Fire tests with textiles : flannelette "ordinary", flannelette "fine finish", art muslin, curtain net, scenic canvas, as also tissue paper and wadding; untreated and treated with Snowdon's Flame-Proofing Solution submitted for test by Snowdon & Co., Ltd., London the Committee's report / [British Fire Prevention Committee].

BOOKS" of the
BRITISH FIRE PREVENTION COMMITTEE.—No. 167.
Edited by the Executive.

FIRE TESTS

WITH

TEXTILES

FLANNELETTE "ORDINARY"
FLANNELETTE "FINE FINISH"
ART MUSLIN
CURTAIN NET
SCENIC CANVAS

as also

TISSUE PAPER AND WADDING
UNTREATED AND TREATED

with

SNOWDON'S FLAME-PROOFING SOLUTION

submitted for test by

SNOWDON & CO. LTD., LONDON

The Committee's Report

LONDON, 1912

PUBLISHED AT THE OFFICES OF
THE BRITISH FIRE PREVENTION COMMITTEE.
(Founded 1897—Incorporated 1899)
8 WATERLOO PLACE, PALL MALL.

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8 WATERLOO PLACE, PALL MALL.

Two Shillings and Sixpence.

OBJECTS OF THE COMMITTEE.

The main objects of the Committee are:

To direct attention to the urgent need for increased protection of life and property from fire by the adoption of preventive measures.

To use its influence in every direction towards minimizing the possibilities and dangers of fire.

To bring together those scientifically interested in the subject of Fire Prevention.

To arrange periodical meetings for the discussion of practical questions bearing on the same.

To establish a reading-room, library and collections for purposes of research, and for supplying recent and authentic information on the subject of Fire Prevention.

To publish from time to time papers specially prepared for the Committee, together with records, extracts, and translations.

To undertake such independent investigations and tests of materials, methods, and appliances as may be considered advisable.

The Committee's Reports on Tests with Materials, Methods of Construction, or Appliances are intended solely to state bare facts and occurrences, with tables, diagrams, or illustrations, and they are on no account to be read as expressions of opinion, criticisms, or comparisons.

The Committee is not responsible for the views of individual authors as expressed in Papers or Notes, but only for such observations as are formally issued on behalf of the Executive.

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ELLIS MARSLAND, District Surveyor, Joint Hon. Sec., Int. Fire Service Council.

Bankers:

COCKS, BIDDULPH & CO., Charing Cross, S.W.

Testing Station:

NORTH BANK LODGE, HANOVER GATE, REGENT'S PARK, N.W.

Offices:

8 WATERLOO PLACE, PALL MALL, LONDON, S.W.
CHARLES ADAMI, *Assistant Secretary.*

MEMORANDUM.

FLANNELETTE TESTS (STANDARD TESTS).

Textiles intended to be permanently non-inflammable can only obtain classification as non-flaming if they fulfil the conditions of the following standard tests:

(*a*) Three samples, comprising each (about) one square yard of the material to be tested, shall be washed with soap and water and ironed ten times.

(*b*) The samples shall be ironed once (in addition) with an ordinary household iron within three hours, but not less than one hour before the test and shall be dry to the touch immediately before testing.

(*c*) The samples thus prepared shall be measured exactly and their areas shall not vary more than 10 per cent above or below a square yard.

(*d*) The samples shall be suspended in rotation from a wooden lath, vertically, by three tacks, clips, or other metal fastenings.

(*e*) Fire shall be applied at the centre of the bottom edge from a taper $\frac{1}{8}$ in. diameter, not more than 12 in. or less than 6 in. long.

(*f*) The lighted end of the taper shall be held at the edge for not less than 15 seconds or more than 30 seconds.

(*g*) If not more than 5 per cent of the area actually under test burns within 60 seconds, when taken on the average of three samples, the material shall be classified as "Non-flaming."

Note.—Should more than 5 per cent, but less than 25 per cent, burn within sixty seconds, the definition "Flames Readily" might be applied, but if more than 25 per cent burns, the definition "Burns Rapidly" might be applied.

Note.—Where the treatment of the textile is not intended to withstand the effect of washings, but requires renewal after every washing, the same test should be applied, but the washings or ironings should be required and the classification would only have bearing upon the efficiency of the individual final treatment and not upon its capacity to withstand the effect of washings.

Note.—The standard tests should, where possible, be supplemented by additional tests with samples of one yard hung pleated, and samples of one yard hung at end, and flame should be applied to these samples both from a taper and from a spirit lamp. In pleated samples the pleating should reduce the front of the sample to one foot frontage.

BY ORDER.

London, 1910.

NOTE.

The question of reducing the number of lives lost annually owing to the rapid burning of flannelette has long been before the Committee, as also suggestions for reducing the risk of fire in bazaars, drapers' shops and places of public entertainments where gauze, muslin, curtain net, wadding and tissue paper is largely used for decorative effect. The question of the impregnation of scenic canvas as used in theatres has also claimed attention.

The tests here recorded are a valuable contribution to the subject inasmuch as they plainly indicate that a suitable flame-proofing mixture is on the market which can be relied upon—when properly applied—to render textiles, paper and wadding "non-flaming."

The compound has to be applied after every washing of a textile, but when applied does not appear to injuriously affect the textile in question.

The advantage of having non-flaming decorations cannot be sufficiently emphasized after the experiences of the past, both in retail establishments and places of public entertainments such as bazaars.

ELLIS MARSLAND.

Waterloo Place,
London, S.W.
September 4th, 1912.

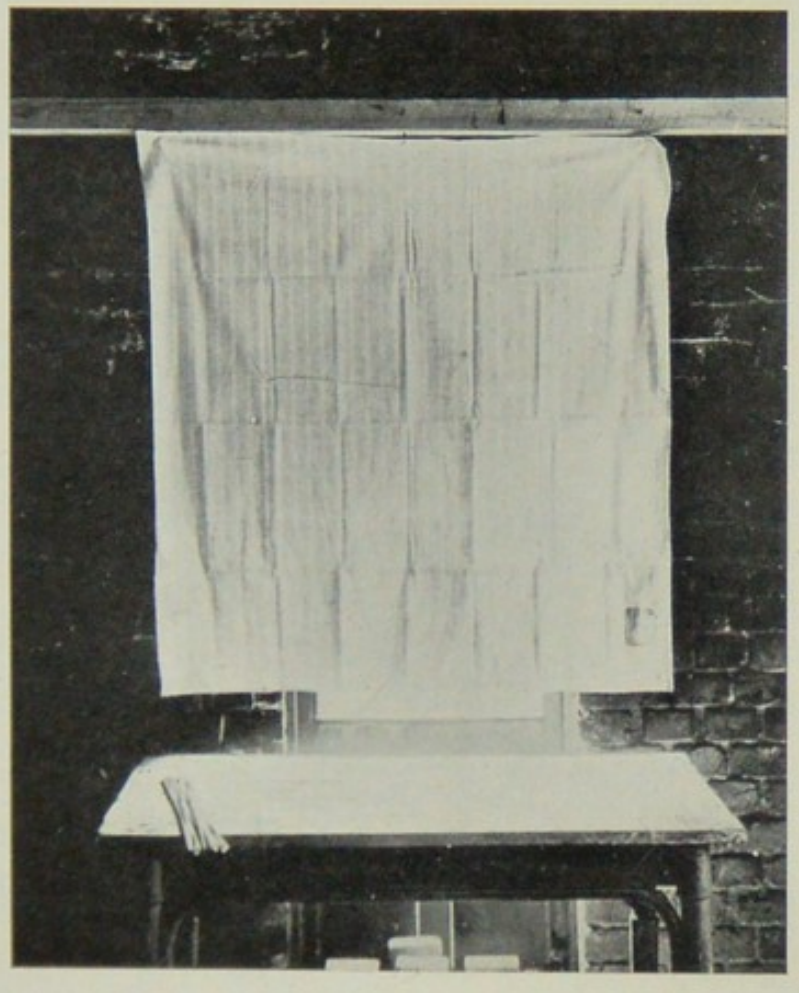
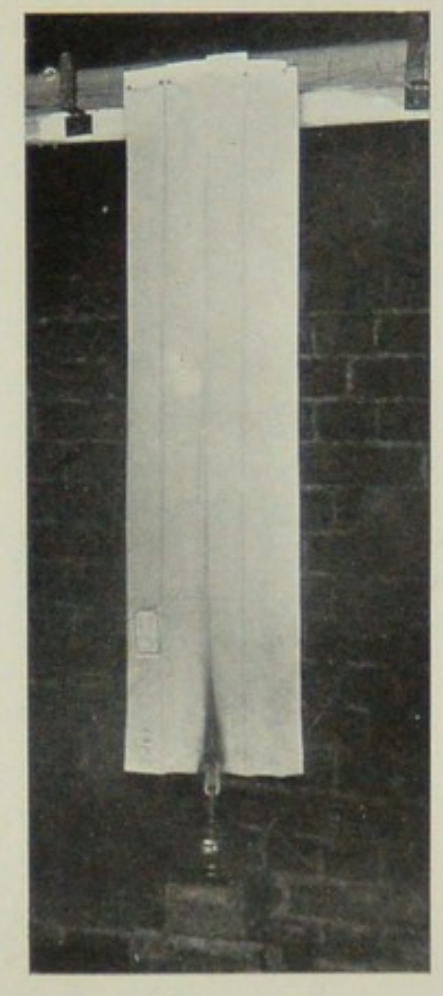
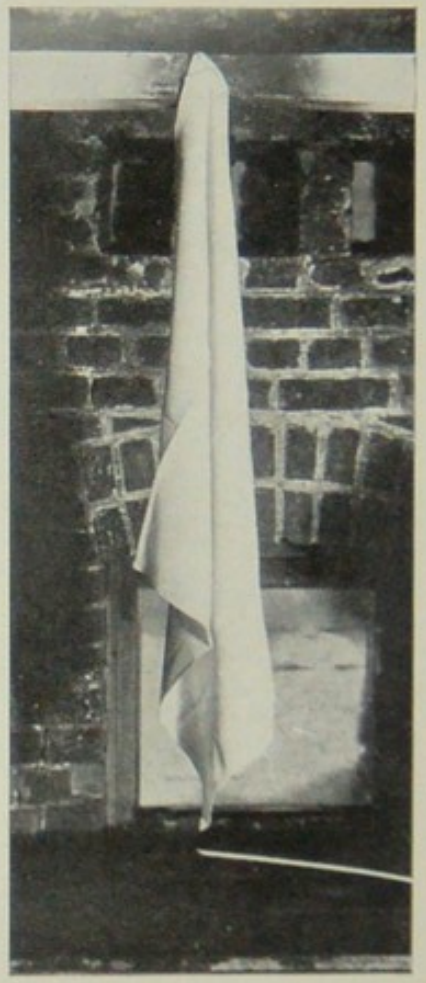


Fig. 1. VIEW SHOWING METHOD OF TESTING.
Yard length of material extended and suspended.





