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AN ANNOTATED BIBLIOGRAPHY AND CORRESPONDING
SYLLABUS FOR AN ADVANCED COURSE IN TEXTILES

SISTER FRANCIS GABRIELLE

1957



SCHOOL OF HOME ECONOMICS
MICHIGAN STATE COLLEGE
EAST LANSING, MICHIGAN

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INTRODUCTION

Since small private colleges necessarily have a more limited curriculum than state-supported institutions, they must frequently telescope into one or two courses the several phases of some subjects which are ordinarily treated in separate courses at the larger universities. It was with this situation in mind that the present project was begun, and the writer attempted to develop a one semester course in Advanced Textiles for the home economics department of such a college. She was encouraged to incorporate any timely topics or pet projects that she believed would be important, but her main responsibility was to organize a course which would help the students become acquainted with current textile research and various technological and economic aspects of the textile field.

One of the first problems to be solved was that of providing the students with a survey of textile chemistry, which the writer believes to be important in this era of synthetic fibers and detergents. Since they would have only had two semesters of general chemistry, it would also be necessary to teach them some of the basic principles of organic chemistry before application could be made to textiles and detergents. With that in mind, a block plan was made out in the attempt to integrate some of the typical reactions of the basic functional groups in organic chemistry with the practical applications which these reactions have in the textile field. Some of these topics in the block plan have been worked out in more detailed outline form to show the extent to which the writer intended to develop them

in the classroom. Although the consideration of each topic would necessarily be very brief and concise, it is nevertheless hoped that enough could be grasped by the students to make their reading on technical aspects of modern textiles a little more significant to them.

The second problem was that of acquainting students with textile testing instruments and procedures when there were few, if any, instruments available for them to see or use. By writing to the various instrument companies and obtaining catalogs and direction manuals, it seemed feasible to use these pictures and diagrams as illustrative material to accompany the lectures on the nature, use, and significance of each of the important testing instruments. By analyzing research reports of actual tests made with these instruments, it was believed that the theory given in lecture could be made more meaningful to the students who, though they might never actually perform the tests themselves, would nevertheless be expected to read research reports intelligently and glean some practical value from them.

The various economic aspects of the textile field constituted the third problem in the development of this course, because although the subject is broad the consideration of it must be limited to a few short weeks. It was decided, therefore, that a survey of the factors affecting foreign trade and domestic economic status in the textile industry would be enough to give students an overview of this unit and perhaps stimulate their interest in doing further reading on some of the more specific topics within it.

Another phase of textiles which we felt to be important was a unit on textile consumption, which would apply all the principles learned in the first three units to the selection and care of household textiles and garments. Although it probably would not be treated as a separate unit

but rather integrated throughout the course, it is considered separately in the syllabus just to emphasize the points to be covered.

The final difficulty was that of developing a reading list which would be limited to the references available either in the college library or in the home economics department. To facilitate the organization of such a reading list, the writer decided to survey all the books, recent periodicals, experimental and extension bulletins, and industrial publications related to textiles that were available on campus, to summarize and evaluate the content of each one, and to assign each a code number. Then, under each topic within the syllabus, was listed the code number of any references which would be good to use as source material. The letter part of this code would indicate the type of reference, i.e., book, periodical, bulletin, etc., and the number would enable the reader to find its location in the bibliography more readily. It was felt that this would provide a broader and more flexible reading list for both teacher and student preparation of the various units.

Although there are other phases of the textile field which would be of interest to home economics students, the telescoping of course content can go just so far before there is loss of depth and value to the course as a whole. That is why such topics as the history of decorative textiles and the consideration of furs and leathers were omitted.

The following information concerning the curriculum is here given so that there may be some basis upon which to make any evaluation of this textile syllabus for a small private college. The proposed course, which would give three credit hours for a semester, would consist of two hours of lecture and two hours of laboratory per week over a period of sixteen weeks. The potential students, being upperclassmen, would have already completed one semester of basic textiles, three semesters of clothing

construction, and one semester each of the following courses: Color and Design, Interior Decoration, Costume Planning and Designing, Economics, and Household Physics. Such courses should have prepared them for any technical, aesthetic, or economic aspects of textiles which might be incorporated in the syllabus which is proposed in this paper. The students who would normally elect Advanced Textiles are those who plan to be retailers, interior decorators, textile and clothing specialists, home economics teachers, or journalists for related publications.

