schoffstall, C.W.	Standard hosiery lengths. 14 pp. August 28, 1926. 10 ¢.

A study of hosiery lengths was made. A method for measuring the length was selected, and hosiery representing the product of 30 different manufacturers was measured. From the data obtained standards are proposed for the lengths of men's, women's, children's ribbed, children's sport, infants' ribbed, and infants' and children's socks. Tolerances are also recommended.

109	TNB112*	1926		Tendering of hosiery. TNB, No. 112, p. 7; August 1926.

The damage is traced to contact with exposed copper or iron nails in the bleaching tanks.

110		1926	Schoffstall, C.W.	Standards Bureau makes rayon tests for moisture and aging properties. Daily News Record, Rayon Section; No. 223 (whole No. 10266) p. 4; September 23, 1926.
111	TNB113*	1926		Effect of drycleaning on silk. TNB, No. 113, pp, 7-8; September 1926. See ref. 107.
112	TNB114*	1926		A method to distinguish viscose from cuprammonium rayon. TNB, No. 114, pp. 4-5; October 1926.

Ref.	Pub.	Year	Author	Title
113			Schreiber, W.T. Hamm, H.A.	Distinguishing viscose from cuprammonium. Textile World, vol. 70, pp. 2029, 2963; October 9 and November 13, 1926.

A method based on the detection of sulfides present in viscose rayon is proposed for distinguishing between viscose and cuprammonium rayons. A list of references to the literature on the identification of the various rayons is included.

114		1926	Appel, W.D.	Report of the Committee on Light Fastness. Further Report on Light Fastness Tests. Am. Dyestuff Reptr., vol. 15, pp. 857-861; December 27, 1926.

A preliminary report is given of how the tests are being made, how the results are being studied, some general results which are subject to verification and revision as the study progresses, and some observations on peculiarities of behavior.

115		1927	Schenke, E.M.	Standard lengths for 7-8 hosiery. Textile World, vol. 71, p. 79; January 1, 1927.

A summary of results obtained on length measurements of 200 dozen pairs of children's 7/8 length hosiery is given. On the basis of these measurements, standard lengths and tolerances are proposed.

116		1927	Exley, W.E.	Effect of temperature on wool. Textile World, vol. 71, pp. 171-172; January 8, 1927.

To find the proper temperature to use in determining the moisture content of wool, a series of tests were carried out on a sample of wool serge in which it was heated to different temperatures ranging from 40° to 300°C. in successive 10° steps. The loss of weight and regain were determined at each step. The results indicate that the actual bone-dry weight of wool is a matter of definition. Any temperature between 90° and 180° appeared satisfactory for the particular specimen tested.

117	TNB117*	1927		Removal of mercurochrome stains from clothing. TNB, No. 117, pp. 7-8; January 1927.
118	TNB117*	1927		Tests for deterioration of stored table linens. TNB, No. 117, p. 8; January 1927.
119	R27	1927		Cotton duck, First Revision. 12 pp. Effective date February 1, 1927. 5 ¢.

This recommendation provides for a reduction in widths and weights of cotton duck from 460 to 90.

120		1927	Schenke, E.M. Eichlin, A.S.	Six percent oil in rayon. Textile World, vol. 71, p. 1367; February 19, 1927.

A maximum of 6% oil in regenerated cellulose rayon yarns to be used for knitting is recommended. This figure is based on the results of tests for oil content of 49 samples of yarns.

121		1927	Hubbard, C.C.	Soaps as drycleaning aids. Am. Dyestuff Reptr., vol. 16, pp. 113-114; February 21, 1927.

Ref.	Pub.	Year	Author	Title
122		1927	Goldman, M.H. Hubbard, C.C.	Removing stains from cellulose acetate rayo Am. Dyestuff Reptr., vol. 16, pp. 237-239; April 18, 1927.

The material is first identified as cellulose acetate rayon by testing its solubility in acetone or glacial acetic acid. The spotting agents selected are mixed with an equal volume of glycerol. After spotting in the usual manner, the material is thoroughly rinsed or sponged with water to remove all of the reagent.

123 1927 Identification of cuprammonium rayon. Textile Colorist, vol. 49, pp. 242-243; April 1927.

The copper in cuprammonium rayon may be detected by ashing a 3 to 5 gram sample and testing with potassium ethyl xanthate, potassium ferrocyanide, or hydrogen bromide.

124 TNB120*1927 Oil on rayon knitting yarns. TNB, No. 120, p. 12; April 1927.

125 TNB121*1927 Improvement of skein test for strength of yarns. TNB, No. 121, p. 7; May 1927.

126 T347 1927 Rudnick, P. Effect of laundering upon the thermal insulating value of cotton blankets. 7 pp. July 11, 1927, 5 ¢.

A study was made of the effect of repeated laundering upon the thermal insulating value of cotton blankets. The materials used in the experiments were representative of most common blanket types, and the laundering process corresponded to a good commercial practice. Thermal resistances were measured by means of equipment developed earlier at the Bureau of Standards, but the method of measurement was modified. Washing was found to cause small losses in thermal resistance, which were almost completely restored by the subsequent process which raised the nap on the laundered fabric. The net losses in thermal resistance after four applications of washing and renapping processes were negligibly small. The results indicate the importance of a process for restoring the nap after washing. Shrinkage resulted in thickening the blanket, with a corresponding gain in thermal resistance.

127 TNB124* 1927 Ultraviolet transmission of Celanese. TNB, No. 124, p. 9; August 1927.

128 TNB124* 1927 Mail bag duck, TNB, No. 124, p. 10; August 1927.

129 1927 Schoffstall, C.W. Head of U.S. Standards Bureau sees gain in strength of rayon, Daily News Record (New York), Section 2, p. 9; September 21, 1927.

Ref.	Pub.	Year	Author	Title.
130		1927	Schreiber, W.T. Hamm, H.A.	Determining the stress-strain relation of rayon yarns-Equitension lea method. Textile World, vol. 72, pp. 1729-1731; September 24, 1927.

A preliminary report. See RP61, ref. 171.

131 T354 1927 Scribner, B.W.
Brode, W.R. A modified method for determination of the copper number of paper. 5 pp. September 24, 1927. 5 ¢.

Determination of the copper number of high grade rag-fiber bond papers is difficult owing to the resistance these hard, tough papers offer to the usual procedure employed for this determination. A modified method is described by which greater accuracy in testing such papers was obtained and which is recommended in part at least for general usage in testing paper or pulp. It is patterned after the method of Gault and Mukerji and that of Staud and Gray. The variation from these methods considered of prime importance is grinding the test specimens to a finely divided condition. A grinder devised especially for the purpose is described in detail.

This method is also applicable to the determination of the copper number of cotton products.

132 TNB125* 1927 Drycleaning solvent specification. TNB, No. 125, p. 8; September 1927.

133 TNB126* 1927 Ultraviolet transmission of fabrics. TNB, No.126, pp. 4-5; October 1927.

134 TNB126* 1927 Cotton Textile Institute Research Associateship. TNB, No.126, p. 5; October 1927.

135 1927 Johnson, F.A.
Stephenson, W.J. Endurance tests of rope of different grades of abacá. Cord Age, vol. 11, No.4, pp. 18, 24; No. 5, pp. 38, 40; October and November 1927.

The machine developed for testing the endurance of fiber rope is briefly described. Bending is an essential characteristic of the test. The results of tests on a group of 2 1/4 inch circumference rope samples, made at the Boston Navy Yard from different grades and combinations of grades of abacá are given.

136 T360* 1927 Goldman, M.H.
Hubbard, C.C. Cleaning of furs and leather garments. 15 pp. November 5, 1927.

The addition of a small percentage of paraffin to the drycleaning bath was found to improve the appearance and pliability of furs and leather garments. The method is recommended whenever furs are to be drycleaned; that is, cleaned by immersion in gasoline or in naphtha. Whether furs should be drycleaned depends upon the nature and condition of the individual garment. This question was not considered in the study.

Ref.	Pub.	Year	Author	Title
137		1927	Schoffstall, C.W.	Résumé of the year's textile research at the Bureau of Standards. Textile World, vol. 72, pp. 2729-2733; November 5, 1927.

A résumé is given of the work on mohair fiber, mail-bag duck, storage of bleached and unbleached linen, carpet wear, fastness of dyed fabrics to various agencies, wet tensile properties of the rayons, hosiery defects, non-staining oil for lubricating knitting machines, standardization of hosiery and underwear sizes, drycleaning of silk fabrics, drycleaning of furs and leather garments, properties of cotton yarns of different twists, discoloration of garments in drycleaning, rope bending test, removal of stains, substitute for parachute silk, and air permeability tests.

138		1927	Cady, W.H. Appel, W.D.	Report of the Subcommittee on Light Fastness; 1. Light Exposures, Series 3. Am. Dyestuff Reptr., vol. 16, pp. 707-715; November 14, 1927.

Twenty-nine identical sets of 20 selected dyeings were exposed to daylight under a variety of conditions, and in different localities at different times of the year, repeatedly to violet carbon arc light, and under controlled conditions of atmospheric humidity to incandescent lamp light. The exposures were timed so as to obtain the same average fading in each set. Records of the energies received by some of the samples were obtained with the aid of a barium photoelectric cell and automatic recorder. The conclusions to be drawn from the results are given.

139		1927	Appel, W.D.	Report on experiments with the photoelectric cell in relation to testing fastness to light of dyed materials. Am. Dyestuff Reptr., vol. 16, pp. 715-719; November 14, 1927.

The tests reported indicate that the amount of fading of dyed textiles under variable conditions of daylight exposure is not adequately measured by the incident energy recorded by the barium photoelectric cell.

140	TNB127*	1927		Changes in drycleaning research associateship. TNB, No. 127, pp. 8-9; November 1927.
141	M90	1927 & 1929		Directory of commercial testing and college research laboratories. 46 pp. December 6, 1927. Supplement, 4 pp. January 4, 1929. 15 ¢.

The laboratories are listed according to geographical distribution and the commodities they are equipped to test are indicated.

142	M77*	1927		Standards Yearbook 1927. 392 pp.

This is the first issue of the Standards Yearbook, a reference book on standardization. The subjects treated are: the international and national standardizing agencies; the fundamental standards of the United States, Federal, State, county, and municipal standardizing agencies; the work and recent activities of the National Bureau of Standards, and of technical societies and trade associations.

Ref.	Pub.	Year	Author	Title
143	R43	1928		Paint and varnish brushes. R43-28. First Revision. 16 pp. Effective date, December 15, 1927. 5 ¢.

This recommendation provides for a reduction in sizes and types from 480 to 138.