VIEW SHOWING METHOD OF TESTING.
Fig. 2.—Yard length of material, pleated and suspended.
Fig. 3 —Yard length of material, suspended from one corner.

OFFICIAL REPORTS

OF THE

British Fire Prevention Committee

(FOUNDED 1897—INCORPORATED 1899.)

FIRE TESTS No. 167, a, b, c, d, e, JUNE 26th, 1912.

TEXTILE FABRICS

Flannelette "Ordinary," Flannelette "Fine Finish,"
Art Muslin, Curtain Net, Scenic Canvas, as also Tissue Paper and
Wadding untreated and treated with Snowdon's Flame-proofing Solution.

SUBMITTED FOR TEST BY

SNOWDON & CO. LTD., LONDON.

OBJECT OF TEST.

To ascertain the effect of a jet of flame on a set of samples of the following fabrics:

Group I: Flannelette known as "ordinary."
Group II: Flannelette known as "fine finish."
Group III: Art Muslin.
Group IV: Curtain Net.
Group V: Scenic Canvas.

Each group to be sub-divided and dealt with as follows:

(1) One set of samples in each group to be tested as procured from the vendor.
(2) One set of samples in each group to be tested, after having been ten times washed, dried and ironed.
(3) One set of samples in each group to be tested after having been ten times washed, dried and ironed, and treated once with the flame-proofing solution after the tenth washing.

To ascertain the effect of a jet of flame on the following materials:

Group VI: Tissue Paper.
Group VII: Wadding.

Each group to be divided as follows:

(1) One set as procured from the vendor.
(2) One set as treated by the testor.

Note.—For the standard tests not less than six treated samples were to be submitted, and these samples of materials to be approximately one square yard each (*0·836m.*).

The samples of materials for the additional tests were to be not less than 1 yard (*0·914m.*) by 1ft. (*0·305m.*), and not less than three treated samples to be submitted.

The number of samples submitted for test was to be 168.

Note.—Each group has for reference purposes been sub-divided in two groups.

SUMMARY OF TESTS.

Of the 168 samples submitted, 143 were tested. Ninety-two were suspended and extended, sixteen were suspended from one corner, and thirty-five suspended and pleated.

The materials Flannelette, Art Muslin, Curtain Net, and Scenic Canvas as received from the vendors burnt rapidly in all tests.

The same materials as washed in the ordinary way burnt rapidly in all tests.

The same materials as washed and treated with the Snowdon process charred only in eighty-three tests, out of a total of eighty-four tests undertaken, but in one test the sample (No. 1105) was nearly all consumed.

Note.—The testor submits a statement in respect to the sample No. 1105 to the effect that upon analysis of a remnant oil was for some unexplained reason found thereon.

The materials Tissue Paper and Wadding as received from the vendor burnt rapidly in all tests.

The same materials treated with the Snowdon process charred only in the whole of the twelve tests undertaken.

The details of the tests are as follows:

GROUP I. FLANNELETTE (ORDINARY).

Standard Tests.—All the four samples in this group tested under standard conditions immediately took fire, the flame rapidly travelling up the centre of the sample and extending to right and left. (*See* Fig. 4.)

Of the unwashed sample 97·76 per cent. of the material was consumed in 60 seconds.

Of the three washed samples an average of 97·29 per cent. of the material was consumed in 60 seconds.

Additional Tests.—Of the two samples in this group *suspended from one corner* each immediately took fire, the flame rapidly travelling up the material.

Both the unwashed and washed sample were entirely consumed within 60 seconds.

Additional Tests.— Of the three samples in this group *suspended and pleated*, all immediately took fire, the flame rapidly travelling up the centre of the material and extending to right and left. (*See* Fig. 17.)

Of the unwashed sample 69·83 per cent. was consumed in 60 seconds.

Of the two washed samples both were entirely consumed within 60 seconds.

GROUP Ia. FLANNELETTE (ORDINARY) TREATED BY THE SNOWDON PROCESS.

Standard Tests.—The twelve samples in this group tested under standard conditions, all of which were washed, obtained classification as "non-flaming." Of the six samples washed at Laundry A an average of only 0·57 per cent. was charred, and of the six washed at Laundry B, only an average of 0·4 per cent. was charred.

Additional Tests.—Of the two samples in this group *suspended from one corner* the one washed at Laundry A "burnt rapidly," and 99·23 of the material was consumed and gave off during combustion dense smoke. The one washed at Laundry B was affected by the flame only so far as it was in contact or the power of the flame reached, and only 1·39 per cent. of the material was charred.

Note.—The testor states that upon analysis of a remnant of the sample (No. 1105), which burnt rapidly, it was found to contain a quantity of oil which was not evenly distributed over the surface. The testor put in a certificate from an analyst to this effect.

Additional Test.—The four samples in this group *suspended and pleated*, all of which were washed, were affected by the flame only so far as it was in contact or the power of the flame reached and an average of 1·46 per cent. was charred of the samples washed at Laundry A and 1·07 per cent. of those washed at Laundry B.

GROUP II. FLANNELETTE (FINE FINISH).

Standard Tests.—All the four samples in this group tested under standard conditions immediately took fire, the flame rapidly travelling up the centre of the sample and extending to right and left. (*See* Fig. 6.)

Of the unwashed sample 65·28 per cent. of the material was consumed in 60 seconds.

Of the three washed samples an average of 89·10 per cent. of the material was consumed in 60 seconds.

Flannelette, Ordinary (untreated).

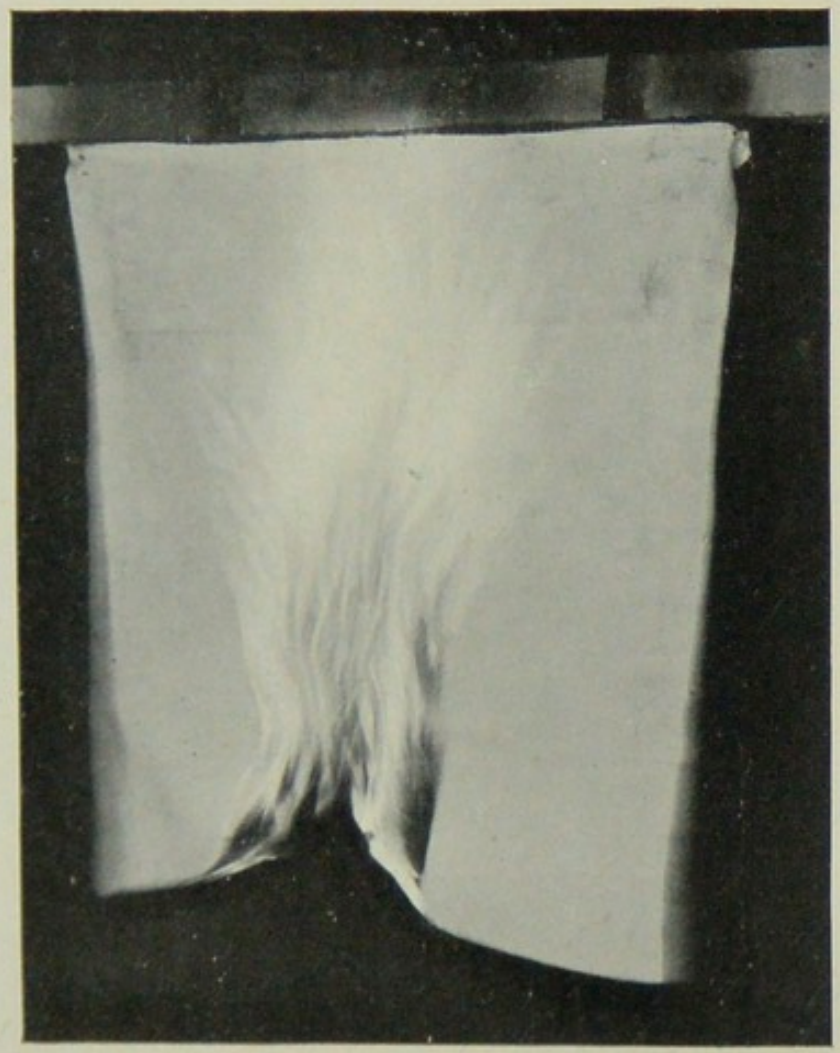


Fig. 4. Test No. 103.
View at 15 seconds during test.

Flannelette, Ordinary (treated).

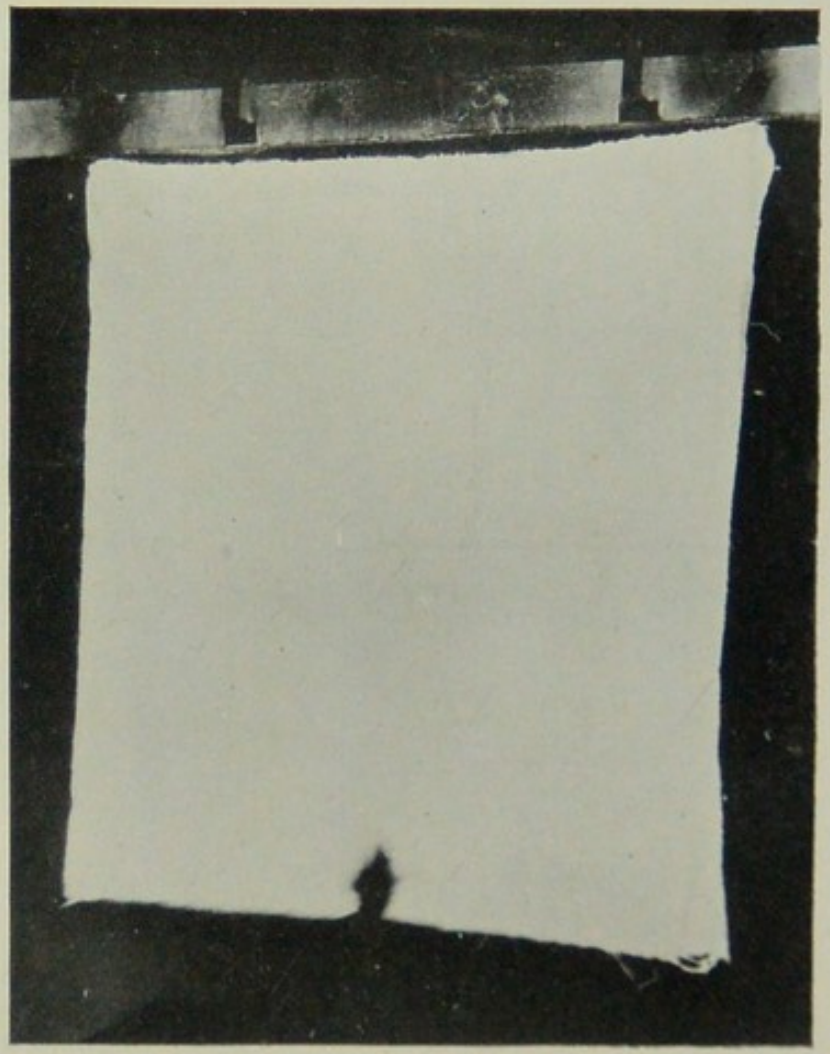


Fig. 5. Test No. 115.
View after 60 seconds test.