ANNOTATED BIBLIOGRAPHY

Section A - Books

1. ASTM Committee D-13. ASTM Standards on Textile Materials. Philadelphia: American Society for Testing Materials, 1956.

This publication contains the definitions and terms, methods of testing, and specifications for textile and related materials developed by the ASTM. In addition to this are tables on basic properties of textile fibers, tables for yarn number conversion, and drafts for several new test methods. In any consideration of the analysis and testing of textiles in an advanced course, this book would be most valuable as an authentic and current source of technical information.

2. Bendure, Z. and Pfeiffer, G. America's Fabrics. New York: Macmillan, 1946.

Although technical data essential for the fabric technician is not stressed in this book, it gives as complete a story as space permits of all fabrics in use at the time of publication. It covers the history, manufacturing processes, finishing techniques, and standards for each of the fibers, and is replete with interesting photographs.

3. Caplin, Jessie. Rayon Fabrics. St. Paul, Minnesota: Riverside Press, 1939.

This booklet, written when rayon was the only man-made fiber in common use, organizes such basic rayon facts as its history, manufacturing processes, and economic statistics. One section gives directions for a number of physical and chemical tests for the identification and evaluation of rayon fabrics.

4. Commerce, U.S. Department of. Textiles Testing and Reporting, Commercial Standard CS 59-44. Washington: U.S. Government Printing Office, 1944.

Provides standard methods for testing the serviceability of textiles and a uniform basis for reporting results of tests. It serves as a guide for testing laboratories so that confusion resulting from a diversity of testing methods can be eliminated. Includes tensile strength, colorfastness, and shrinkage tests.

5. Consumer Service Group. Textiles and Testing Course of Study. Hoboken, N.J.: U. S. Testing Company, 1955.

Although in outline form, this bound copy of the course of study offered at the U.S. Testing Company covers all the basic information pertinent to the analysis and testing of textiles as well as to the technological advances which have been made concerning the manufacturing processes. The numerous flow-charts, swatches, diagrams, sample test reports, photographs, and tables not only contribute to an attractive format, but also to a graphic and very readable presentation of such technical information. It would be very valuable as a basic reference or text in an advanced course.

6. Cooper, S.M. Laboratory Manual for Textile Chemistry. Minneapolis: Burgess Publishing Co., 1948.

This manual, which was prepared for use in the beginning course in Textile Chemistry given at the University of Wisconsin, provides experiences in the preparation and study of microscopic slides of textile fibers; in the determination of chemical properties of fibers; in qualitative tests for their identification; in bleaching, dyeing, and stain removal of fabrics; and in such physical testing as breaking and bursting strength, abrasion resistance, and colorfastness. The scope of this book is obviously much broader than the title would suggest.

7. Dahl, Crete. How to Buy Bedding. Stamford, Connecticut: Dahl Publishing Co., 1955.

Covers the principles involved in the purchase, use, and care of sheets, blankets, and pads as well as of mattresses, springs, and pillows. The discussion of the thirteen factors which determine value in buying sheets reflects the trend in use of standards and specifications, and points out the importance of the analysis and testing of textiles by manufacturers, research laboratories, and distributors. Some of the factors considered are grade of cotton and length of staple; thread count and balance; tensile strength; size, weight, and finish; and dimensional stability.

8. Denny, Grace G. Fabrics. Chicago: J.B. Lippincott Co., 1953.

This reference book, which not only gives definitions, descriptions, and illustrations of various textile terms, processes, fabrics, and finishes, but also includes a discussion of the techniques involved in the analysis and testing of textile goods and a review of the many legislative measures that have been taken to establish standards for textile purchasing, would be very valuable as a ready source of isolated facts in the textile field.

9. Evans, M. and McGowan, E.B. A Guide to Textiles. New York: John Wiley and Sons, Inc., 1939.

A compilation of the basic facts concerning the household and clothing textiles which were in common use in 1939, so that the average consumer and student of textiles could be informed of the characteristics of the various fibers, their manufacture, the finishes which render them satisfactory for certain uses, and the care required. Topical or dictionary-like arrangement of material was used instead of the traditional grouping of topics into chapters.

10. Hart, H. and Schuetz, R.D. A Short Course in Organic Chemistry. Chicago: Houghton Mifflin Co., 1953.

An organic chemistry text which was written to serve those students who, though not majoring in chemistry, nevertheless need to acquire a working knowledge of the practical aspects of this science. The presentation of such topics as polymers, resins, dyes, and detergents is made in an interesting and simple way for those who want to consider them in relation to the textile field.