144	R74	1928 & 1931		Hospital and institutional cotton textiles. Effective data, October 1,1927. R74-30 2nd ed. 14 pp. Issued January 21, 1931. Effective date, July 1, 1930. 5 ¢.

This recommendation provides for a reduction in the number of varieties of hospital and institutional textiles from 575 to 26. The textiles include bed pads, pillowcases, sheets, drawsheets, spreads, bureau scarfs, bath towels, face and hand towels, and toweling.

145		1928	Appel, W.D.	A method for measuring the color of textiles. Am. Dyestuff Reptr., vol. 17, pp. 49-54; January 23,1928.

A simple and relatively inexpensive method for measuring the reflection of colored fabrics and other surfaces at a few wave lengths in the visible spectrum is described.

146	TNB129*	1928		Cleaning of fur and leather garments. TNB. No. 129, p. 4; January 1928. See ref. 136.

147		1928	Clements, E.A.	(Underwear) Standardization Committee Report. Textile World, vol. 73, p. 1286; February 25, 1928.

A list is given of the standard measurements and tolerances developed for various types of boys', men's and women's underwear by the Associated Knit Underwear Manufacturers of America in cooperation with the Bureau of Standards. The standard box sizes for underwear adopted by the Association are also listed.

148		1928	Schoffstall,C.W.	The textile research associate plan at the Bureau of Standards, Washington, D.C. Textile World, vol. 73, pp. 1567-1570; March 10, 1928.

A review of the principles of the plan and a survey of the results along textile lines,are given. For a more detailed account of the plan and its accomplishments, see ref 94.

149		1928	Schoffstall,C.W.	(Textile research at the Bureau of Standards). United States Daily, vol. 3, as follows:

Textile researches of the Bureau of Standards, p.225 (9); March 27,1928.
Studies of textile materials, p. 235 (9); March 28,1928.
Studies of textile properties, p. 245 (9); March 29,1928.
This is a series of articles in which some of the accomplishments of the Textile Section are reviewed. These articles are a part of the "Topical Survey of the Government conducted by the U.S.Daily. The facilities of the Bureau for textile investigations, standardization projects, studies of aeronautical fabrics, of rayon and of cotton fabrics for specific uses, and the research associate plan are briefly described.

Ref.	Pub.	Year	Author	Title
150	TNB131*1928			Standard sizes for underwear. TNB. No.131, pp. 36-37; March 1928.
151	R86	1928		Surgical gauze. R86-28. 12 pp.Effective date, June 1, 1928. 5 ¢.

This recommendation provides for a reduction in the number of constructions (thread count) of surgical gauze from 15 to 7; of crinoline from 5 to 3; of bandage rolls from 10 to 3; of package goods from 6 to 4 in 25 yard lengths, from 4 to 0 in 10-yard lengths, from 7 to 3 in 5-yard lengths, and from 6 to 3 in 1-yard lengths. For bandages, the retention of the one construction 44 x 40, the elimination of 5-yard put-ups and the reduction from 8 to 6 widths are recommended.

152		1928	Appel, W.D. Smith, W.C.	Report of the Subcommittee on Light Fastness; 2. The fading of dyed textiles in the light transmitted by various glasses. Am. Dyestuff Reptr., vol. 17, pp. 410-422; June 25, 1928.

Twenty selected dyeings were exposed to sunlight without glass cover and under window glass, Corex, Vita, and six other special glasses of known transmission. The fading is recorded in the form of quantitative reflection measurements. The spectral distribution of the radiation and the extent to which the fading of the dyeings is affected by changes in distribution and intensity produced by passage through the glasses are reported.

153	TNB134*1928			Standard for Stoddard Solvent. TNB.No. 134, p. 89; June 1928. See ref. 163.
154	TNB135*1928			Testing procedure for destructive agents on deteriorated cotton textiles. TNB, No.135, p. 105; July 1928.
155		1928	Emley, W.E.	Research tells us what to do and when. Laundry Age, vol. 8, No.5, p.101, July 1928. Starchroom Laundry J.; July 1928.
156	RP6	1928	Coblentz, W.W. Stair, R. Schoffstall,C.W.	Some measurements of the transmission of ultraviolet radiation through various fabrics. B.S.Jour. Research, vol. 1, pp. 105-124; August 1928, 5 ¢.

Measurements were made on close-weave and open-weave cloths,viz. satin, twill and voile. Black samples were examined to determine the amount transmitted through the openings between the threads, and white samples to determine the transmission through the thread. White cotton and viscose rayon which are practically pure cellulose, also linen and cellulose acetate rayon are the most transparent to ultraviolet rays. Natural silk not yellowed with age stands a close second in the order of transparency. Wool fabrics are only about one-half as transparent as white cotton. Dyes reduce the transparency to ultraviolet, hence the open weave fabrics transmit the most ultraviolet, irrespective of the composition of the yarn. Data are given also on the transparency of feathers and of animal tissue.

Ref.	Pub.	Year	Author	Title
157	R85	1928		Adhesive plaster. R85-28. 12 pp. Effective date, September 1, 1928. 5 ¢.

This recommendation provides for a reduction in the varieties of rolls from 3 to 2; in the width of spools from 8 to 5; and in the length of spools from 23 to 13.

158 TNB137*1928 Rayon project. TNB, No. 137, pp. 131-132; September 1928.

159 1928 Appel, W.D.; Smith, W.C.; Christison, H. A machine for laboratory washing tests. Am. Dyestuff Reptr., vol. 17, pp. 679-683; October 29, 1928.

Cooperative work by the American Association of Textile Chemists and Colorists and the Bureau has resulted in a practical machine for testing the fastness to washing of dyed textiles. With it, one operator may test up to 20 samples simultaneously and in a brief run obtain results similar to those obtained in commercial laundry practice. It is also suitable for testing detergents, for drycleaning tests, and for laboratory dyeing. The machine is described and general specifications for it and for a standard washing procedure are given. The machine is being manufactured and may be obtained through the Association.

160 1928 Appel, W.D. Progress in the standardization of tests for fastness to light. Am. Dyestuff Reptr., vol. 17, pp. 755-759; November 26, 1928.

A review of the work of the past four years.

161 PP27 1928 Mercier, A.A.; Schoffstall, C.W. Effect of twist on cotton yarns. B.S. Jour. Research vol. 1, pp. 733-750; November 1928. 5 ¢.

Yarns were spun in the Bureau's experimental mill from 1-inch and 1-1/16-inch staples, middling grade cotton, using single and double roving organizations. Seven counts of combed yarns (1 1/16-inch staple) and five counts of carded yarns (1-inch staple) were spun. Different twist factors were used for each yarn.
Measurements were made of strength, diameter, angle of twist, and contraction. Correlations of the results graphically with respect to the twist multiplier are shown and discussed. Suggestions regarding the application of these data to the cotton mill are given.

162 1928 Emley, W.E. Opportunities and obligations of the Institute. Natl. Assocn. Dyers and Cleaners Convention Rept. and Year Book 1927 - 1928, pp. 87-89.

A talk presented by the 21st annual convention of the National Association of Dyers and Cleaners of the United States and Canada.

Ref.	Pub.	Year	Author	Title
163	CS3	1929		Stoddard Solvent (Drycleaning). CS3-28. 22 pp. Effective date, March 1,1928. 10 ¢.

The material covered by this standard is a petroleum distillate with considerably higher flash point than gasoline. Its use should markedly reduce the fire and explosion hazard in the drycleaning industry. The specification was prepared in cooperation with the National Association of Dyers and Cleaners and with petroleum producers and refiners. A brief history of the project, report of the general conference, and membership of the Standing Committee are included.

164 R92 1929 Hard fiber twines (Ply and yarn goods). R92-28. 12 pp. Effective date, November 1,1928. 5 ¢.

This recommendation provides for a reduction in kinds and put-ups from 1304 to 391.

165 R88 1929 Floor sweeps. R88-29. 12 pp. Effective date, January 1, 1929. 5 ¢.

This recommendation provides for a reduction in lengths of brush blocks from 11 to 6.

166 M85 1929 Fabric measuring devices. Specifications and tolerances for Commercial Weighing and Measuring Devices, pp. 25-29. January 1929. 50 ¢.

Specifications and tolerances are given for fabric measuring devices intended for commercial use, adopted by the National Conference on Weights and Measures, and recommended by the Bureau of Standards for adoption by the States.

167 1929 Interdepartmental Angora Goat & Mohair Comm. (Willingmyre, G.T.,Chairman) The angora goat and mohair industry. U.S. Dept.of Agri.in cooperation with U.S.Dept.of Commerce,Misc.Pub.No.50.120 pp. March 1929.30¢

In addition to information on the growing and marketing of the Angora goat and statistical information on the mohair industry in the United States, information is given on the chemical composition and characteristics of the mohair fiber, standardization of mohair grades, and the manufacturing processes for mohair fabrics, including cleaning, combing, drawing, spinning, weaving, and finishing operations.

168 TNB144*1929 Transparency of tracing cloth to ultraviolet light. TNB, No. 144, p. 30; April 1929.

169 TNB144*1929 Winter damage in laundries. TNB, No.144, pp. 30-32; April 1929.

Ref.	Pub.	Year	Author	Title
170		1929	Appel, W.D.	Quantitative relation between the spectral reflection of textile dyeings and the amount of dye used. Published by Textile Research Council, Statler Bldg., Boston, Mass. 5 pp. May 24, 1929.

A brief outline of a method for studying the relation between the spectral reflection of textile dyeings and the amount of dye used is given. The spectral reflection of a few dyeings can be used to perdict the spectral reflection of dyeings made with any practical amount of dye. The reflection of dyeings made with a mixture of dyes can be calculated from the reflection data for dyeings of the components of the mixture.

171	RP61	1929	Schoffstall, C.W. Hamm, H.A.	A multiple-strand test for yarns. B.S. Jour. Research, vol. 2, pp. 871-885; May 1929. 10 ¢.

The essential features of the multiple-strand test method for determining stress-strain relationships of yarns are as follows: The yarn is wound from its original form of put-up onto a specimen holder under uniform tension in such a way that the strands are placed parallel and do not overlap. The specimen holder containing the yarn is then placed in the jaws of an automatic stress-strain recording tester of the inclination-balance type. The speed of the pulling jaws is recommended to be 12 inches per minute. The distance between jaws is recommended to be 4 inches. The number of strands may be varied but should be calculated to a basis of 100 strands. In cases of various sizes of the same type of yarn further simplification of results on a strength-count basis is recommended.

172	TNB145* 1929 TNB148*			Fading of dyed textiles in daylight and in carbon arc light. TNB, No. 145, pp. 45-46; May 1929. No. 148, pp. 81-82; August 1929. See ref. 173.
173		1929	Cady, W.H. Appel, W.D.	Report of the Subcommittee on Light Fastness: 3. The fading of dyed textiles in daylight and in carbon arc light. Am. Dyestuff Reptr., vol. 18, pp. 407-446; June 24, 1929.