Flannelette, Fine Finish (untreated).

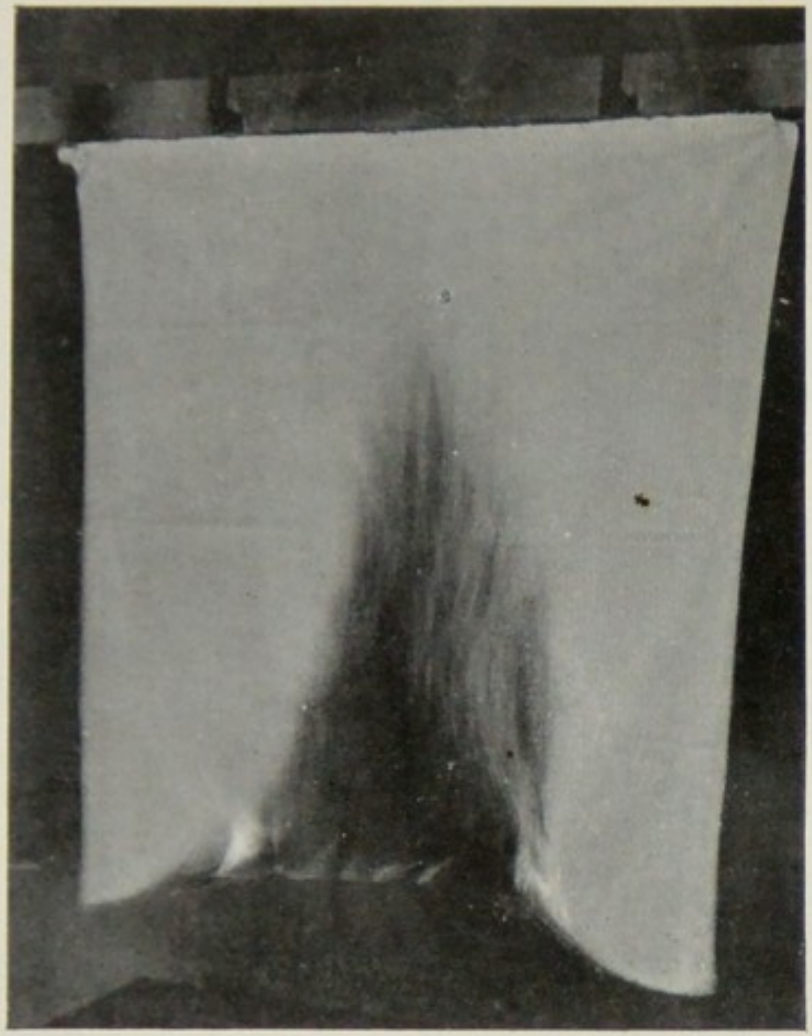


Fig. 6. Test No. 203.
View at 23 seconds during test.

Flannelette, Fine Finish (treated).

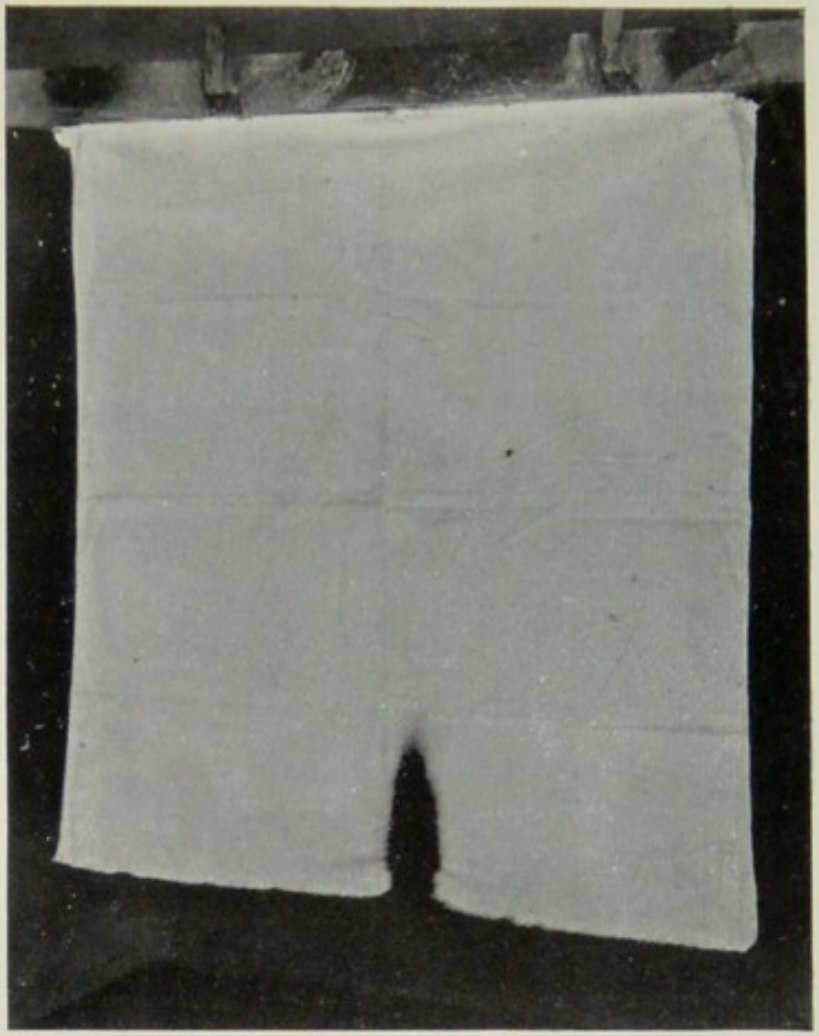


Fig. 7. Test No. 215.
View after 60 seconds test.

Additional Tests.—The one sample in this group *suspended from one corner* immediately took fire, the flame rapidly travelling up the centre of the material, and 99·92 per cent. of the material was consumed in 60 seconds.

Additional Tests.— Of the three samples in this group *suspended and pleated* all immediately took fire, the flame rapidly travelling up the centre of the material and extending to right and left.

Of the unwashed sample the whole was consumed in 60 seconds.

Of the two washed samples an average of 99·50 per cent. was consumed in 60 seconds.

GROUP IIa. FLANNELETTE (FINE FINISH) TREATED BY THE SNOWDON PROCESS.

Standard Tests.—The twelve samples in this group, tested under standard conditions, all of which were washed, obtained classification as "non-flaming." Of the six samples washed at Laundry A an average of only 0·36 per cent. was charred, and of the six washed at Laundry B an average of only 0·41 per cent. was charred.

Additional Tests.—Of the two samples in this group *suspended from one corner* each was affected by the flame only so far as it was in contact or the power of the flame reached, and an average of 0·39 per cent. of the material was charred.

Additional Tests.—The four samples in this group *suspended and pleated*, all of which were washed, were affected by the flame only so far as it was in contact or the power of the flame reached, and an average of 1·00 per cent. was charred of the samples washed at Laundry A and 1·23 per cent. of those washed at Laundry B.

GROUP III. ART MUSLIN.

Standard Tests.—All the four samples in this group, tested under standard conditions, immediately took fire, the flame travelling rapidly up the centre of the sample and extending to right and left. (*See* Fig. 11.)

Of the unwashed sample all was consumed in 30 seconds.

Of the three washed samples the whole of the material in each sample was consumed within 60 seconds.

Additional Tests.—The one sample in this group *suspended from one corner* immediately took fire, the flame rapidly travelling up the centre of the material, and the whole was consumed in 9 seconds.

Additional Tests.—Of the three samples in this group *suspended and pleated* all immediately took fire, the flame rapidly travelling up the centre of the material and extending to right and left.

Of the unwashed sample the whole was consumed in 13 seconds.

Of the two washed samples the whole of each was consumed in 9 seconds.

GROUP IIIa. ART MUSLIN TREATED BY THE SNOWDON PROCESS.

Standard Tests.—The six samples in this group, tested under standard conditions, all of which were washed at Laundry B, obtained classification as "non-flaming"; an average only of 1·72 per cent. of the material was charred.

Additional Tests.—Of the two samples in this group *suspended from one corner* each was affected by the flame only so far as it was in contact or the power of the flame reached, and an average of 0·93 per cent. of the material was charred.

Additional Tests.—The four samples in this group *suspended and pleated*, all of which were washed, were affected by the flame only so far as it was in contact or the power of the flame reached, and an average of 1·39 per cent. was charred of the samples washed at Laundry A and 1·85 per cent. of those washed at Laundry B.

GROUP IV. CURTAIN NET.

Standard Tests.—All the four samples in this group, tested under standard conditions, immediately took fire, the flame travelling rapidly up the centre of the sample and extending to right and left. (*See* Fig. 13.)

Of the unwashed sample all was consumed in 60 seconds.

Of the three washed samples the whole of the material in each sample was consumed within 60 seconds.

Additional Tests.—The one sample in this group *suspended from one corner* immediately took fire, the flame rapidly travelling up the centre of the material, and the whole was consumed in 9 seconds.

Additional Tests.—Of the three samples in this group *suspended and pleated* all immediately took fire, the flame rapidly travelling up the centre of the material and extending to right and left.

Of the unwashed sample the whole was consumed in 19 seconds.

Of the two washed samples the whole of each was consumed in under 20 seconds.

GROUP IVa. CURTAIN NET TREATED BY THE SNOWDON PROCESS.

Standard Tests.—The twelve samples in this group, tested under standard conditions, all of which were washed, obtained classification as "non-flaming"; of the six samples washed at Laundry A an average of only 0·50 per cent. was charred and of the six washed at Laundry B an average of only 1·03 was charred.

Additional Tests.—Of the two samples in this group *suspended from one corner* each was affected by the flame only so far as it was in contact or the power of the flame reached, and only an average of 0·65 per cent. of the material was charred.