11. Hartsuch, Bruce. Introduction to Textile Chemistry. New York: John Wiley and Sons, Inc., 1950.

This book covers such basic and pertinent information on textile fibers, both natural and synthetic, as their history and development, their physical and chemical properties, their processing and manufacturing, and their expected behavior under the various conditions to which they may be exposed. Some of the special features which make it desirable for use by advanced textile students are the chapter on chemical calculations as applied to problems in the textile industry, the survey of organic chemistry which gives the student who lacks the background a better understanding of the many organic reactions met in textile chemistry, and the chapter on the chemistry of soaps and detergents and their application to the textile field.

12. Hartsuch, Bruce. Textile Chemistry in the Laboratory. New York: John Wiley and Sons, Inc., 1950.

As the preface states, the experiments outlined in this book were designed to illustrate the chemical reactions involved in the preparation, manufacture, processing, and maintenance of textile materials, and they cover the chemistry of wool, silk, cotton, rayon, hard water, and soap. The section on identification of fibers, and the thought-provoking questions at the end of each experiment would help to crystallize the students' knowledge of the principles involved in this particular science.

13. Hatch, L.F. Organic Chemistry. New York: McGraw-Hill Book Co., 1955.

The main object of this book is to offer a readable and teachable book for students who, though not primarily interested in organic chemistry, must understand organic chemistry because of its close alliance to their major fields of interest. The material is presented briefly but thoroughly with emphasis on the characteristic reactions of the various functional groups, giving particular attention to such practical aspects of the subject as synthetic fibers, plastics, detergents, and dyes. The chapter on polymers includes a table which summarizes the names and structural formulas of the plastics and resins involved in the textile field.

14. Haven, G.B. Industrial Fabrics. New York: Wellington Sears Co., 1934.

This handbook was written for manufacturers, retailers, and students of textiles in order to clarify and extend the general stock of knowledge regarding the physical properties of fabrics. Although many years have passed since its publication, it gives interesting information about early textile research methods.

15. Hess, K.P. Textile Fibers and Their Use. Chicago: J.B. Lippincott, 1954.

Information concerning the textile field is here presented on a level suited to college instruction. It includes such topics as the importance of textiles in the economic and cultural life of man; the characteristics of fibers and fabrics; the influence of construction and finishing methods on cloth; the possibilities and limitations of special finishes; the selection and care of textiles; the factors which affect the cost of clothing and textiles; the purpose and effects of government regulations as they concern labeling, advertising, adulterations, and taxation of textiles; and the scientific methods used in the solution of problems pertaining to textiles. Extra features which make it valuable as a text are the suggestions for laboratory activities and a synthetic fiber identification chart.

16. Hollen, N. and Sadler, J. Textiles. New York: The Macmillan Co., 1955.

In this book, written for use in elementary textile courses, emphasis is placed on the properties that affect the use and care of textiles. The authors included only those manufacturing processes which affect the nature of the fiber, fabric, or finish. The graphic format with its effective use of charts, outlines, and line drawings makes the subject matter readily understandable for underclassmen.

17. Johnson, Eleanor M. ed. Wool in the World. Columbus, Ohio: American Education Press, Inc., 1949.

An educational booklet considering the properties of the wool fiber and all the historical, geographic, and economic aspects of its production from raw material to finished fabric. Some of the particularly interesting and valuable topics are the relationship of breeds of sheep to quality of fiber; the work of scientists to improve soils, grasses, and breeds, to conquer sheep diseases; and the analysis of wool as an economic commodity through the ages.

18. Lee, J.S. Elementary Textiles. New York: Prentice-Hall, Inc., 1953.

The economic, technological, and cultural aspects of textiles are considered in this text. Part One is a study of the present or potential value of fibers in world commerce, and there is very effective use of charts, graphs, and maps to show comparisons of fiber properties and areas in which production of each fiber is important. Part Two is a study of fabrics and the procedures by which they are constructed, dyed, finished, and cared for, and of the various agencies contributing to the improvement or standardization of fabrics. Features which make this book especially valuable for advanced textile students are the glossary of technical terms, the list of indexes commonly used in library reference work, the list of selected books on textiles, the list of journals and other periodicals of value in the textile field, the list of abstracts for speed in reference work, and the inventory of resources of the United States for textiles research, development, education, and testing.

19. Mauer, Leonard and Wechsler, Harry. Man-Made Fibers. New York: Rayon Publishing Co., 1953.

Contains an interesting account of the history, manufacturing processes, dyeing problems, finishing techniques, and end-uses of the synthetic fibers, and is well illustrated with meaningful diagrams and photographs. A good reference for the synthetic unit of any textiles course.