Twelve hundred and fifty-two specially prepared dyeings on cotton, wool, silk, and weighted silk, representing some 381 different coloring matters, were exposed to daylight in several different ways and to the light from a glass-enclosed carbon arc. Each sample was exposed for four different periods of time. In general, slight fading occurred in the first period, decided fading in the fourth, and intermediate amounts of fading in the other two. The methods of exposure and of studying the results, and the details of the results obtained are given. Miscellaneous observations on the peculiarities in behavior of individual dyeings are recorded.

Ref.	Pub.	Year	Author	Title
174	RP67	1929	Shaw, M.B. Bicking, G.W. Strieter, O.G.	Experimental production of roofing felts. B.S. Jour. Research, vol. 2, pp. 1001-1016; June 1929. 5 ¢.

An investigation is being conducted at the Bureau to determine the relative value of different fiber compositions in the life and serviceability of asphalt saturated and coated roofing felts. Experimental felts composed of varying proportions of the usual fibrous materials and with a high content of low-grade substitutes were made for the investigation. The waterleaf felts were made in the semicommercial paper mill of the Bureau, but were saturated and coated, and thus converted into roofing, in a commercial roofing mill. The results indicate that relatively large amounts of the substitutes can be introduced into roofing felts without causing great difficulty in the manufacturing processes. Research on the durability of the felts is being continued.

175	LC191	1929		List of materials testing laboratories. Revised July 22, 1929. 65 pp.
176	RP80	1929	Eichlin, A.S.	Fastness of dyed fabrics to drycleaning. B.S. Jour. Research, vol. 3, pp. 39-51; July 1929. 5 ¢.

Representative dyestuffs on wool, silk, cotton, rayon, and union fabrics were subjected to cleaning with moisture-free Stoddard solvent and with solvent containing 0.1% free moisture and 0.01% alkali. The apparatus used was a convenient substitute for a commercial drycleaning machine. The majority of dyes likely to be encountered are not affected but the basic dyes offer poor resistance to drycleaning. In order to minimize the danger of change in color during drycleaning it is advisable to keep the solvent as free as practicable from moisture and alkali.

177		1929	Waters, C.E.	Leather and textiles, United States Daily, vol. 4, p. 1541; August 29, 1929.
178	TNB148*	1929		Fire-hazard tests of jute. TNB, No. 148, pp. 79-80; August 1929.
179	CSM*	1929 1930	Hubbard, H.D.	Laundry operations. United States Daily, vol. 4, p. 1621; (9); September 7, 1929. CSM, vol. 6, pp. 210-212; January 1930.
180	CSM*	1929 1930	Hubbard, H.D.	Research on textiles. United States Daily, vol. 4, p. 1631; (9); September 9, 1929. Idem, vol. 5, p. 1088; (4) June 5, 1930. CSM, vol. 6, pp. 345-346; May 1930. Reprinted in Am. Dyestuff Reptr. vol. 18, pp. 662-663; September 30, 1929.

A review of the work of the Textile Section on aeronautical fabrics, thermal transmission measurements of blankets, and wear tests of carpets.

Ref.	Pub.	Year	Author	Title
181		1929	Hubbard, H.D.	Standardization of textiles. United States Daily vol. 4, p. 1641 (7); September 10, 1929.

182 CS11 1929 Re ain of mercerized c tton yarns. CS11-29. 10 pp. Issued September 10,1929. Effective date, July 1, 1929. 5 ¢.

This standard contains definitions and values f r moisture content and re ain. It also includes a report of the general conference.

183 1929 Appel, W.D. New rayon testing methods. Daily News Record, Section 3, p. 2; September 16, 1929.

The multiple-strand test for measuring the tensile strength of yarns, either wet or dry, is described. See ref. 187.

184 1929 Ha n, H.A.
Jessup, D.A. A c parison of methods for determination of moisture in textiles. Am. Dyestuff Reptr., vol. 18, pp. 637-639; September 30, 1929.

The moisture content of cotton, jute, Manila, and wool was determined by drying in an air oven; by drying in two types of conditioning ovens; by distilling with toluene; and by drying over sulfuric acid. The results obtained by drying in the air oven, by drying in the small laboratory conditi nin oven, and by drying over sulfuric acid were in good agreement. The toluene distillation method gave slightly higher results. The large conditioning oven gave variable results. However all of the methods appear to be suitable for routine purposes.

185 CS13 1929 Dress patterns. CS13-30. 12 pp. Issued October 10,1929. Effective date, January 1. 1930. 5 ¢.

This provides a standard of body measurements set up by the dress pattern industry as a voluntary basis for sizes. It contains classifications and correspondin body measurements for dress patterns, standard widths of material for pattern layouts, and a report of the general conference.

186 TNB150*1929 Standard method for the determination of wei htin on silk. TNB, No.150, pp. 99-100; October 1929. Textile World, vol. 76, p. 1454; September 14, 1929. Reprinted in Am. Dyestuff Reptr., vol. 18, p. 675; October 14,1929. Am. Silk J., vol. 48, No.10, p. 54; October 1929. Textile Colorist, vol. 51, p. 671; October 1929. Chemicals, vol. 32, p. 11; November 4, 1929. J. Franklin Inst., vol. 208, pp. 677-679; November 1929. J. Soc. Dyers and Colourists, vol. 45, pp. 365-366; December 1929.

Ref.	Pub.	Year	Author	Title

186 (Continued)
The method described was worked out with the cooperation of a number of commercial laboratories and was approved as a standard method by the Joint Technical Committee on Silk Weighting, but has been superseded by a more reliable method. See ref. 283.

187 1929 Appel, W.D. Rayon investigations at Bureau of Standards. Textile World, vol. 76, pp. 4372-4373; December 14, 1929.
This review includes a description with illustrations, of the multiple-strand test for measuring the tensile strength of yarns, and its adaptation to studies of the stress-strain relations of wet textiles. This is essentially the same material as was published in the Daily News Record (See ref. 183).

188 CSM* 1929 Dalzell, H.P. Industry evaluates cotton duck simplification. CSM.vol. 6, pp. 164-165; December 1929.

189 RP122 1929 Harm, H.A.
Stevens, F.E. A method of measuring the stress-strain relations of wet textiles with application to wet rayons. B.S.Jour.Research, vol. 3, pp. 927-936; December 1929. 10 ¢.
This paper describes an immersion tank developed as auxiliary equipment for a recording stress-strain tester. This tank is built around the lower jaw of the testing machine. It is equipped with suitable stirrer, heater, and heat-control apparatus. The textile, in this method, is fastened in the jaws of the testing machine, liquid is poured in the tank, and after a suitable immersion period the break is made. The results of a series of tests on rayons broken dry, broken dry after wetting in water at 20°C and at 100°C, and broken wet at various temperatures are given.

190 TNB152*1929 White stainless mineral-oil lubricant for textile knitting machines. TNB, No. 152, p. 120; December 1929.
A specification is given for a non-staining lubricant for knitting machines.

191 M94 1929 Scientific and technical positions in the National Bureau of Standards. 14 pp. 1929. Obtainable from Bureau of Standards on request.
The aim of this pamphlet is to answer queries received in the daily mail and give general information to prospective applicants who are interested in the scientific and technical work of the Bureau of Standards.

192 TNB153*1930 Heat insulating materials. TNB, No.153, p. 2; Janury 1930. See ref. 208.

Ref.	Pub.	Year	Author	Title
193	LC256a1930			Sources of supply of commodities covered by Federal Specifications. February 15, 1930. Supplement August 1, 1930. Obtainable from Bureau of Standards on request.
194	RP143	1930	Shaw, M.B. Bicking, G.W.	Rayon as a paper-making material. B.S. Jour. Research, vol. 4, pp. 203-211; February 1930. 5 ¢.

Laboratory tests were conducted to determine the paper-making value of rayon when treated the same as rags are in the production of fine papers. Owing to loss of strength when wet the rayon filaments tended to break into short lengths during the preparation of the paper-making stock without the fibrillation and fraying necessary for good felting properties. As a consequence the all-rayon paper lacked the strength to withstand the handling required in the pressing and drying operations, and the softness and pliability characteristic of rag papers. Sheets made of rayon in admixture with sulphite pulp were also considerably weaker than those made from sulphite alone. The test data indicate that rayon is valueless in the raw stock forhigh-grade papers and may actually be detrimental to their quality.

195	CS0	1930		The Commercial Standards service and its value to business. CS0-30. 34 pp. March 20,1930. 10 ¢.

This bulletin discusses the background and originaof Commercial Standards and their necessity, scope, purpose, and application. The Commercial Standards procedure and service are described. Some Commercial Standards and cases of benefit and savings in industry resulting from them are cited.

196	TNB155*	1930		Rayon as a paper-making material. TNB, No. 155, p. 25; March 1930. See ref. 188.
197		1930	McNicholas,H.J. Hedrick, A.F.	The structure and properties of parachute cloths. Natl. Advisory Comm. Aeronaut., Tech. Note No. 335, 33 pp. March 1930.

The requisite properties of a parachute fabric are discussed and methods for measuring these properties are described. Thirty-six silk fabrics of domestic manufacture, not previously used in parachute construction, are compared with some silk fabrics of foreign manufacture which have been proved by trial and extended use to be suitable materials for parachute construction. Contrary to the belief that domestic woven fabrics were not suitable for parachute construction, it is shown that many of the domestic fabrics are entirely satisfactory, and some are superior to the foreign products. Specifications for silk parachute fabrics are drawn. The suitability of the materials was demonstrated by service tests.

Ref.	Pub.	Year	Author	Title
198	R110	1930		Soft fiber (jute) twine. R110-29. 16 pp. Issued April 8, 1930. Effective date, November 1, 1929. 10 ¢.

This recommendation provides for a reduction from 1201 kinds and put-ups to 639. Schedules with reference to twine number approximate feet per pound, average tensile strength, and standard put-ups are given for fine finished twine; wrapping, sail, sewing, millers'; and baling twine; heavy finished (India) twine; heavy finished ixtle twine; tube rope; and paper makers' bale rope, pipe cord, and hide rope.

199 CS15 1930 Men's pajamas. CS15-29. 12 pp. Issued May 27, 1930. Effective date, January 30,1930. 5 ¢.

This provides standard minimum measurements for finished garments.

200 CSM* 1930 Waters, C.E. Testing typewriter ribbons. CSM, vol. 7. pp. 26-27; July 1930. United States Daily, vol. 5, No. 132, p. 1778 (4); August 6, 1930.