Additional Tests.—The four samples in this group *suspended and pleated*, all of which were washed, were affected by the flame only so far as it was in contact or the power of the flame reached, and an average of 3·00 per cent. was charred of the samples washed at Laundry A and 1·46 per cent. of those washed at Laundry B.

GROUP V. SCENIC CANVAS.

Standard Tests.—All the four samples in this group, tested under standard conditions, immediately took fire, the flame travelling rapidly up the centre of the sample and extending to right and left. (*See* Fig. 15.)

Of the unwashed sample 38·89 per cent. of the material was consumed in 60 seconds.

Of the three washed samples an average of 60·64 per cent. was consumed in 60 seconds.

Additional Tests.—The one sample in this group *suspended from one corner* immediately took fire, the flame rapidly travelling up the centre of the material, and 73·15 per cent. was consumed in 60 seconds.

Additional Test.—Of the three samples in this group *suspended and pleated*, all immediately took fire, the flame rapidly travelling up the centre of the material, and extending to right and left.

Of the unwashed sample 99·84 per cent. was consumed in 60 seconds.

Of the two washed samples the whole of each was consumed in under 45 seconds.

GROUP Va. SCENIC CANVAS TREATED BY THE SNOWDON PROCESS.

Standard Tests.—The twelve samples in this group tested under standard conditions, all of which were washed, obtained classification as "non-flaming"; of the six samples washed at Laundry A an average of only 0·45 per cent. was charred, and of the six washed at Laundry B an average of only 0·51 per cent. was charred.

Additional Tests.— Of the two samples in this group *suspended from one corner*, each was affected by the flame only so far as it was in contact or the power of the flame reached, and an average of 0·27 per cent. was charred.

Additional Tests.—The four samples in this group *suspended and pleated*, all of which were washed, were affected by the flame only so far as it was in contact or the power of the flame reached, and an average of 1·73 per cent. was charred of the samples washed at Laundry A and 0·46 per cent. of those washed at Laundry B.

RESU

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Art Muslin (treated).

Art Muslin (untreated).

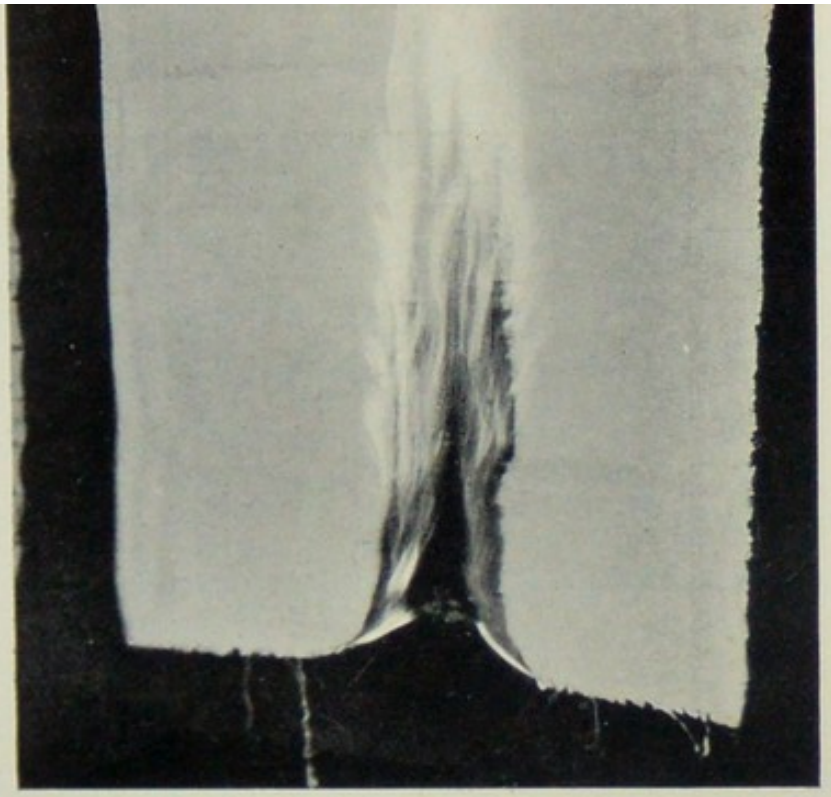

Fig. 15. TEST No. 503.
View at 25 seconds during test.

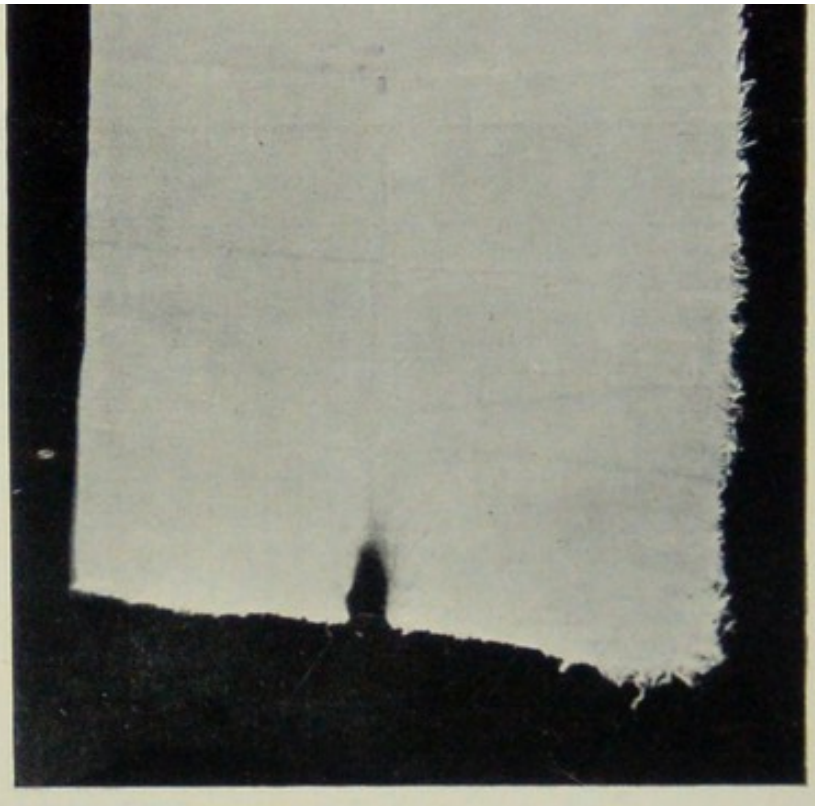

Fig. 16. TEST No. 515.
View after 60 seconds test.

GROUP VI. TISSUE PAPER.

Standard Tests.—Of the three samples in this group, tested under standard conditions, all immediately took fire, the flame travelling rapidly up the centre of the sample and extending to right and left. The whole of each sample was entirely consumed within 16 seconds.

GROUP VIa. TISSUE PAPER TREATED BY THE SNOWDON PROCESS.

Standard Tests.—All the six samples in this group tested under standard conditions obtained classification as "non-flaming"; an average of 0·63 per cent. was charred only.

Wadding (treated).

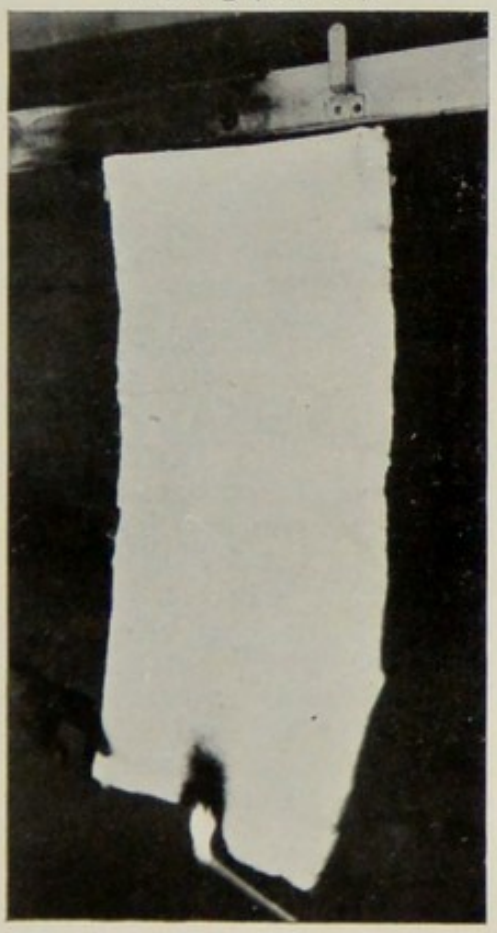

Fig. 8. Test No. XIX.
View at 55 seconds during test.

Paper (treated)

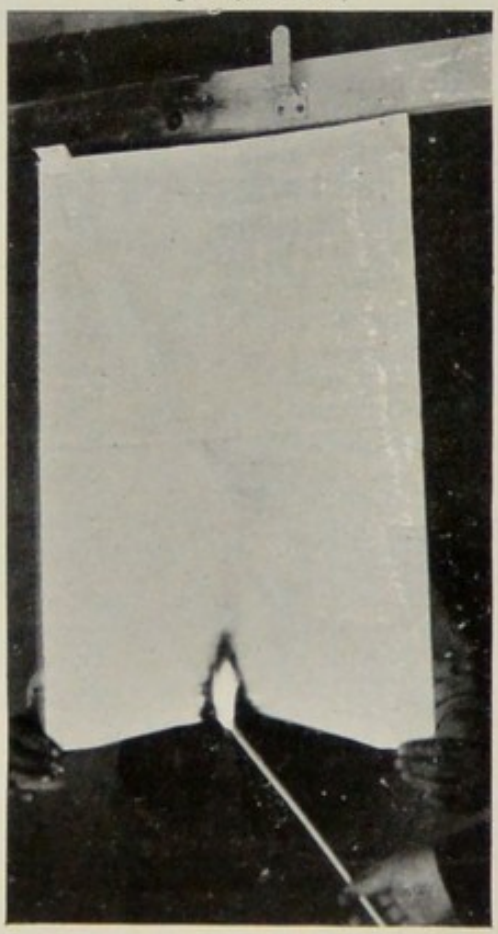

Fig. 9. Test V.
View at 30 seconds during test.

GROUP VII. WADDING.

Standard Tests.—Of the three samples in this group, tested under standard conditions, each immediately took fire, the flame travelling rapidly up the centre of the sample and extending to

right and left. The whole of each sample was entirely consumed within 12 seconds.

GROUP VIIa. WADDING TREATED BY THE SNOWDON PROCESS.

Standard Tests.—All the six samples in this group, tested under standard conditions, obtained classification as "non-flaming"; an average of 0·45 per cent. was charred only.