20. Merrill, G.R., Macormac, A.R., and Mauersberger, H.R. American Cotton Handbook. New York: Textile Book Publishers, Inc., 1949.

A comprehensive review of the historical and economic background of cotton growing and manufacturing; the nature of cellulose and the cotton fiber; the cultivation and varieties of the cotton plant; the manufacturing processes from ginning to weaving; the manufacture of cotton knitgoods; the dyeing and finishing of cotton fabrics; and the physical and chemical testing of fibers, yarns, and fabrics. This is a basic reference book for the cotton industry and could be of practical value to the textile educator.

21. Skinkle, J.H. Textile Testing. Brooklyn, New York: Chemical Publishing Co., Inc., 1954.

Since its publication this book has been in general use by the textile industry as a source of information on standards as well as on the instruments and procedures which are used in the physical, chemical, and microscopical testing of textile goods. The tests include qualitative and quantitative analyses of fibers, fabrics, and finishes, and evaluation of such properties as porosity, permeability, absorbability, drapability, serviceability, and tensile strength. A most valuable reference for an advanced course in textiles.

22. Taylor, L.D. Know Your Fabrics. New York: John Wiley and Sons, Inc., 1951.

This book by the noted lecturer at the New York School of Interior Design considers standard decorative textiles and their uses as based on structure, the characteristic expressions of historic fabrics, and the principles governing the choice of coverings for chairs. Would be an interesting and informative source for a unit on household textiles.

23. Von Bergen, W. and Mauersberger, N. R. American Wool Handbook. New York: Textile Book Publishers, Inc., 1948.

A practical reference book not only for the entire wool industry, but also for the textile student. It considers in detail the historic and economic aspects of the wool industry; the breeding and raising of sheep; the physical and chemical properties of wool and of the specialty hair fibers; the grading, production, and marketing of wool; the steps in the manufacturing from sorting of fibers to the weaving of woollens and worsteds; the dyeing, printing, and finishing operations; the manufacture of carpets, rugs, and felts; and the physical and chemical testing of wool products. A comprehensive and interesting account of all the economic and technological aspects of the industry.

24. Wertheim, E. and Jeskey, H. Introductory Organic Chemistry. New York: McGraw-Hill Book Co., 1956.

This book was designed to give students of home economics an organic text which would ensure them a working knowledge of organic chemistry while emphasizing points of fundamental importance and omitting technicalities for which they would find no later usefulness. The practical application of these principles is found in clear, interesting discussions of such topics as copolymerization, synthetic fibers, dyes, soaps and detergents, and synthetic resins. Would be ideal for use in a survey of organic and textile chemistry as found in an advanced textile course.

25. Wingate, I.B. Textile Fabrics and Their Selection. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1955.

Presents facts concerning the manufacturing processes of fabrics to show how they affect the qualities that consumers seek; interprets technical terms found on labels and in factual advertisements of textile products; and gives principles for use in the selection of appropriate fabrics for apparel and for such household goods as domestics, floor coverings, and window hangings. The information is directed primarily to students of textile retailing.

26. Wingate, I.B. and Burkholder, R.S. Laboratory Swatch Book. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1955.

This manual provides students with laboratory experiments which determine the grades of fibers and yarns, the type of construction of fabrics, and the kind and permanency of finishes. It also gives directions for testing launderability and stain removal. To facilitate the procurement of appropriate materials to accompany each experiment, the authors offer sets of swatches to teachers for a nominal fee.

Section B - Periodicals

27. American Association of Textile Chemists and Colorists. "Reports on Synthetic Dyes," Textile World, CVI, No. 11(November, 1956), 128-35.

A collection of the papers delivered at the AATCC convention dealing with synthetic dyes. The condensed reports include such topics as the following: the history and evaluation of test methods for colorfastness; water and light tests; formula for determining depth of shades; color scales as the key to colorfastness testing; tips on using sulfur dyes; development of fast dyes; synthetic dyes for cottons; dyes for the hydrophobic fiber; dyeing polyacrylic and polyester fibers; and solution-dyeing of man-made fibers. They are technical in nature, but would have some value in illustrating the principles involved in the chemistry of dyes and dyeing.

28. Appel, W.D. "International Co-operation on Standardization of Textile Testing Methods," Journal of Home Economics, XLIV, No. 10 (December, 1952), 773-4.