201 R112 1930 Elastic shoe goring. R112-29. 12 pp. Issued August 27, 1930. Effective date, November 1, 1929. 5 ¢.

This recommendation provides for a reduction in the number of widths from 13 to 9; of qualities from 116 to 5; and of varieties from 70 to 29.

202 RP196 1930 Mercier, A.A. Coefficient of friction of fabrics. B.S. Jour.Research, vol. 5, pp. 243-246; August 1930. 5 ¢.

This paper describes a simple method for specifying the slipperiness of fabrics, by measurement of the coefficient of friction between two pieces of the same material. A block covered with a sample of the fabric to be tested is placed on an inclined plane which is covered with another piece of the same fabric. The angle between the inclined plane and the horizontal is then increased to a value at which the block just begins to slide. Owing to a rearrangement of the fibers in the surfaces of the fabric this minimum angle decreases with successive slides. A number of slides are therefore made until a constant limiting angle is found. The tangent of this limiting angle is defined as the coefficient of friction for the fabric. Some applications of this measurement are mentioned, and illustrative results are given.

203 1930 Smith, W.C. A method for determination of copper, manganese, and iron in fabrics. Am. Dyestuff Reptr., vol. 19, pp. 583-585; September 15, 1930.

The methods described are applicable to the determination of these metals when present in textile fabrics in quantities approximately as follows: copper, 0.002%; manganese, 0.001%; and iron, 0.1%. After the organic material is destroyed, copper is determined by the potassium ethyl xanthate colorimetric method; manganese, by the potassium periodate colorimetric method of Willard, and Greathouse; and iron, by the sulphocyanate colorimetric method, aliquots from a single solution being used without separation of the metals.

Ref.	Pub.	Year	Author	Title
204	C383	1930	Smither, F.W.	Washing, cleaning, and polishing materials. 47 pp. September 10, 1930. 10 ¢.

This circular discusses briefly the use of water in laundering, pointing out the effects of impurities in water and means for their elimination. A brief description of the general composition of soap, soap-manufacturing processes, and the common varieties of soap products is followed by a short discussion of alkaline cleansers and miscellaneous detergent or laundry aids, such as bleaches, sours, bluing, and starch. Brief discussions are also included on dry-cleaning operations, solvents, dry-cleaning soaps, stain removal, finishing, reclamation of solvent, and elimination of static electricity in dry cleaning plants. Sections are devoted to furniture and automobile polishes, metal polish, floor wax and polish, polishing cloths, dust cloths, sweeping compounds, and wall-paper cleaner. A list of Government specifications for the products covered, numerous references, and suggested formulas for some items are also given. Recommended specifications are given in the appendix for two grades of laundry soap.

205 TNB161* 1930 Non-slip rugs. TNB, No. 161, p. 89; September 1930.

The slipperiness (coefficient of friction) is reported for two samples of rugs, one of which had been treated with a commercial preparation to make it resistant to slipping, and for a commercial rug underlay.

206 CSM* 1930 Hubbard, H.D. Standardization and improvement of textiles. CSM, vol. 7, pp. 81-82; September 1930.

207 CSM* 1930 Appel, W.D. Standardization of tests for fastness of colored textiles. CSM, vol. 7, pp. 86-87; September 1930.

208 RP243 1930 Finck, J.L. Mechanism of heat flow in fibrous materials. B.S.Jour. Research, vol. 5, pp. 973-984; November 1930. 5 ¢.

A systematic investigation of the thermal conductivities of specimens composed of fibrous materials has been made. The experiments were designed to show the effects of such factors as density of packing, arrangement of fibers, kind and size of fibers, moisture content, air convection, and radiation on the resultant conductivity of the specimens. Data on various mixtures of fibers were obtained, and it was found that in most cases the conductivity of the mixture lies between those of the constituents, taking the conductivity of each constituent which corresponds to a density equal to the density of the mixture.

For a given fibrous material and a given density, the conductivity may vary by several hundred percent, depending entirely on the arrangement of the fibers. The maximum conductivity is obtained when the fibers are parallel to and the minimum conductivity when the fibers are perpendicular to the direction of heat flow. There is included a discussion of the part which contact resistance between the fibers may play in the over-all heat transfer. At very low densities it was found that radiation plays an important part in the heat transfer; air convection plays a very minor part.

Ref.	Pub.	Year	Author	Title
209	R115	1930		Full disk buffing wheels. R115-30. 12 pp. Issued December 5, 1930. Effective date, January 2, 1930. 5 ¢.

This recommendation provides for a reduction in the number of stock diameters from 17 to 11, and of plies from 2 to 1.

210	TNB164*1930			Portable instrument for measuring air permeability of fabrics. TNB, No. 164, pp. 119-120; December 1930. See ref. 216.
211		1930	Exley, W.E.	Aeronautical textiles. Proc. Am. Soc. Testing Materials, vol. 30, Part 2, pp. 58-60; 1930.

Textiles are used in the aeronautical industry for the coverings of balloons and the wings of airplanes, and for the gas cells in the balloons and for parachutes. The properties of the fabrics required for these purposes are described.

212		1930	Schiefer, H.F.	Discussion of thepaper "Thermal Transmission of Fabrics" by Ephraim Freedman. Proc. Am. Soc. Testing Materials, vol. 30, part 2, pp. 1035-1036; 1930.
213	R116	1931		Dental brush wheels. R116-30. 12 pp. Issued January 7, 1931. Effective date, February 1, 1931. 10 ¢.

This recommendation provides simplified schedules of stock varieties of dental brush wheels having straight, converging, cup-shape, and straight bristles.

214		1931	Appel, W.D.	The critical chemist and colorist. Am. Dyestuff Reptr., vol. 20, pp. 52-55; January 19, 1931. Am. Wool & Cotton Reptr., vol. 45, No. 6, pp. 27-28,31; February 5, 1931. Melliand, vol. 3, pp. 37-39; April 1931.

The need for a critical attitude and for quantitative methods in the textile industry is stressed. Analytical methods, waterproofness test, color measurements, and the measurement of tactile properties are cited as subjects requiring such an attack.

215	LC124 Rev.	1931		Recommended specification for powdered ammonia. 4 pp. January 20. 1931. Obtainable from Bureau of Standards on request.

Ref.	Pub.	Year	Author	Title
216	RP261	1931	Schiefer, H.F. Best, A.S.	A portable instrument for measuring air permeability of fabrics. B.S.Jour. Research, vol. 6, pp. 51-58; January 1931. 10 ¢.

A self-contained instrument for measuring the flow of air through fabrics is described. The specimen to be tested is clamped between two orifice rings under a slight tension. Air is drawn through the fabric and through a calibrated orifice meter by a suction fan. The pressure drop across the fabric and across the orifice meter are measured, respectively, by inclined and vertical water gauges. The volume of air passing through the fabric at a given pressure drop is thus obtained. With a set of nine orifices ranging in diameter from 1 to 16 mm. the flow of air may be measured for a wide variety of fabrics, ranging from closely woven to loosely knit constructions. Three typical air permeability curves are shown. Typical data for two specimens taken from different portions of the same silk cloth are given and discussed. It is shown that the variation in air permeability because of the non-uniformities in the cloth is greater than the experimental uncertainty.

217 TNB165*1931 — Adsorption of organic solvents by textile materials. TNB, No. 165, p. 4; January 1931. See ref. 318.

218 TNB165*1931 — Tests for "tarnish-proofed" and "shower-proofed" fabrics. TNB, No. 165, p. 4; January 1931.

The relative resistance to tarnish of treated and untreated fabric was shown by comparing their discolorations when exposed to an atmosphere of hydrogen sulfide.

The resistance-to-water test was devised for laces, but is applicable to other fabrics. One-inch squares of the fabrics to be compared were placed simultaneously on the surface of distilled water at room temperature and the time of sinking was noted.

219 TNB166*1931 — Apparatus for measuring thermal transmission of textiles. TNB, No. 166, p. 15; February 1931.

A preliminary report of a new apparatus similar in principle to the one described in T269, ref. 74, but having several advantages over the older method.

220 1931 McNicholas, H.J.
Curtis, H.J. — A study of Young's eriometer and its application in the grading of wool. TRI Bull., vol. 1, No. 1, pp. 5-6; February 1931. Melliand, vol. 2, pp. 1555-1556; March 1931. See ref. 228.

A preliminary report.

221 1931 Mease, R.T.
Appel, W.D. — Silk in the molecular still. Am. Dyestuff Reptr., vol. 20, pp. 155-156; March 2, 1931.

Ref. Pub. Year Author Title

An attempt was made to distill silk fibroin in an evacuated system. The silk was maintained at an elevated temperature while at a distance of about two millimeters from it was a surface in contact with liquid air for the condensation of any vapors. No distillate was obtained in 90 hours. The very low vapor pressure of silk fibroin is indicated.

222 1931 (Schenke, E.M.) (Shearer, H.E.) Specifications for stainless lubricating oil. Natl. Assocn. Hosiery and Underwear Mfrs. Special News Letter, vol. 10, pp. 3, 5; March 4, 1931.

The history of the development and the details of the specification for a non-staining lubricant for knitting machines are given.

223 TNB167*1931 Eriometer for grading wool. TNB, No. 167, p. 29; March 1931. See ref. 228.

224 TNB167*1931 Alpha cellulose content and copper number of paper. TNB, No. 167, p. 30; March 1931. See ref. 227.

225 TNB167*1931 Laundry "Winter damage". TNB, No.167, p. 31; March 1931. See ref. 226.

226 RP294 1931 Wilkie, J.B. Laundry "Winter damage". B.S.Jour. Research, vol. 6, pp. 593-602; April 1931. 10 ¢.

When laundered cotton fabrics are dried outdoors during the winter in New England, they frequently undergo excessive deterioration of a type called "winter damage". This paper is concerned with an investigation of the causes of "winter damage" and with its prevention. Analyses of damaged fabrics and experimental work in the laundries and in the laboratory showed that the damage is caused by sulphuric acid which is formed in the damp fabric by the oxidation of atmospheric sulphur dioxide. The oxidation is accelerated and the damage is increased by small amounts of certain substances which may occur in laundered fabrics. Traces of iron, of spent bleach liquor, and of acetic acid were found to have this effect.

A small amount of calcium bicarbonate in the final rinse water of the wash materially reduced the damage, and is recommended as a satisfactory remedy. Precautions should be taken to eliminate iron and spent bleach liquor from the laundered fabrics, and the drying time should be made as short as possible. Antioxidants showed promise of giving protection.