ARRANGEMENTS FOR THE TESTS.

The materials submitted for test were purchased by the testors in the ordinary course of business, the flannelette, art muslin, and curtain net from drapers, and the scenic canvas from a wholesale firm.

Each material was purchased in two lots, and on two different dates, i.e. in May and June, 1912, respectively, and the invoices have been deposited with the Committee.

The first lots, purchased in May, were purchased in the following quantities and at the prices named below:

Yards.	Material.	Purchased from	Price.
13	Flannelette, Ordinary ...	Draper Bros.	3¾d.
13	,, Fine ...	Thomas Wallis & Co., Ltd. ...	8¾d.
15	Art Muslin	,, ,, ...	3d.
15	Curtain Net	,, ,, ...	4¾d.
14	Scenic Canvas	A. F. Latto & Co.	11½d.

The second lots, purchased in June, were purchased in the following quantities and at the prices named below:

Yards.	Material.	Purchased from	Price.
17½	Flannelette, Ordinary ...	Draper Bros.	3¾d.
17½	,, Fine ...	Thomas Wallis & Co., Ltd. ...	8¾d.
10	Art Muslin	,, ,, ...	3d.
17½	Curtain Net	,, ,, ...	4¾d.
17½	Scenic Canvas	A. F. Latto & Co.	11½d.

The testors were instructed by the Committee to have some of the washing and treatment done at the Beulah Laundry, 274 South Lambeth Road, London, which is known in this report as Laundry A, nominated by the Committee. The remaining material was to be washed and treated at a laundry selected by the testor, viz., the Norwood and Dulwich Dyeing, Cleaning, and Carpet Beating Co., Ltd., of 126 to 132 Hamilton Road, West Norwood, London, known as Laundry B.

From each of the first lots, 20 pieces (samples), measuring 1 yard by 15in., were cut for the purpose of the tests to be reported upon.

These 20 samples of each of the five materials were dealt with as follows:

Two samples were retained as delivered.

Four samples were washed, dried, and ironed 10 times by Laundry A.

Ten samples were washed, dried, and ironed and then treated with Snowdon's Fireproofing Solution, and dried in a hot chamber by Laundry A.

Four samples were washed and dried and ironed and naturally dried by Laundry B.

Note.—Six pieces of the treated art muslin from this lot were used for other purposes described below.

From each of the second lots (except the art muslin), ten pieces (samples), measuring 3ft. by 3ft. 3in. (*0·914m.* by *0·991m.*), were cut for the purpose of the tests here reported upon, and of the art muslin certain pieces were also so cut and other pieces to make up the necessary number formed out of pieces from the first lot, cut about 15in. wide and sewn together.

These ten samples of each of the five materials were dealt with as follows:

One sample was retained as delivered.

Three samples were washed, dried, and ironed ten times by Laundry A.

Six samples were washed, dried, and ironed, and treated with Snowdon's Fireproofing Solution before the last ironing by Laundry B.

Laundry A states the washing was done as follows:

The curtains and coarse linen we washed by machine, having about 20 minutes' washing with oil soap, then rinsed in hot and cold water, dried and ironed.

The other articles were all washed by hand, dried and ironed.

All of these processes were repeated ten times, and the material then fireproofed with Messrs. Snowdon's patent fireproofing material.

Laundry B states the washing was done as follows:

Cold water break down	5 minutes.
White goods washed and boiled in Field's pure oil soap and Brunner Mond's alkali	20 minutes.
Coloured goods as above, but washed only (not boiled) ..	10 minutes.
The warm rinse	10 minutes.
Two cold rinses	10 minutes.
Centrifuged or Hydroed	10 minutes
Dried in moderate heat, 90° Fahr.	
Ironed.	

The above process was carried out ten times. Afterwards the material was treated with Messrs. Snowdon & Co.'s process.

The whole of the samples from both lots were delivered at the Testing Station on June 24th and 25th, 1912, and were further ironed once on June 25th, sorted and arranged for testing.

No sample felt damp to the touch on June 26th, the testing day, but one sample of treated flannelette (ordinary), No. 1105, smelt of rancid oil.

SUPPLEMENTARY TESTS WITH PAPER AND WADDING.

For additional tests Paper and Wadding were selected by the British Fire Prevention Committee.

Nine sheets of paper were numbered I–IX, of which Nos. I–III were sent to the Committee as purchased, and Nos. IV–IX were treated with Snowdon's Fireproofing Solution.

Nine samples of Wadding were numbered XI–XIX, of which

Nos. XI–XIII were sent to the Committee as purchased, and Nos. XIV–XIX were treated with Snowdon's Fireproofing Solution.

The Paper and Wadding samples were delivered together with the other materials for tests at the Committee's Testing Station.

The paper and wadding were suspended as for the standard test, and tested in Hut No. 1b.

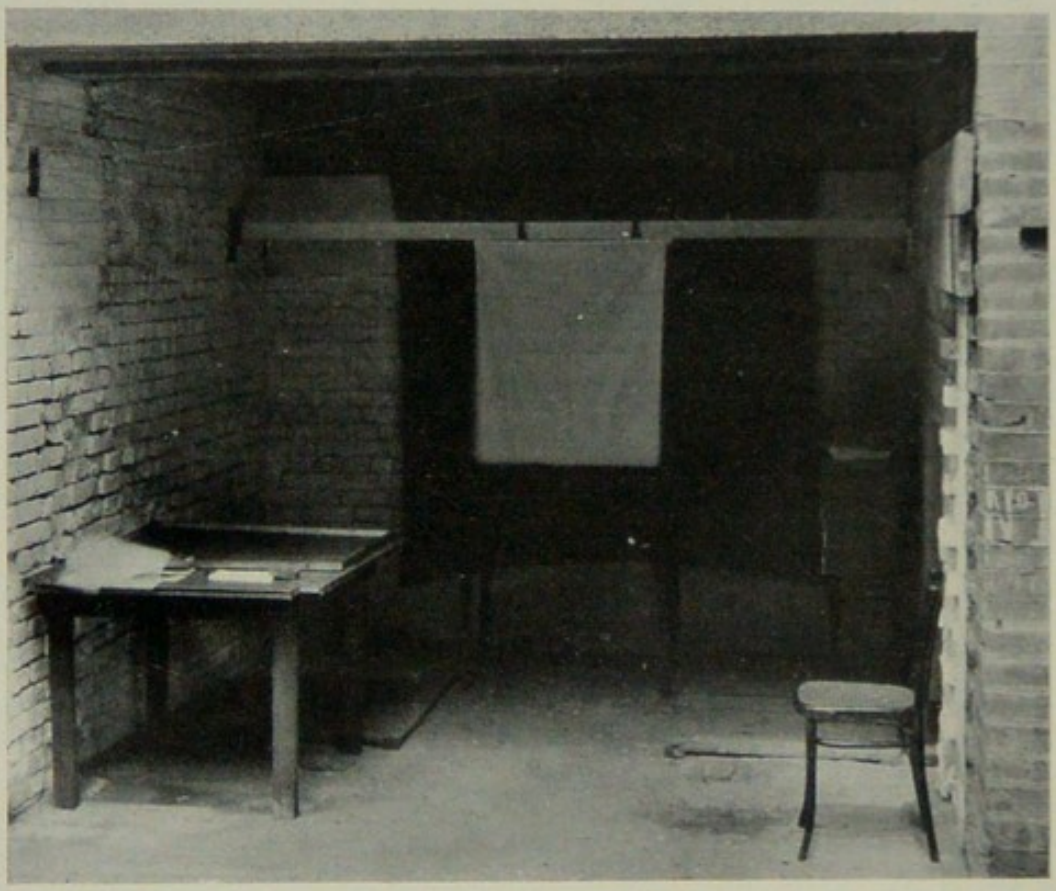

Fig. 10. VIEW OF THE INTERIOR OF TESTING HUT 1a.

TESTING.

The materials were tested by three methods. By being (1) extended and suspended from three hooks fixed in a beam. (2) Hung vertically from one corner to a hook in a beam. (3) Pleated, so as to reduce the width, and suspended. *See* Figs. 1, 2, 3.

The means of producing flame was by a spirit lamp, with a flame about $4\frac{1}{2}$ ins. (*0·114m.*), or by a wax taper. *See* Figs. 1, 2, 3.

The tests with the spirit lamp were conducted as follows:

At a given signal the lamp was placed in direct contact with the bottom edge of the material in the centre, and remained there during the tests or until the material was well alight.

The tests with the taper were conducted as follows:

At a given signal the taper was applied direct to the bottom edge of the material in the centre, and removed when the material was ignited.

The maximum time for each test was one minute, after which any flame was extinguished.

The portion of the material burnt was measured, and a sketch record taken.

Photographs were taken during the tests of certain samples at the discretion of the directing member.

The samples to be tested were arranged as follows:

In one yard lengths and either 15 ins. or 36 ins. wide as per detailed tables.	Flannelette, ordinary.		Flannelette, fine finish.		Art Muslin.		Curtain Net.		Scenic Canvas.		Tissue Paper.		Wadding.		Total Samples.
	Group I.	Group Ia.	Group II.	Group IIa.	Group III.	Group IIIa.	Group IV.	Group IVa.	Group V.	Group Va.	Group VI.	Group VIa.	Group VII.	Group VIIa.	
Hung extended ... (Standard Tests.)	4	12	4	12	4	6	4	12	4	12	3	6	3	6	92
Hung at end ...	2	2	1	2	1	2	1	2	1	2	—	—	—	—	16
Hung pleated ...	3	4	3	4	3	4	3	4	3	4	—	—	—	—	35
Total in each Group	9	18	8	18	8	12	8	18	8	18	3	6	3	6	143

PREPARATIONS FOR THE TESTS.

The tests were undertaken on Wednesday, June 26th, 1912.

The weather conditions were as follows:

At 3 p.m., state of weather, cloudy.

Wind S.S.W. Barometer 29·97in. Attached thermometer 65° Fahr. (18·3° C.) Dry bulb 69° Fahr. (20·5° C.) Wet bulb 61° Fahr. (16·1° C.).

Afternoon fine and bright.

Huts No. 1a and No. 1b, open to the west, were used for the tests.

For testing the samples a table was placed in each of the huts, under a beam, to which the sample was hung and brought down over the table. The spirit lamp or taper was applied to the lower edge (*see* Figs. 1, 2, 3), as occasion required.

LOGS OF TESTS.

The following tables give the Logs of the various tests:

GROUP I.

FLANNELETTE (ORDINARY).

	Refer. Number of Sample.	At what Laundry washed if any.	Conditions and number of washings, if any.	Where Tested. Hut No.	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, sq. in.	Area of Sample burnt, sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS. Flame reached top of sample in.	REMARKS. Generally.	Refer. Number of Sample.
Standard Test.	101	—	UN-WASHED as received from Vendor.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	60secs.	1184	1155	97.76	27secs.		101
Additional Tests.	1101	—		1b	Extended and suspended.	Taper.	In contact at centre of lower edge.		55secs.	544	544	100.00	25secs.	This sample should have been suspended from one corner but was extended and suspended.	1101
	11	—		Do.	Suspended and pleated.	Spirit Lamp.	In contact at centre of lower edge.		60secs.	517	391	69.83	45secs.		11
Standard Tests.	102	A	TEN TIMES WASHED and ten times ironed.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	42secs.	1184	1184	100.00	16secs.	All consumed in 42 secs.	102
	103	A		Do.		Do.			60secs.	1221	1191	91.89	15secs.	Photo taken. *Fig.* 4.	103
	104	A		Do.		Do.			45secs.	1240	1240	100.00	13secs.	All consumed in 45secs.	104
Additional Tests.	1102	A		1b	Suspended from one corner.	Taper.	In contact at lower corner.		50secs.	493	493	100.00	14secs.	All consumed in 50secs.	1102
	1103	A		Do.		Do.			—	—	—	—	—	Not tested.	1103
Additional Tests.	12	A		1b	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.		40secs.	536	536	100.00	15secs.	All consumed in 40secs.	12
	13	A		Do.		Do.			39secs.	532	532	100.00	18secs.	All consumed in 39secs. photo. *Fig.* 17.	13

FLANNELETTE (ORDINARY).

GROUP Ia. *Treated by the Snowdon Process.*

	Refer. Number of Sample.	At what Laundry washed if any.	Conditions and number of washings, if any.	Where Tested, Hut No.	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS.	Refer. Number of Sample.
Standard Tests.	105	A	TEN TIMES WASHED and ten times ironed.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	60secs.	60secs.	490	9	0.69		105
	106	A		Do.		Do.		60secs.	60secs.	517	5	0.39		106
	107	A		Do.		Do.		60secs.	60secs.	507	5	0.39		107
	108	A		Do.		Do.		60secs.	60secs.	490	5	0.39		108
	109	A		Do.		Do.		60secs.	60secs.	507	5	0.39		109
	110	A		Do.		Do.		60secs.	60secs.	525	15	1.16		110
	111	B		Do.		Do.		60secs.	60secs	1206	5	0.39		111
	112	B		Do.		Do.		60secs.	60secs.	1188	4	0.31	Photo taken.	112
	113	B		Do.		Do.		60secs.	60secs.	1221	6	0.46		113
	114	B		Do.		Do.		60secs.	60secs.	1188	5	0.39		114
	115	B		Do.		Do.		60secs.	60secs.	1194	5	0.39	Photo taken. *Fig.* 5.	115
	116	B		Do.		Do.		60secs.	60secs.	1188	6	0.46		116
Additional Tests.	1105	A	TEN TIMES WASHED and ten times ironed.	1b	Suspended from the corner.	Taper.	In contact at lower corner.	60secs.	60secs.	493	483	99.23	This sample during combustion made a dense [smoke.	1105
	1106	A		Do.		Do.		60secs.	60secs.	—	—	—	Not tested.	1106
	1111	B		Do.		Do.		60secs.	60secs.	476	18	1.39		1111
	1112	B		Do.		Do.		60secs.	60secs.	—	—	—	Not tested.	1112
Additional Tests.	15	A	TEN TIMES WASHED and ten times ironed.	1b	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.	60secs.	60secs.	525	9	0.69		15
	16	A		Do.		Do.		60secs.	60secs.	525	29	2.23	Photo taken. *Fig.* 18.	16
	011	B		Do.		Do.		60secs.	60secs.	507	19	1.46		011
	012	B		Do.		Do.		60secs.	60secs.	525	9	0.69		012

GROUP II.

FLANNELETTE (FINE FINISH).

	Refer. Number of Sample.	At what Laundry washed if any.	Conditions and number of washings, if any.	Where Tested. Hut No.	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, sq. in.	Area of Sample burnt, sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS. Flame reached top of sample in	REMARKS. Generally.	Refer. Number of Sample.
Standard Test.	201	—	UNWASHED as received from Vendor.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	60secs.	1443	846	65.28	28secs.		201
Additional Tests.	2,201	—		1b	Suspended from one corner.	Taper.	In contact at lower corner.		—	—	—	—	—	Not tested.	2201
	21	—		Do.	Suspended and pleated.	Spirit lamp	In contact at centre of lower edge.		60secs.	575	575	100.00	17secs.		21
Standard Tests.	202	A	TEN TIMES WASHED and ten times ironed.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	60secs.	1404	972	75.00	28secs.		202
	203	A		Do.		Do.			58secs.	1404	1404	100.00	23secs.	All consumed in 58secs. Photo. *Fig.* 6.	203
	204	A		Do.		Do.			60secs.	1404	1296	92.31	24secs.		204
Additional Tests.	2202	A		1b	Suspended from one corner.	Taper.	In contact at lower corner.		60secs.	555	554	99.92	20secs.		2202
	2203	A		Do.		Do.			—	—	—	—	—	Not tested.	2203
Additional Tests.	22	A		1b	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.		60secs.	570	567	59.00	23secs.		22
	23	A		Do.		Do.			60secs.	566	566	100.00	22secs.	Photo taken. *Fig.* 19.	23

GROUP IIa.

FLANNELETTE (FINE FINISH).

Treated by the Snowdon Process.

	Refer. Number of Sample.	At what Laundry washed if any.	Conditions and number of washings, if any.	Where Tested. Hut No.	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS.	Refer. Number of Sample.
Standard Tests.	205	A	TEN TIMES WASHED and ten times ironed.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	60secs.	60secs.	540	4	0.31		205
	206	A		Do.		Do.		60secs.	60secs.	555	5	0.39		206
	207	A		Do.		Do.		60secs.	60secs.	555	5	0.39		207
	208	A		Do.		Do.		60secs.	60secs.	555	5	0.39		208
	209	A		Do.		Do.		60secs.	60secs.	555	5	0.39		209
	210	A		Do.		Do.		60secs.	60secs.	555	4	0.31		210
	211	B		Do.		Do.		60secs.	60secs.	1404	4	0.31		211
	212	B		Do.		Do.		60secs.	60secs.	1404	4	0.31	Photo taken	212
	213	B		Do.		Do.		60secs.	60secs.	1404	3	0.23		213
	214	B		Do.		Do.		60secs.	60secs.	1404	4	0.31		214
	215	B		Do.		Do.		60secs.	60secs.	1404	13	1.00	Photo taken. *Fig.* 7.	215
	216	B		Do.		Do.		60secs.	60secs.	1404	4	0.31		216
Additional Tests.	2205	A	TEN TIMES WASHED and ten times ironed.	1b	Suspended from one corner.	Taper.	In contact at lower corner.	60secs.	60secs.	555	6	0.46		2205
	2206	A		Do.		Do.		60secs.	60secs.	—	—	—	Not tested.	2206
	2211	B		Do.		Do.		60secs.	60secs.	555	4	0.31		2211
	2212	B		Do.		Do.		60secs.	60secs.	—	—	—	Not tested.	2212
Additional Tests.	25	A	TEN TIMES WASHED and ten times ironed.	1b	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.	60secs.	60secs.	555	16	1.24		25
	26	A		Do.		Do.		60secs.	60secs.	570	10	0.76	Photo taken. *Fig.* 20.	26
	021	B		Do.		Do.		60secs.	60secs.	546	17	1.31		021
	022	B		Do.		Do.		60secs.	60secs.	562	15	1.16		022

GROUP III.

ART MUSLIN.

	Refer. Number of Sample.	At what Laundry washed if any.	Conditions and number of washings, if any.	Where Tested, Hut No.	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS. Flame reached top of sample in	REMARKS. Generally.	Refer. Number of Sample.
Standard Test.	301	—	UNWASHED as received from Vendor.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	30secs.	576	576	100.00	10secs.	All consumed in 30secs.	301
Additional Tests.	3301	—		1b	Suspended from one corner	Taper.	In contact at lower corner.		—	—	—	—	—	Not tested.	3301
	31	—		Do.	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.		13secs.	558	558	100.00	6secs.	All consumed in 13secs.	31
Standard Tests.	302	A	TEN TIMES WASHED and ten times ironed.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	60secs.	1190	1190	100.00	7secs.	[1]Photo. *Fig.* 11.	302
	303	A		Do.		Do.			35secs.	1295	1295	100.00	9secs.	All consumed in 35secs.	303
	304	A		Do.		Do.			40secs.	1296	1296	100.00	9secs.	All consumed in 40secs.	304
Additional Tests.	3302	A		1b	Suspended from one corner.	Taper.	In contact at lower corner.		9secs.	540	540	100.00	5secs.	All consumed in 9secs.	3302
	3303	A		Do.		Do.			—	—	—	—	—	Not tested.	3303
Additional Tests.	32	A		1b	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.		9secs.	538	538	100.00	3secs.	All consumed in 9secs.	32
	33	A		Do.		Do.			9secs.	558	558	100.00	3secs.	All consumed in 9secs.	33

ART MUSLIN.

GROUP III a. — *Treated by the Snowdon Process.*

	Refer. Number of Sample.	At what Laundry washed if any.	Conditions and number of washings, if any.	Where Tested. Hut No.	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS.	Refer. Number of Sample.
Standard Tests.	305	A	—	—	—	—	—	—	—	—	—	—	Not tested.	305
	306	A	—	—	—	—	—	—	—	—	—	—	Do.	306
	307	A	—	—	—	—	—	—	—	—	—	—	Do.	307
	308	A	—	—	—	—	—	—	—	—	—	—	Do.	308
	309	A	—	—	—	—	—	—	—	—	—	—	Do.	309
	310	A	—	—	—	—	—	—	—	—	—	—	Do.	310
	311	B	TEN TIMES WASHED and ten times ironed.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	60secs.	60secs.	1332	8	0.62		311
	312	B		Do.		Do.		60secs.	60secs.	1260	52	4.01	Photo taken.	312
	313	B		Do.		Do.		60secs.	60secs.	1368	48	3.70		313
	314	B		Do.		Do.		60secs.	60secs.	1332	9	0.69		314
	315	B		Do.		Do.		60secs.	60secs.	1296	9	0.69	Photo taken. *Fig.* 12.	315
	316	B		Do.		Do.		60secs.	60secs.	1280	8	0.62	Photo taken.	316
Additional Tests.	3305	A	TEN TIMES WASHED and ten times ironed.	1b	Suspended from one corner.	Taper.	In contact at lower corner.	60secs.	60secs.	490	8	0.62	Not tested.	3305
	3306	A		Do.		Do.		60secs.	60secs.	—	—	—		3306
	3311	B		Do.		Do.		60secs.	60secs.	493	16	1.24		3311
	3312	B		Do.		Do.		60secs.	60secs.	—	—	—		3312
Additional Tests.	35	A	TEN TIMES WASHED and ten times ironed.	1b	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.	60secs.	60secs.	518	22	1.70		35
	36	A		Do.		Do.		60secs.	60secs.	525	14	1.08		36
	031	B		Do.		Do.		60secs.	60secs.	510	30	2.31		031
	032	B		Do.		Do.		60secs.	60secs.	540	18	1.39		032

GROUP IV.