Ref.	Pub.	Year	Author	Title
227	RP295	1931	Burton, J.O. Rasch, R.H.	The determination of the alpha-cellulose content and copper number of paper. B.S. Jour. Research, vol. 6, pp. 603-619; April 1931. 10¢.

The methods given are probably applicable to textiles.

228 RP300 1931 McNicholas, H.J.
Curtis, H.J. Measurement of fiber diameters by the diffraction method. B. S. Jour. Research, vol. 6, pp. 717-734; April 1931. 10 ¢.

The classification of wool fibers into standard grades is based entirely on the average diameter of the fibers. The diffraction of light by a bundle of parallel fibers was employed by Thomas Young in 1824 in a simple ingenious instrument for the rapid direct measurement of average diameter, but no thorough investigation has ever been made of the practical possibilities of this method in the routine grading of wool.

In the present paper a new construction of Young's instrument (the eriometer) is described, and a critical study is made of the accuracy and adaptability of the instrument in the average of a wide range of diameters as distributed in a group of fibers. Sources of error and limitations of the method are discussed.

It is found that the eriometer average is in excellent agreement with comparable data obtained with the microscope. The method affords considerable opportunity for the further development of instruments to include additional features desirable in the study of wool or other textile fibers.

229 CS14 1931 Boys' blouses, button-on waists, shirts, and junior shirts. CS14-31. 16 pp. Issued May 4, 1931. Effective date, June 1, 1931. 5 ¢.

Standard minimum measurements for the finished garments are given.

230 R119 1931 Fast-selvage terry towels (Turkish towels). R119-31. 12 pp. Issued May 13, 1931. Effective date, March 1, 1931. 5 ¢.

This recommendation provides for the reduction in the number of sizes from 74 to 6.

231 1931 Cady, W.H.
Smith, W.C.
Appel, W.D. Classification of the fastness of dyed textiles in the standard sunlight exposure test. Am. Dyestuff Reptr., vol. 20, pp. 359-380; June 8, 1931.

The relative fastness to light of 1196 cotton, wool, silk, and weighted silk dyeings, representing 366 dyestuffs was determined by exposing them to sunlight in the standard "sun test" of the American Association of Textile Chemists and Colorists. Tables showing the classification of the dyeings into seven fastness classes and an exposition of the method of classification are given. The paper should be of special interest to producers and users of dyestuffs.

Ref.	Pub.	Year	Author	Title
232	CS32	1931		Cotton cloth for rubber and pyroxylin coating. CS32-31. 14 pp. Effective date, June 15, 1931. 5 ¢.

This standard provides for the construction, quality, sizing, methods of test, and labelling of cotton cloth for rubber and pyroxylin coating.

233 RP315 1931 Schiefer, H.F. Best, A.S. Carpet wear testing machine. B. S. Jour. Research, vol. 6, pp. 927-936; June 1931. 10 ¢.

A machine for testing the resistance to wear of carpets and similar floor coverings when they are subjected to definite wearing forces under controlled conditions has been developed. The forces are chosen to produce the bending, slipping, twisting, and compression of the pile which takes place when a carpet is walked upon.

A circular sample of the carpet to be tested is tacked on a turn-table which is brought to bear against two leather-covered wheels. One of the wheels is driven by a motor and in turn drives the turntable. The other wheel is used as a brake to produce slipping of both wheels on the carpet as it rotates. A vacuum cleaner removes the material which is worn off. The wear on the carpet is produced by a downward force, a horizontal stress, and a slight twisting motion. They have definite values and may be varied. The rate of wear is evaluated by measuring the change in thickness of the pile of the carpet with a sensitive thickness gage as the testproceeds.

The machine can be used to test the relative durability of carpets under definitely specified conditions. The machine should be useful for studies of the effect of various factors on carpet wear and for studies of the relation between the composition and construction of carpets and their resistance to wear.

234 TNB170*1931 Carpet wear testing machine. TNB, No.170, p. 61; June 1931. See ref. 233.

235 TNB170*1931 Fastness to light of dyed textiles. TNB, No. 170, p. 61; June 1931. See ref. 231.

236 TNB170*1931 Thickness gage for fabrics. TNB, No. 170, p. 62; June 1931.

237 CSM* 1931 Emley, W. E. United States Institute for Textile Research. CSM, vol. 7, p. 376; June 1931.

Ref.	Pub.	Year	Author	Title
238	CS28	1931		Cotton fabric tents, tarpaulins, and covers. CS28-32. 16 pp. Issued July 15, 1931. Effective date, January 1, 1932. 10 ¢.

This standard provides a basis and method for marking cotton fabric tents, tarpaulins, and covers, either waterproof-treated or untreated. An appendix giving nomenclature and definitions is included.

239	R121	1931		Block sizes for calcimine brushes. (Dutch, semidutch, and baby-dutch). R121-31. 12 pp. Issued July 16, 1931. Effective date, March 2, 1931. 5 ¢.

This recommendation provides for a reduction from 47 to 10 widths, from 34 thicknesses to 8, and from 70 combinations of dimensions to a maximum of 16.

240	CSM*	1931	Emley, W.E.	Consumers' specifications for textiles. CSM, vol. 8, p. 52; August 1931.

This paper points out the advantages and desirability of using consumers' specifications; i.e. requirements based on the serviceability and durability required of a material, rather than details of construction.

241	CSM*	1931	Whittemore, H.L.	Testing the strength of Manila rope. CSM, vol. 8, p. 57; August 1931.
242	TNB172*	1931		Cotton parachutes. TNB, No. 172, p. 85; August 1931.
243		1931	Appel, W.D. Worner, R.K.	An investigation of cotton for parachute cloth. Natl. Advisory Comm. Aeronaut. Tech. Note, No. 393, 21 pp. September 1931.

A résumé is given of the work of the Bureau of Standards on cotton parachute cloth for use as a substitute for silk in the event of an emergency curtailing the supply. Cotton yarn of high strength in proportion to its weight and otherwise specially suitable for parachute cloth was developed. Cloth woven from this yarn in the Bureau mill was equal or superior to parachute silk in strength and tear resistance, met the requirements with respect to air permeability and weighed only a few tenths of an ounce per square yard more than the silk cloth. Practical trials of cotton parachutes carried out by the Navy Department clearly indicate that the cotton parachute closely approaches the silk parachute in performance as to rate of descent, opening time, strength, and ability to function when stored in the pack for sixty days. The increase in weight of the equipment resulting from the use of cotton cloth instead of silk is considered to be well within practical limits. A specification for cotton parachute cloth and the way in which the requirements have been met are given. Cotton yarns suitable for parachute cloth are now being spun commercially in the United States.

Ref.	Pub.	Year	Author	Title
244	TNB173*	1931		Effect of pH on the photochemical decomposition of silk. TNB,No.173,p.98; September 1931. See ref.252.
245	TNB173*	1931		Glass globes for lamp in testing color fastness. TNB,No.173, p. 98; September 1931.
246		1931	Carson, F.T.	Control of relative humidity in a small inclosed space. Paper Trade J., vol. 93, pp. 71-74; October 29,1931.
247	RP361	1931	Hamm,H.A. Cleveland,R.S.	Relation between the twist and certain properties of rayon yarns. B. S. Jour. Research, vol. 7, pp. 617-620; October 1931. 5 ¢.

The results of a systematic experimental study of the relation between twist and certain physical properties of rayon yarns are given. In general, the breaking strength determined by the multiple-strand method is not materially affected by an increase in twist up to about 20 turns per inch, but it decreases rapidly with an increase in twist beyond 20 turns. The proportional limit decreases with an increase in the amount of twist. The stretch at break decreases somewhat with increase in twist. The denier increases with increase in twist. The contraction resulting from twisting rayon yarn is greater for lower tensions and for higher deniers.

248		1931	Gilbert,L.R.	Standards in the textile industry. Southern Textile Bull., vol. 41, No. 12. p. 5; November 19,1931.
249		1931	Cady, W.H. Smith, W.C.	Report of Subcommittee on Light Fastness: V. Fade-Ometer tests with a Corex-D globe. Am. Dyestuff Reptr., vol. 20, pp. 754-756; November 23,1931.

Duplicate sets of samples from 40 selected dyeings were exposed in the Fade-Ometer with a plain glass globe for one set and globe of Corex-D glass for the other set. Comparisons of the faded samples indicate that the use of a Corex-D globe instead of a plain glass globe will not materially affect the results of fastness tests.

250	TNB175*	1931		Carpet wear-resistance machine.TNB,No. 175, p. 125; November 1931.

Ref.	Pub.	Year	Author	Title
251		1931	Appel, W.D.	Problems of textile specification. Am. Dyestuff Reptr., vol. 20, pp. 788-791; December 7, 1931.

A talk before the New York Section of the American Association of Textile Chemists and Colorists. The difference between "material" or "manufacturer's" specifications and "performance" or "consumer" specifications is discussed. Equipment developed at the Bureau for testing the properties of textiles of interest to the consumer are described briefly to show that many of the test methods needed for performance specifications are available.

252 RP395 1931 Harris, M
Jessup, D.A.
The effect of pH on the photochemical decomposition of silk. B.S.Jour. Research, vol. 7, pp. 1179-1184; December 1931. 5 ¢. Also in Am. Dyestuff Reptr., vol. 20, pp. 795-798; December 7, 1931. Reprinted in Textile Colorist, vol. 54, pp. 239-240, 272; April 1932.

The extent to which silk is weakened by light depends upon its "pH" (as defined by its extract), other factors remaining constant. The maximum stability is found at about pH 10. Above pH 11 and below pH 3 the stability decreases rapidly. In the neutral region pH 6 to pH 8, silk is less resistant to light than when it is more acid or alkaline. Silk treated with tenth -normal sodium hydroxide solution is more stable to the action of light than either the untreated silk or silk treated with tenth normal sulphuric-acid solution. The acid-treated silk is least stable. These facts have an important bearing on practical silk finishing as well as on the nature of the action of light on silk.

253 1931 Emley, W.E.
Measurement of thickness of textiles and similar materials. Proc. Am. Soc. Testing Materials, vol. 31, Part 1, pp. 608-611; 1931.

Attention is called to some of the difficulties experienced with present methods of measuring the thickness of compressible materials. Suggestions are given for setting up certain empirical conditions for general acceptance.

254 1931 Johnson, A.E.
Government publications relating to textiles. 35d. 3rd. 101 pp. 1931.

This list includes the publications of the Bureau relating to textiles. Copies are obtainable from the Bureau of Foreign and Domestic Commerce upon request.

Ref.	Pub.	Year	Author	Title
255	TNB177*	1932		Drycleaning solvents. TNB, No.177, pp. 1-4; January 1932.