CURTAIN NET.

	Refer. Number of Sample.	At what Laundry washed if any.	Conditions and number of washings, if any.	Where Tested. Hut No.	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS. Flame reached top of sample in	REMARKS. Generally.	Refer. Number of Sample.
Standard Test.	401	—	UNWASHED as received. from Vendor.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	60secs.	540	486	62.50	22secs.		401
Additional Tests.	4401	—		1b	Suspended from one corner.	Taper.	In contact at lower corner.		—	—	—	—	—	Not tested.	4401
	41	—		Do.	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.		19secs.	558	558	100.00	11secs.	All consumed in 19 secs.	41
Standard Tests.	402	A	TEN TIMES WASHED and ten times ironed.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	60secs.	1260	1260	100.00	8secs.		402
	403	A		Do.		Do.			60secs.	1224	1224	100.00	10secs.	Photo taken. *Fig.* 13.	403
	404	A		Do.		Do.			35secs.	1156	1156	100.00	8secs.	All consumed in 35secs.	404
Additional Tests.	4402	A		1b	Suspended from one corner.	Taper.	In contact at lower corner.		9secs.	403	403	100.00	4secs.	All consumed in 9secs.	4402
	4403	A		Do.		Do.			—	—	—	—	—	Not tested.	4403
Additional Tests.	42	A		1b	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.		20secs.	495	495	100.00	9secs.	All consumed in 20secs.	42
	43	A		Do.		Do.			17secs.	528	528	100.00	6secs.	All consumed in 17secs.	43

CURTAIN NET.

GROUP IVa. *Treated by the Snowdon Process.*

	Refer. Number of Sample.	At what Laundry washed if any.	Conditions and number of washings, if any.	Where Tested. Hut No.	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS.	Refer. Number of Sample.
Standard Tests.	405	A	TEN TIMES WASHED and ten times ironed.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	60secs.	60secs.	434	7	0.54		405
	406	A		Do.		Do.		60secs.	60secs.	416	9	0.69		406
	407	A		Do.		Do.		60secs.	60secs.	429	5	0.39		407
	408	A		Do.		Do.		60secs.	60secs.	448	7	0.54		408
	409	A		Do.		Do.		60secs.	60secs.	416	5	0.39		409
	410	A		Do.		Do.		60secs.	60secs.	448	6	0.46		410
	411	B		Do.		Do.		60secs.	60secs.	960	10	0.77		411
	412	B		Do.		Do.		60secs.	60secs.	1044	12	0.93	Photo taken.	412
	413	B		Do.		Do.		60secs.	60secs.	1023	12	0.93		413
	414	B		Do.		Do.		60secs.	60secs.	992	25	1.93		414
	415	B		Do.		Do.		60secs.	60secs.	1023	12	0.93	Photo taken. *Fig.* 14.	415
	416	B		Do.		Do.		60secs.	60secs.	1023	9	0.69		416
Additional Tests.	4405	A	TEN TIMES WASHED and ten times ironed.	1b	Suspended from one corner.	Taper.	In contact at lower corner.	60secs.	60secs.	434	9	0.69		4405
	4406	A		Do.		Do.		60secs.	60secs.	—	—	—	Not tested.	4406
	4411	B		Do.		Do.		60secs.	60secs.	434	8	0.62		4411
	4412	B		Do.		Do.		60secs.	60secs.	—	—	—	Not tested.	4412
Additional Tests.	45	A	TEN TIMES WASHED and ten times ironed.	1b	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.	60secs.	60secs.	528	30	2.31		45
	46	A		Do.		Do.		60secs.	60secs.	462	48	3.70		46
	041	B		Do.		Do.		60secs.	60secs.	434	33	2.55		041
	042	B		Do.		Do.		60secs.	60secs.	480	5	0.38		042

GROUP V.

SCENIC CANVAS.

Refer. Number of Sample.	At what Laundry washed if any.	Conditions and number of washings, if any.	Where Tested. Hut No.	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt. per sq. yd	REMARKS. Flame reached top of sample in	REMARKS. Generally.	Refer. Number of Sample.
501	—	UNWASHED as received from Vendor.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	60secs.	1404	504	38.89	32secs.		501
5501	—		1b	Suspended from one corner.	Taper.	In contact at lower corner.		—	—	—	—	—	Not tested.	5501
51	—		Do.	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.		60secs.	525	523	99.84	25secs.		51
502	A	TEN TIMES WASHED and ten times ironed.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	60secs.	1295	846	65.28	28secs.	Photo taken. *Fig.* 15.	502
503	A		Do.		Do.			60secs.	1330	792	61.11	25secs.		503
504	A		Do.		Do.			60secs.	1292	720	55.55	26secs.		504
5502	A		1b	Suspended from one corner.	Taper.	In contact at lower corner.		60secs.	510	348	73.15	25secs.		5502
5503	A		Do.		Do.			—	—	—	—	—	Not tested.	5503
52	A		1b	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.		45secs.	490	490	100.00	14secs.	All consumed in 45secs.	52
53	A		Do.		Do.			42secs.	525	525	100.00	20secs.	All consumed in 42secs.	53

SCENIC CANVAS.

GROUP Va. — *Treated by the Snowdon Process.*

	Refer. Number of Sample.	At what Laundry washed if any.	Conditions and number of washings, if any.	Where Tested. Hut No.	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt, per sq. yd.	REMARKS.	Refer. Number of Sample.
Standard Tests.	505	A	TEN TIMES WASHED and ten times ironed.	1a	Extended and suspended.	Taper.	In contact at centre of lower edge.	60secs.	60secs.	525	9	0.69		505
	506	A		Do.		Do.		60secs.	60secs.	490	6	0.46		506
	507	A		Do.		Do.		60secs.	60secs.	490	4	0.31		507
	508	A		Do.		Do.		60secs.	60secs.	490	6	0.46		508
	509	A		Do.		Do.		60secs.	60secs.	490	6	0.46		509
	510	A		Do.		Do.		60secs.	60secs.	490	4	0.31		510
	511	B		Do.		Do.		60secs.	60secs.	1188	9	0.69		511
	512	B		Do.		Do.		60secs.	60secs.	1188	10	0.76	Photo taken. *Fig.* 16.	512
	513	B		Do.		Do.		60secs.	60secs.	1188	5	0.39		513
	514	B		Do.		Do.		60secs.	60secs.	1188	4	0.31		514
	515	B		Do.		Do.		60secs.	60secs.	1190	6	0.46	Photo taken.	515
	516	B		Do.		Do.		60secs.	60secs.	1188	6	0.46		516
Additional Tests.	5505	A	TEN TIMES WASHED and ten times ironed.	1b	Suspended from one corner.	Taper.	In contact at lower corner.	60secs.	60secs.	507	3	0.23		5505
	5506	A		Do.		Do.		60secs.	60secs.	—	—	—	Not tested.	5506
	5511	B		Do.		Do.		60secs.	60secs.	455	4	0.31		5511
	5512	B		Do.		Do.		60secs.	60secs.	—	—	—	Not tested.	5512
Additional Tests.	55	A	TEN TIMES WASHED and ten times ironed.	1b	Suspended and pleated.	Spirit lamp.	In contact at centre of lower edge.	60secs.	60secs.	525	9	0.69		55
	56	A		Do.		Do.		60secs.	60secs.	540	36	2.78		56
	051	B		Do.		Do.		60secs.	60secs.	504	8	0.62		051
	052	B		Do.		Do.		60secs.	60secs.	490	4	0.31		052

GROUP VI. TISSUE PAPER

	Refer. Number of Sample.	Where Tested. Hut No..	How placed for testing.	Means of producing flame.	Distance of flame from fabric.	Length of time flame in contact.	Duration of Test.	Area of Sample, in sq. in.	Area of Sample burnt, in sq. in.	Amount per cent. burnt, per sq. yd.	Flame reached top of sample in	REMARKS. Generally.	Refer. Number of Sample.
Additional Tests.	I.	1b	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	16secs.	600	600	100.00	3secs.	All consumed in 16secs.	I.
	II.	Do.		Do.			13secs.	600	600	100.00	4secs.	All consumed in 13secs. Photo.	II.
	III.	Do.		Do.			15secs.	600	600	100.00	3secs.	All consumed in 15secs.	III.

GROUP VIa. TISSUE PAPER *Treated by the Snowdon Process.*

Additional Tests.	IV.	1b	Extended and suspended.	Taper.	In contact at centre of lower edge.	60secs.	60secs.	600	8	0.62		Photo taken.	IV.
	V.	Do.		Do.		60secs.	60secs.	600	6	0.46			V.
	VI.	Do.		Do.		60secs.	60secs.	600	8	0.62			VI.
	VII.	Do.		Do.		60secs.	60secs.	600	7	0.54			VII.
	VIII.	Do.		Do.		60secs.	60secs.	600	9	0.69			VIII.
	IX.	Do.		Do.		60secs.	60secs.	600	11	0.84			IX.

GROUP VII. WADDING

Additional Tests.	XI.	1b	Extended and suspended.	Taper.	In contact at centre of lower edge.	Until material ignited.	12secs.	507	507	100.00	2secs.	All consumed in 12secs.	XI.
	XII.	Do.		Do.			8secs.	507	507	100.00	2secs.	All consumed in 8secs. Photo	XII.
	XIII.	Do.		Do.			9secs.	507	507	100.00	1½secs.	All consumed in 9 secs.	XIII.

GROUP VIIa. WADDING *Treated by the Snowdon Process.*

Additional Tests	XIV.	1b	Extended and suspended.	Taper.	In contact at centre of lower edge.	60secs.	60secs.	507	8	0.62			XIV.
	XV.	Do.		Do.		60secs.	60secs.	555	3	0.23			XV.
	XVI.	Do.		Do.		60secs.	60secs.	455	4	0.31			XVI.
	XVII.	Do.		Do.		60secs.	60secs.	510	7	0.54			XVII.
	XVIII.	Do.		Do.		60secs.	60secs.	570	4	0.31			XVIII.
	XIX.	Do.		Do.		60secs.	60secs.	495	9	0.69		Photo taken.	XIX.