This is a summary of progress in the investigation of the properties of the drycleaning solvents, carbon tetrachloride, Stoddard solvent, and trichloroethylene, which was carried out in cooperation with the National Association of Dyers and Cleaners. The effect of solvents on the fabrics, the stability of the solvents, their detergent efficiency and their toxicity were considered. See ref. 264.

256 CS33 1932 Knit underwear (Exclusive of rayon) CS33-32 4p pp. Issued February 27,1932. Effective date, January 1, 1932. 15 ¢.

This standard provides standard methods of measurement and standard measurements for knit underwear (exclusive of rayon). It includes recommendations for standard box sizes, standard cone colors, and washing procedures.-

257 M134 1932 Boutell, H.G. Visitors' Manual of the Bureau of Standards. 14 pp. February 27, 1932. Obtainable from Bureau of Standards on request.

A brief account of the history, functions, and laboratories of the Bureau is given.

258 1932 A report of the spectral reflection of eleven samples of dyed cloth. (Rpt. prepared by Colorimetry Section, Bureau of Standards). Am. Dyestuff Reptr., vol. 21, pp. 163-166; February 29, 1932.

This report provides a permanent quantitative record of the spectral reflectance of the dyeings prepared by the American Association of Textile Chemists and Colorists representing four standards of fastness to washing of dyed silk. The spectral reflectance of the dyeings after washing according to the standard methods of the association is given.

259 R124 1932 Polished cotton twine. R124-31. 16 pp. Issued March 5, 1932. Effective date November 1, 1931. 10 ¢.

This recommendation presents a simplified schedule for plain and surface colored polished cotton twine. It shows twine and yarn size numbers; approximate length after polishing; weights of put-ups for balls, tubes, reels and skeins; packaging; and colors of polished twine. It also gives dimensions and weights of reels for various net weights of twines covered by this schedule. It is estimated to effect an approximately 75% reduction in varieties.

260 CSM* 1932 Erley, W.E. Thickness of textiles and similar materials. CSM, vol. 8, pp. 265-267; March 1932.

To eliminate the unnecessary varieties of thickness gages, it is proposed to define thickness of textiles and similar materials as the distance between the presser foot and the anvil when they are in contact

Ref.	Pub.	Year	Author	Title

with the object and under a pressure of 1 pound per square inch, sufficient time being allowed for the foot to come to rest.

261 TNB179*1932 — Paper from raw cotton. TNB, No. 179, pp. 27-28; March 1932.

262 LC277a1932 — Sources of supply of commodities covered by Commercial Standards. April 1, 1932. Obtainable from the Bureau of Standards on request.

263 1932 Appel, W.D. — Electrophoresis and pH: What they mean to the mill man. Am. Wool and Cotton Peptr., vol. 46, No. 20, pp. 11-12; May 19, 1932. TRI Bull., vol. 2, No. 6, pp. 1-3; June 1932.

A talk presented at a luncheon in honor of the Hon. Francis P. Garvan, newly elected President of the U. S. Institute for Textile Research, at Hotel Biltmore, New York City, May 4, 1932.

The work of the Bureau on the determination of the isoelectric point of wool and on the effect of light on silk is briefly described with emphasis on the practical significance of these academic studies.

264 1932 Hughes, E.E. Appel, W.D. — The effect of drycleaning solvents upon fabrics. Drycleaner, vol. 9, No.5-6, pp. 6-8, 24; May-June 1932.

The effect upon the strength of wool, silk, weighted silk, cotton, viscose, rayon, and cellulose acetate rayon cloths of repeated treatment with carbon tetrachloride, trichloroethylene, and Stoddard solvent was studied. In order to obtain results similar to those which might be expected from repeated commercial drycleaning, the fabrics were conditioned before and after treatment with the solvents and were exposed to diffused daylight and air for at least five days between treatments. The effect of the solvents as opposed to that of other conditions in the cycle of treatments such as drying and light exposure was determined. No consistent difference in the effect of the various solvents on the strength of the fabrics was observed. The effect of the solvents upon plaits in fabrics and upon the color of dyed fabrics also received attention.

265 CS38 1932 — Hospital rubber sheeting. CS38-32. 16 pp. Issued June 23, 1932. Effective date, June 1, 1932. 5 ¢.

This commercial standard covers chemical and physical requirements of hospital rubber sheeting made from a cotton fabric coated on one or both sides with a rubber compound.

266 TNB182*1932 — The isoelectric point of wool. TNB, No. 182, p. 56; June 1932.

Ref.	Pub.	Year	Author	Title
267	RP451	1932	Harris, M.	The isoelectric point of wool. B.S.Jour. Research, vol. 8, pp. 779-786; June 1932. 5 ¢. Also in Am. Dyestuff Reptr., vol. 21, pp. 399-403; June 20,1932. Reprinted in Dyer, vol. 69, pp. 301-302; March 17,1933.

Suspensions of solvent-extracted Idaho and Australian raw wool and of scoured worsted cloth in buffer solutions of different pH were prepared by grinding the dry wool to a fine powder and shaking the powder in the buffer solution. Electrophoretic measurements of these suspensions gave an isoelectric point for each wool at pH 3.4. The samples were slightly different in nitrogen content. If this is indicative of a difference in structure of the wool, the results indicate that the isoelectric point is very slightly or not at all affected by small differences in constitution. The theory and application of electrophoresis measurements to suspensions of wool are discussed.

268	LC338	1932		Detergents and certain detergent aids. 6 pp. August 1,1932. Obtainable from Bureau of Standards on request.
269		1932	Worner, R.K.	(Activities of the Textile Section, Bureau of Standards.) United States Daily, vol. 7, pp. 1050 (8); 1058 (8); 1066 (8); 1090(8); 1098 (8);1106 (8); 1114 (8); August 4, 5, 6, 10, 11, 12, 13, 1932.

This review of the work of the Textile Section appeared under the following titles: Development of fabrics for specific causes, p. 8, August 4; Utility and durability tests for textiles, p. 8, August 5; Testing warmth quality of textiles, August 6; Theoretic and practical textile research, p. 8, August 10; Technological studies of textiles, p. 8, August 11; Cooperation in research with textile industry, p.8, August 12; and Aid in standardization of textile products, p. 8; August 13. This material was rearranged and published in CSM. See ref. 279.

270		1932		Supplementary list of publications of the Bureau of Standards (July 1,1925 to August 5, 1932, 214 pp. 15 ¢.

In addition to bringing the list of publications up to date, this pamphlet gives information on depository libraries and status of publications. It contains a subject index to the new publications listed in the pamphlet. See ref. 99.

271	CSM*	1932	Ely, E.W.	Application to textiles of Simplified Practice. United States Daily, vol. 7, p. 1074 (8); August 8, 1932. CSM, vol. 9, pp. 153-154; January 1933.
272		1932	Ely, E.W.	Standardizing types of cotton products. United States Daily, vol. 7, p. 1082 (8); August 9, 1932.

Examples of applications of Simplified Practice in the cotton industry are cited.

Ref.	Pub.	Year	Author	Title
273	CSM*	1932	Gilbert, L.R.	Observations on the standardization of textiles. CSM; vol. 9, pp. 31-32; August 1932.

274 1932 Federal Standard Stock Catalogue, Section II (Part 6) Class 27. Drygoods; Textiles etc. 57 pp. August 1932. 15 ¢.

Sections B, C, D, and E were prepared by the Textile Section of the Bureau of Standards. They give a basis for classifying cloths according to their characteristics and apply it in defining the cloths referred to in the Catalogue.

275 CS39 1932 Wool and part-wool blankets. CS39-32. 10 pp. Issued October 6, 1932. Effective date, December 31, 1932. 5 ¢.

This commercial standard provides standard methods for labelling wool and part-wool blankets with regard to wool content.

276 R133 1932 Surgical dressings. R133-32. 24 pp. Issued October 22, 1932. Effective date, May 1, 1932. 5 ¢.

This recommendation covers nomenclature, sizes, materials, and methods of preparation of sponges, abdominal packs, sterile gauze dressings, and pads.

277 TNB186*1932 Isoelectric point of silk. TNB, No.186, p. 96; October 1932. See ref. 278.

278 RP490 1932 Harris, M. The isoelectric point of silk. B.S.Jour. Research, vol. 9, pp. 557-560; October 1932. 5 ¢. Also in Am. Dyestuff Reptr., vol. 21, pp. 604-605; October 10,1932. Reprinted in Textile Colorist, vol.55, pp. 47-48; January 1933.

Suspensions of silk in buffer solutions of different pH were prepared by grinding the dry silk fibroin to a fine powder and shaking it in the buffer solution. Colloidal solutions of silk were prepared by dissolving the silk fibroin in a 50% lithium bromide solution and dialyzing it to remove the salt. To the solutions were added known buffer mixtures and a small amount of purified quartz powder. Electrophoretic measurements of the suspensions of silk and of the dissolved silk adsorbed on the quartz particles gave an isoelectric point at pH 2.5.

279 CSM* 1932 Worner, R.K. Utility and durability tests for textiles, CSM, vol. 9, pp. 85-86; October; Bringing the consumer and producer closer together, pp. 105-106, November; Textile research pp. 127-129; December 1932.

This is essentially the same material as was published in the United States Daily. See ref. 269.

Ref.	Pub.	Year	Author	Title
280	CSM*	1932	McBurney, J.W.	Studying the properties of floor coverings. CSM, vol. 9, pp. 113-114; November 1932.

A review of the Bureau's researches on floor coverings, in which carpet, rubber tile, and asphalt tile are considered.

281		1932	Emley, W.E.	United States Institute for Textile Research. J. Chem. Education, vol. 9, pp. 1882-1886; November 1932.
282		1932	Emley, W.E.	The Textile Foundation, Incorporated. J. Chem. Education, vol. 9, pp. 1886-1889; November 1932.
283	RP496	1932	Mease, R.T.	Analysis of weighted silk. B. S. Jour. Research, vol. 9, pp. 669-677; November 1932. 5 ¢. Also in Textile Research, vol. 3, pp. 194-206; February 1933. Reprinted in Textile Colorist, vol. 55, pp. 121-124, 127; February 1933.

A generally applicable, rapid, and convenient method for the determination of the amount of pure silk fiber in silk textiles is described. Weighting and finishing materials are removed by repeated extractions with hot water, 2% sodium carbonate solution, and a solution containing 2% hydrochloric and 2% hydrofluoric acids. Results of analyses of samples of known composition are presented which indicate that the results are correct to within 1% of the weight of the dried finished material. Results obtained by inexperienced analysts working in different laboratories have been in good agreement when samples of the same silk were analyzed. Qualitative methods for the identification of the following weighting materials are given: aluminum, lead, phosphate, silica, tin, and zinc.

284	TNB187*	1932		Analysis of weighted silk. TNB, No. 187, p. 104; November 1932. See ref. 283.
285	TNB187*	1932		Corrosion of knitting needles. TNB, No. 187, pp. 104-105; November 1932.

Tests of corroded knitting needles showed the trouble to be due largely to "contact corrosion" between the needles and the thread which is kept wet with an oil emulsion. The difficulty may be remedied by modifying the oil emulsion whereby no corrosive action on the steel occurs, or by the use of a more resistant metal needle.

286	R136	1932		Flax and hemp twine. R136-32. 13 pp. Issued December 6, 1932. Effective date, June 15, 1932. 5 ¢.

This recommendation covers the minimum length per pound and the minimum breaking strength for fine finished hemp twine; for fine unfinished flax twine (sail and baling); and for unfinished hemp twine (sail and baling). It also shows the weights of put-ups for these twines.

Ref.	Pub.	Year	Author	Title
287	EC247 Rev.	1932		Detergents (Soaps, Polishes, etc.) 4 pp. December 14, 1932. Obtainable from Bureau of Standards on request.
288		1932	Emley, W.E.	Work of Bureau of Standards (on textiles). Textile Research, vol. 3, pp. 110-113; December 1932.
289		1932	Emley, W.E.	Work of U.S. Institute for Textile Research. Textile Research, vol. 3, pp. 113-114; December 1932.
290		1932	Worner, R.K.	Cotton fiber research. Textile Research: A Survey of Progress, pp. 98-110. Published by the Technology Press, Mass. Inst. Technology, Cambridge, Mass. 1932.

Researches relating to the cotton fiber published in 1931 and a few published in 1930 are reviewed.

291		1932	Gilbert, L.R.	Consumer specifications for textile products. Textile Research: A Survey of Progress, pp. 246-254. See ref. 290.

This paper is a survey of progress in textile standardization. The work in developing standards for textiles of the Trade Standards and Simplified Practice Divisions of the Bureau, the American Society for Testing Materials, and the American Standards Association is briefly described.

292	M130	1932		National Directory of Commodity Specifications. Classified and Alphabetical Lists and Brief Descriptions of Specifications of National Recognition. (Supersedes M65) 548 pp. 1932. $1.75.

This volume provides a classified list and brief descriptions of the standards and specifications formulated by the national technical societies, the trade associations having national recognition, or other organizations which speak for industry or with the authority of the Federal government.

293	CS43	1933		Grading of sulphonated (sulphated) oils, saponifiable types. CS43-32. 10 pp. Issued January 26, 1933. Effective date, September 1, 1932. 5 ¢.

This commercial standard covers the method of grading sulphonated oils, saponifiable types, which split off their organically combined SO_3 upon boiling with mineral acids and includes definition, nomenclature, and methods of analysis.

Ref.	Pub.	Year	Author	Title
294	LC358	1933		Color charts. 3 pp. February 9, 1933. Obtainable from Bureau of Standards on request.

This letter circular lists charts showing samples of colors for certain specific purposes, issued or used by some branch of the U.S.Government.

295 1933 Smith, W.C. An accelerated aging test for waterproofed ducks and similar fabrics. Am. Dyestuff Reptr., vol. 22, pp. 114-118; February 13, 1933.

The value of waterproofed duck or similar fabric depends upon its continued proofness during use. This paper describes a method for testing and rating the waterproofness of such cloth and an accelerated aging treatment designed to produce changes in the waterproofness of the cloth similar to what may occur when it is used. A comparison is given of the waterproofness of fifteen representative fabrics after the laboratory aging treatment and after exposure out-of-doors. The results indicate that the test will be useful for the evaluation of waterproofed ducks and similar fabrics.

296 1933 Hughes,E.E. Determination of soap and fatty acid in drycleaning solutions. Natl. Cleaner and Dyer, vol. 24, No. 2, pp. 39-40; February 1933.

A simple titration method was found satisfactory for determining quantitatively the amount of soap and fatty acid present in drycleaning solutions. The method is particularly applicable to plant control of these constitutents in solvents.

297 1933 Wilkie, J.B. Mercerization of cotton for strength with special reference to aircraft cloth. Natl. Advisory Comm. Aeronaut. Tech. Note.No.450. 22 pp. February 1933. Also in Textile Research, vol. 3, pp. 346-363; May 1933. Am. Dyestuff Reptr., vol. 22, pp. 217-225; March 27, 1933. Reprinted in Dyer, vol. 69, pp. 453-457, 503,502; April 28, and May 12, 1933.

The mercerization of cotton yarn was studied at the request of the National Advisory Committee for Aeronautics. The object was to determine the conditions for the production of yarn having the maximum strength for a given weight. The removal of all the extraneous materials from the yarn by means of a thorough pretreatment was found to increase its strength materially. A further increase resulted when pretreated yarn having low twist, obtained with twist multipliers from 2.2 to 3.0, was mercerized. The maximum increase was obtained when sufficient tension was applied to the yarn in the caustic bath to prevent it from contracting more than 2 or 3%, mercerizing at a temperature of 0 C or lower, with a caustic soda solution having a concentration of 10% or higher for 5 minutes.

Ref. Pub. Year Author Title

The results clearly indicate that the twist in the yarn must be low if the maximum increase in strength is to be obtained. The strength of such yarns can be increased from 40% to 100% over that of the original yarn of the same weight.

298 R140 1933 Commercial laundry flatwork ironers. R140-32. 11 pp. Issued March 17, 1933. Effective date, October 1, 1932. 5 ¢.

This recommendation covers method of heating, drive, lengths, and diameters for the single roll, chest type ironer; and the number, diameter, and length of padded rolls, and type of drive for the following ironers: Multiroll chest type, without apron; multiroll chest type, single, return apron; multiroll chest type, double, return apron; single-cylinder type, single, return apron; and double-cylinder type.

299 R143 1933 Paper cones and tubes (for textile winding). R143-33. 12 pp. Issued March 29, 1933. Effective date, January 1, 1933. 5 ¢.

This recommendation provides for a simplification of sizes of paper cones and tubes.

300 CSM* 1933 Emley, W.E. A new kind of textile specification. CSM, vol. 9, pp. 195-197; March 1933.

301 TNB191*1933 Combination of silk and wool with positive and negative ions. TNB, No. 191, pp. 33-34; March 1933. See ref. 307.

302 TNB191*1933 Accelerated aging test for waterproofed duck and similar fabrics. TNB, No. 191, p. 34; March 1933. See ref. 295.

303 TNB191*1933 Color of Manila rope. TNB, No. 191, p. 34; March 1933.

304 R139 1933 Commercial laundry extractors. R139-32. 8 pp. Issued April 7, 1933. Effective date, October 1, 1932. 5 ¢.

This recommendation provides for limiting the types of extractors to the under-driven type, either open-top or solid-curb construction, and the number of diameters to 8.

Ref.	Pub.	Year	Author	Title
305	R142	1933		Commercial laundry washers. R142-32. 14 pp. Issued April 7, 1933. Effective date October 1, 1932. 5 ¢.

This recommendation provides a simplified schedule of construction for metal washers, including those used for silk, blankets, and semi-special materials; and for wood washers, including those used for blankets. The details of construction given are size, number of compartments, number of vertical partitions, number of horizontal partitions, number of cylinder doors, and type of drive.

306 R141 1933 Commercial laundry tumblers. R141-32. 12 pp. Issued April 8, 1933. Effective date, October 1, 1932. 5 ¢.

This recommendation provides for a simplification in sizes and constructions of the once-through type of reversing and nonreversing tumblers; of the reversing tumblers; and semispecial recirculating tumblers, with respect to diameter, length, method of heating, number of cylinder doors, number of vertical partitions, number of compartments, and type of drives.

307 RP543 1933 Harris, M. The combination of silk and wool with positive and negative ions. B.S.Jour. Research, vol. 10, pp. 475-478; April 1933. 5 ¢. Also in Am. Dyestuff Reptr., vol. 22, pp. 273-274, 284; April 24, 1933.

Wool, with an isoelectric point at pH 3.4, combines with negative ferrocyanide ion in solutions ranging in pH up to about 5.0 and with positive nickel ion in solutions ranging in pH down to about 2.0. Similarly silk, with an isoelectric point of pH 2.5, combines with ferrocyanide ion up to about pH 4.0 and with nickel ion down to about pH 1.8. Evidently these amphoteric proteins combine with both positive and negative ions over a certain range on both sides of the isoelectric point. The extent of this "isoelectric region" depends upon the ions employed as well as upon the protein. The limiting values obtained for the pH at which ions combine with a protein do not necessarily represent the isoelectric point of the protein.

308 1933 Textiles; Test Methods. Fed. Spec. No. CCC-T-191. (Supersedes Fed.Spec. 345a) 14 pp. May 2, 1933. 5 ¢.

This specification gives the general physical and chemical methods used for testing textiles for conformance with the requirements of Federal Specifications. Methods are given for determination of moisture content; fiber identification and quantitative determination of cotton, wool, and mixtures of cotton and wool; determination of total sizing, finishing, and other nonfibrous materials in cotton textiles; breaking strength, grab and strip methods; elongation; tear resistance, strip method; weight; thread count; width; color fastness; shrinkage in laundering and in sponging; and water permeability.

Ref.	Pub.	Year	Author	Title
309	TNB193*	1933		Evaluation of "handle" and "drape" of cloth. TNB, No. 193 , pp. 55-56; May 1933.

310 RP555 1933 Schiefer, H.F. The flexometer, an instrument for evaluating the flexural properties of cloth and similar materials. B.S.Jour. Research, vol. 10, pp. 647-657; May 1933. 5 ¢. Also in Textile Research, vol. 3, pp. 388-403; June 1933.

An instrument is described with which the flexural work, flexural resilience, and flexural hysteresis of cloth, paper, sheet rubber, and similar materials can be evaluated. A pair of test specimens of standard dimensions are mounted in opposite angles formed by two vertical intersecting plates one of which is fixed and the other movable on a spindle. The work done in folding the specimens to various angles between the plates, the work recovered when they are allowed to unfold, and the work lost are measured. These quantities are a measure, respectively, of flexural work, flexural resilience, and flexural hysteresis of the specimens. They are related to the stiffness and creaseability of cloth and affect the sensations which contribute to the psychological qualities of "handle" or "feel" and the "drape" of fabrics. Typical results are given.

311 CSM* 1933 Appel, W.D. The textile-shrinkage problem. CSM, vol. 9, pp. 267-268; June 1933.

This paper was prepared at the request of the New York Board of Trade for presentation at a Conference on "Cooperation on the shrinkage problem". The shrinkage problem is reviewed, and suggestions for its solution are given. The need for specifications and trade standards for textiles which include shrinkage requirements is developed.