GENERAL ARRANGEMENTS.

The tests were carried out according to the procedure laid down by the Executive for investigations of this description, and were conducted by a Sub-Committee comprising:

Ellis Marsland (District Surveyor), *Directing Member.*

Flannelette (untreated).

Fig. 17. Test No. 13.
View at 18 seconds during test.

Flannelette (treated).

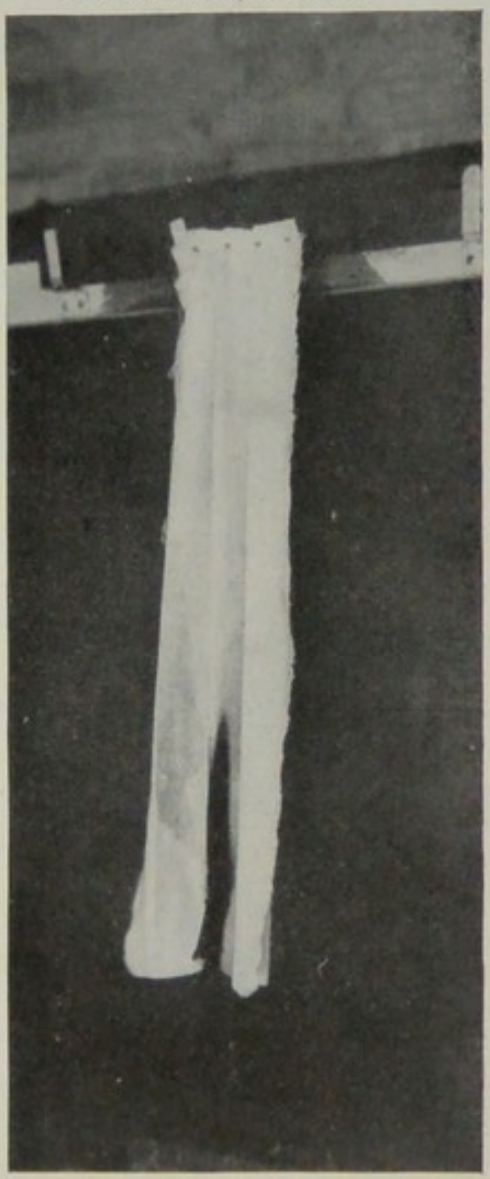

Fig. 18. Test No. 16.
View after 60 seconds test.

Bertram Chatterton, A.M.Inst.C.E. (Surveyor, Yorkshire Insurance Co.), *Deputy Directing Member.*
J. W. Brooker (Hon. Chief Officer, Weybridge Fire Brigade).
Horace Folker, F.A.I. (*Hon. Treasurer*).
C. T. Cuss (Locomotive Dept., G.W. Railway).

S. G. Gamble, A.M.Inst.C.E. (Divisional Officer, London Fire Brigade).

The Council was represented for the testing operations of June 26th, 1912, by:

Flannelette (untreated).

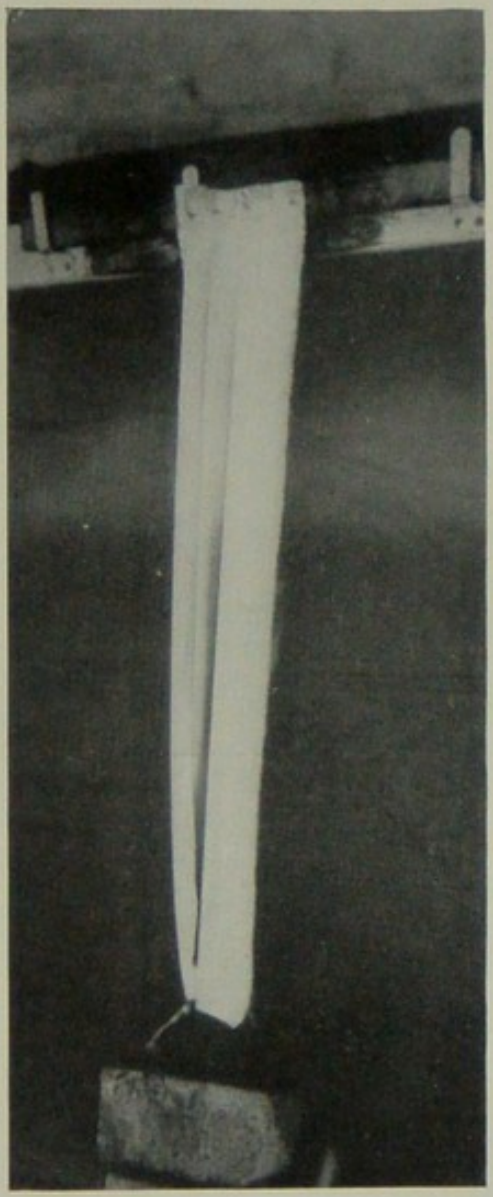

Fig. 19. TEST No. 23.
View at 22 seconds during test.

Flannelette (treated).

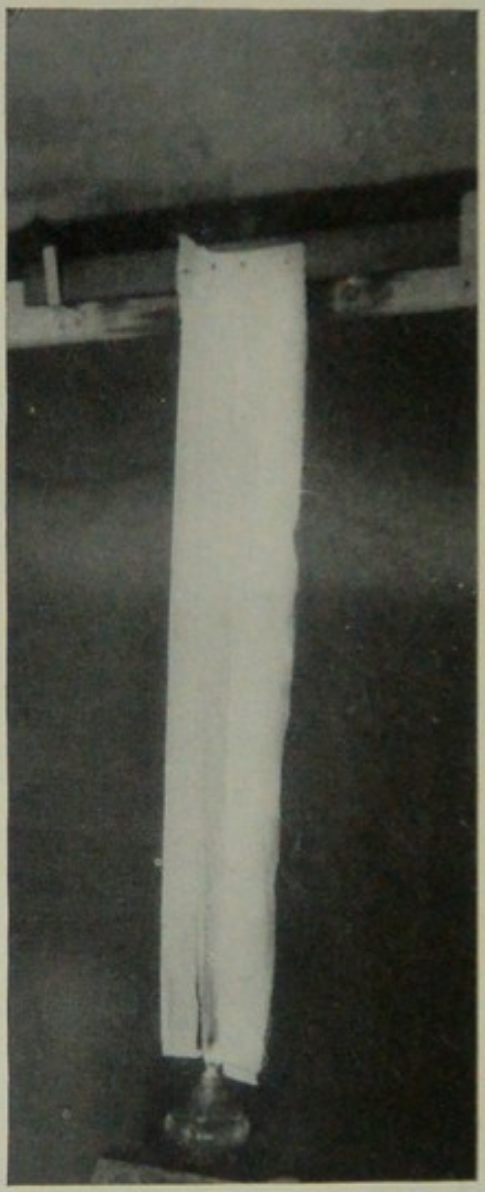

Fig. 20. TEST No. 26.
View at 30 seconds during test.

The Rt. Hon. the Earl of Londesborough, K.C.V.O.
W. T. Hatch, M.Inst.C.E. (Chief Engineer, Metropolitan Asylums Board).

The Executive was represented for the testing operations of June 26th, 1912, by:

Edwin O. Sachs, F.R.S.Ed. (*Chairman*).

The Committee's Hon. Medical Officer, Major R. J. Maitland-Coffin, F.R.C.P., was in attendance.

The general body of members were represented for the testing operations of June 26th, 1912, by:

Messrs. H. M. Bentley (Fire Insurance Manager, Western Assurance Co.), Thos. R. Brooke, Arthur R. Dyer, A.M.Inst.C.E. (Divisional Officer, London Fire Brigade), C. D. Levy (Chief Officer, Fire Brigade, Rochester), P. H. Sims (Toronto).

The following subscribers and visitors attended at the Testing Station by special invitation of the Executive during the testing operations of June 26th, 1912:

Messrs. G. Carder (Prisons Commission, Home Office), D. Cowle (Felixstowe Fire Brigade), H. Chapman, T. D. Clapham, W. W. Craig (Pullar & Sons, Ltd.), H. W. Esson (Peek, Frean & Co.), A. J. Liversedge, A.M.Inst.C.E. (Venesta, Ltd.), Ambrose Lester, C. Robey (H.M. Office of Works), A. W. Slater, Robert Yuille.

Snowdon & Co., Ltd., were represented on June 26th, 1912, by:
Messrs. H. E. Davies, S. L. Durell, E. Noltingk, E. J. E. Tyler, and E. J. Walker.

(Signed)

For the Sub-Committee conducting the test:
ELLIS MARSLAND.

For the General Testing Arrangements Sub-Committee:
J. HERBERT DYER.

For the Executive:
EDWIN O. SACHS.

Published by the Committee as directed by the Executive.

C. ADAMI
(*Assistant Secretary*).

Date—September 5th, 1912.

Verified a true copy of the Report ordered to be published.

SPENCER, GIBSON & SON
(*Solicitors*).

Date—September 11th, 1912.

APPENDIX I.

TESTOR'S STATEMENT.

The flameproofing materials are supplied in powder or *concentrated* liquid form, the use of which is so simple, if the directions are followed, that flameproofing can be carried out by anyone at home.

The powder is made into the concentrated liquid by mixing 3lb. 2ozs. with a gallon of *boiling* water.

This concentrated liquid must be diluted with cold water according to the weight of the material to be flameproofed, thus:

For wood, canvas, plush, velvet, etc., add two parts cold water to one of concentrated liquid.

For serge, tapestry, buntings, etc., two and a half parts water to one of concentrated liquid.

For flannelettes, drills, wadding, etc., three parts water to one of concentrated liquid.

For gauze, muslin, mosquito net, etc., three and a half parts water to one of concentrated liquid.

For paper and artificial flowers, three to four parts water to one of concentrated liquid.

Ordinary textiles should be immersed in the diluted liquid, lightly rung out and hung out to dry, preferably in the open (drying should not be forced in a hot chamber over 80°). Where this is impracticable, as in the case of painted canvas or decorations already hung, the material should be washed, painted, or sprayed, preferably on the back.

Plush and velvet should be painted or sponged on the back, twice if necessary, letting the first dry before applying the second.

Wood should be soaked if possible—if in position wash or paint with three to four coats, allowing each coat to dry before applying next.

Paper after soaking should be placed on an inclined surface to drain, then hung to dry.

Woollen materials require stronger solution and longer soaking than cotton.