312 RP561 1933 Schiefer, H.F. The compressometer, an instrument for evaluating the thickness, compressibility, and compressional resilience of textiles and similar materials. B.S.Jour. Research, vol. 10, pp. 705-713; June 1933. 5 ¢.

The instrument described in this paper provides a convenient means for measuring the thickness and the change in thickness of a textile or similar material when it is subjected to increasing or decreasing pressures. The foot of the instrument can be lowered or raised by means of a rack and pinion acting through a helical spring. The pressure applied to the specimen by the foot is indicated on a dial micrometer and the corresponding thickness of the specimen on a second dial micrometer. Readings are taken under increasing pressures and then under decreasing pressures. Curves for the compression and recovery of several materials are shown. Definitions are proposed for the terms thickness, compressibility, and compressional resilience as applied to textiles. The results of tests on rug underlays, blankets, felts, on knit, woven, and pile fabrics, and on sheet rubber and paper are given.

Ref.	Pub.	Year	Author	Title
313	TNB194*1933			Qualitative and quantitative analysis of textile materials. TNB, No. 194, p. 66; June 1933.
314	TNB194*	1933		Textile test methods. TNB, No. 194, p. 66; June 1933. See ref. 308.
315		1933	Kline, G.M.	Estimation of tautness of doped fabrics. Am. Paint Varnish Mfrs. Assocn. Sci. Sect. Circ., No. 443, pp. 266-273; August 1933.

Four methods for estimating the relative tautness of airplane wing fabric coverings were compared using cellulose nitrate, cellulose acetate, and synthetic resin coatings. The order of increasing deflection under load measured by the McGowan tautness meter on the same fabric differently doped corresponded closely with the degree of tautness estimated by the sound method.

316 1933 Standard minimum measurements for men's woven shorts detailed. Daily News Record No. 223 (Whole No. 13308) p. 3; September 23, 1933.

317 1933 Standard minimum measurements approved for boys' woven shorts. Daily News Record No. 224 (whole No. 13309) p. 8; September 25, 1933.

318 1933 Mease, R.T. Adsorption of alcohol by fibrous materials. Ind.Eng. Chem., Anal. Ed., vol.5, p. 317; September 1933.

When cellulose, wool, and silk fibers come in contact with alcohol, some of the alcohol is adsorbed and may not be wholly removed by ordinary methods of drying. The order of the amount of increase in weight of oven-dried fibers is indicated and a simple method for removing the adsorbed alcohol and returning alcohol-washed fibers to their normal weight is described.

Carbon tetrachloride, trichloroethylene, Stoddard solvent, chloroform, and diethyl ether are not held like alcohol under the same conditions of treatment; increases in weight caused by these solvents are less than the limit of accuracy of the measurements, or about 0.2% of the weight of the fiber.

319 1933 Federal Standard Stock Catalogue. Section IV. Federal Specifications. Part 1. Index 69 pp. Revised to October 1,1933. 10 ¢.

Ref.	Pub.	Year	Author	Title
320	LC392	1933		Publications relating to dyes. 13 pp. October 13,1933. Obtainable from Bureau of Standards on request.

This letter circular lists the publications relating to dyes written by or in cooperation with members of the staff of the Bureau of Standards.

321 TNB198* 1933 Effect of weave on the properties of cloth. TNB,No.198, p. 107; October 1933. See ref. 322.

322 RP600 1933 Schiefer, H.F. Cleveland,R.S. Porter, J.W. Miller, J. Effect of weave on the properties of cloth. B.S.Jour. Research,vol. 11, pp. 441-451; October 1933. 5¢

The effect of the weave on the strength, elongation, take-up, tear resistance, fabric assistance, and air permeability of cloth is discussed in this paper. For this purpose a series of 42 cloths were woven from the same cotton yarns in weaves comprising plain, twill, rib, mock leno, basket, sateen, and various combinations of these weaves. The factors which contribute to strength and tear resistance are enumerated and discussed.

Four cloths having high tear resistance were woven for experiments on rubberizing and on doping. The results of these experiments are given and compared with the properties of the gas cell cloth and outer cover cloth which are used in dirigible construction.

323 LC393 1933 Becker, G. Procedure for the measurement of the reflectance of Manila rope fiber for light of wave length 500 millimicrons. 6 pp. November 1933. Obtainable from the Bureau of Standards on request.

Apparatus suitable for measuring the reflectance of Manila rope fiber at wave length 500 millimicrons, the angle of illumination being approximately 45° and the line of sight approximately perpendicular to sample and standard, is described and directions for preparing the sample and measuring it are given.

324 1933 Emley, W.E. Testing the cleansing power of soap. Cleanser, vol. 1, No. 3, pp. 11-12; November 1933.

325 TNB200* 1933 Color of Manila rope fiber. TNB, No. 200, pp. 127-128; December 1933. See ref. 330.

326 TNB200* 1933 Spectral reflectance of the Philippine Island government standards for abaca fiber. TNB, No. 200, p. 128; December 1933. See ref. 331.

327 TNB200* 1933 Standards for textile shrinkage. TNB, No. 200, p. 128; December 1933.

Ref.	Pub.	Year	Author	Title
328	TNB200	1933		Consistency of potato-starch size. TNB, No. 200, pp. 128-129; December 1933. See ref. 329.
329	RP623	1933	Schreiber, W.T. Geib, M.N.V. Moore, O.C.	Consistency of potato-starch size. B.S. Jour. Research, vol. 11, pp. 765-773; December 1933.

This study shows that size from sweet-potato starch is in many ways similar to that from Irish-potato starch, although it has several individual characteristics. Both starches, when made into size, seem to reach a maximum consistency during the early part of the cooking period, and gelatinization appears to be complete at this time; upon further cooking the consistency decreases until a water-like consistency is reached. The change in consistency appears to be slower in sweet-potato starch sizes than in those from Irish-potato starch.

It is shown that this change in consistency of sweet-potato starch size can be greatly decreased by the addition of lecithin and lanum and that the consistency can be increased two or three-fold by washing the starch with solutions of certain salts.

330	RP627	1933	Becker, G. Appel, W.D.	The evaluation of Manila-rope fiber for color. B.S.Jour. Research, vol. 11, pp. 811-822; December 1933.

A quantitative method for the evaluation of the color of Manila rope fiber is described. Spectral reflectance and colorimetric measurements showed that the color varies chiefly in luminous reflectance. The reflectance at wave length 500 millimicrons, which is obtainable with relatively simple apparatus, was found to be sufficient for the grading of the fiber for color. The fibers in a cross-section of the rope are cut into lengths of from 1.5 to 2.5 millimeters, mixed, extracted with petroleum ether, and spread out to give a smooth surface. The ratio of the reflectance of this surface to that of the usual white standard magnesium oxide surface for light of wave length 500 millimicrons (under prescribed conditions) multiplied by 100 gives the numerical value, "Becker value" for the rope. The Becker value of the commercial ropes tested varied from about 29 to 51. Before removal of the lubricant, the values were from 8 to 16 units lower. The value obtained for a single specimen taken from a coil of rope was found to be within 2 units of the average value for several specimens. The method is prescribed in the latest revision of the Federal Specification for Manila rope.

331	RP628	1933	Becker, G.	Spectral reflectance of Philippine Island Government standards for abacá fibers. B.S.Jour. Research, vol. 11, pp. 823-828; December 1933.

This paper reports the results of spectral reflectance measurements of one set of the official standards for the grades of abacá used in cordage.

III. AUTHOR INDEX

Ref.	Pub.	Year	Author	Title
332		1933	Becker, G.	Review of progress in standards of color for Manila rope fiber. Cord Age. vol. 23, pp. 24, 26; December 1933.

333 LC396 1933 Publications relating to textiles. 63 pp. December 11, 1933. Obtainable from the Bureau of Standards on request.

This letter circular provides a list of all papers relating to textiles including those appearing in non-governmental as well as in governmental publications written by or in collaboration with members of the staff of the Bureau of Standards. Author and subject indexes are provided. Brief abstracts of the more important contributions are given.

334 1933 Emley, W.E. Textile fibers. Annual Survey of American Chemistry, vol. 7, pp. 289-294; 1933. Published by the Chemical Catalog Co., New York City.

The 1932 American textile literature is reviewed. The bibliography consists of 63 references.

See Supplement following page 63

IV. SUBJECT INDEX

Ref.	Pub.	Year	Author	Title
335	LC403	1934		Detergents and related subjects. 10 pp. January 16, 1934. Obtainable from the Bureau of Standards on request.

This letter circular, which supersedes LC247 (ref. 287) is a list of the publications on detergents and related subjects written by or in collaboration with members of the staff of the Bureau of Standards.

336 TNB201*1934 — Analysis of wool-cotton textiles. TNB, No. 201, pp. 6-7; January 1934. See ref. 337.

337 RP635 1934 Mease, R. T. Jessup, D. A. — Analysis of wool-cotton textiles. B. S. Jour. Research, vol. 12, pp. 75-86; January 1934.

This paper presents the results of a study of several methods for the determination of cotton and wool in mixtures. The inadequacy of some of the methods is shown, and a satisfactory procedure is described. In this method, sizing, finishing materials, and natural nonfibrous constituents of textiles are removed by solvent extraction followed by digestion with a starch-hydrolyzing enzyme and washing. Wool is determined directly by weighing after removal of the cotton by carbonization with aluminum chloride. Cotton is determined directly by weighing after removal of the wool with potassium hydroxide. Results accurate within 1 percent of the amount of total dry fiber present are readily obtainable by the method.

338 TNB202*1934 — Spontaneous heating and ignition of jute. TNB, No. 202, pp. 16-17; February 1934.

339 TNB202*1934 — Hosiery-testing machine. TNB, No. 202, p. 17; February 1934.

340 TNB202*1934 — Wear of carpets. TNB, No. 202, p. 17; February 1934. See ref. 341.

341 RP640 1934 Schiefer, H. F. — Wear of carpets. B. S. Jour. Research, vol. 12, pp. 155-166; February 1934.

The nature of the wear on the wool fibers in the pile of carpets and the effect of quality of pile wool, height of pile, density of pile, type of anchorage, and of carpet underlays on the wear were studied with the carpet wear testing machine described in RP315 (ref. 233). The wool fibers from a worn carpet are frayed at the tips and spindle-shaped fibrils whose dimensions correspond to cortical cells are worn off. Some of the fibers are fractured, others are broken off near the base by the repeated bending and compression. The durability of a carpet is found to be greatly increased by an increase in density or in height of pile and also by the use of carpet underlays. The quality of the pile wool has a slight effect. The types of pile anchorage studied have no appreciable effect.