This report concerns the work of several countries which are promoting national and international progress in the development of standard textile terminology and testing methods. It discusses the background of the work, the U.S. participation in it, and its present status. The particular subjects under consideration by the textile committee are colorfastness, shrinkage, analysis of fiber mixtures, commercial weights and moisture regain, humidity and temperature conditioning, methods of measurement, definitions, and nomenclature. Some notable results that have been achieved to date are the S and Z designation for twist and a universal system for expressing the weight-length relations of yarn. Such a report would be valuable in a textiles course wherever the relation between consumer demand and textile research was being considered.

29. Blunt, Irene. "What Is the Place of the Home Economist in the Textile Industry?" Practical Home Economics, XXIX,(November, 1951), 483, 492, 514.

After establishing the fact that retail fabric and garment buyers have been trained almost exclusively to use style and price as their rules of purchase, and that few of them discuss quality and performance of fabrics with any degree of certainty, the article suggests that home economists help to supply the need for more informed people in the buying and supplying of textile products.

30. "Brightening Horizon?" Newsweek, XLIV (August 30,1954), 68-9.

This article gives an overview of the present and potential economic status of the textile industry. It discusses not only the recent developments which tend to make the economic horizons a little brighter, but also the serious worries which still face textile men. Among the former are discussed the increased activity in retail stores; the bid by the Army Quartermaster Corps for six

million yards of all wool serge, which gave a boost to the slump ridden woolen industry; and the series of mergers which have strengthened the financial and organizational structure of the industry. Among the problems still facing the industry are plummeting exports due to increased foreign competition; declining domestic markets due to the trend toward outdoor living and informal dress; retailer resistance demonstrated by merchants who have been liquidating inventories and who order on a hand-to-mouth basis, confident of quick deliveries from near-by mills. Such practice causes havoc in production schedules, resulting eventually in mill shut-downs, wild price fluctuations, and general instability. The recommendations include getting closer to the consumer and improving marketing and merchandising methods; concentrating on product research; and developing tighter consumer standards. This article would be very valuable as a source of information on the present economic status of the textile industry.

31. Burkhardt, W. and Felix, E. "Analysis of the Cross-sections of Synthetic Fibers," Fibers, XVI, No. 11 (Reprint).

Shows how the Uster Spectrograph is a useful auxiliary instrument for working in conjunction with the Uster Evenness Tester. Tells how it enables the diagrams produced by the latter apparatus, which gives pictures of the cross-sections of yarn material to be tested, to be studied so that the appearance of the finished fabric can be anticipated, and causes of undesirable fabric variation eliminated. A good reference article for use in a unit on the analysis and testing of textiles.

32. Byers, G.J. "Apparel and Textile Union Convention in May 1956," Monthly Labor Review, LXXIX (July, 1956), 776-9.

This article presents the highlights in the convention of the textile and garment workers unions, which was marked by concern over civil rights and world problems. Some of the internal union affairs discussed were membership, organization, wages, labor unity, union ethics, union finances, and election of officers. The action taken on national issues included such problems as minimum wage, civil rights, and economic affairs which call upon the Federal Government to reduce poverty, insure full employment, and meet the broad welfare needs of the people. The problem of reducing the broad wage differentials between the northern and southern mills so as to offset some domestic economic problems, would be of particular interest in studying the economic aspects of the textile industry.

33. Caplin, Jessie. "Devices for Teaching Weaves," Practical Home Economics, XXXI (October, 1952), 20-21, (November, 1952), 22.

This lesson on weaves, presented in two parts, includes plain, twill, satin, pile, and leno weaves., and it explains the use of the simple loom. Miss Caplin not only gives definitions for each of the above mentioned weaves, but also gives suggestions for illustrative materials, evaluations in terms of comparative comfort, serviceability, and price, and includes class activities and discussion questions which would be of interest to the students and of help to the teacher.

34. Chase, M.G. "A Serious Blow," Textile World, CV, No. 11 (November, 1955), 84, 186.

The chairman of the National Committee of the Northern Textile Association analyzes the significance of the agreement of our government at Geneva to reduce duties on low-wage foreign goods. He considers the possibility of securing quota limitations on the imports of textiles as the only course of action left for U.S. textile manufacturers who wish to stay in business. A unit on the problems of foreign trade in textiles would find this article quite interesting and informative.

35. Codish, R.M. "Joining the Ranks of Finishes," Practical Home Economics, XVIII (April, 1949), 226.

Summarizes the coronizing process for finishing fiberglass fabrics, and gives the advantages resulting from its use as well as the problems still to be worked out for its successful use in dark colored fabrics. Gives good insight into the achievements and challenges of current textile research.

36. Committee of the Conference of New England Governors, "The Textile Situation in New England," Monthly Labor Review, CXXVI (August, 1953) 832-34.

This committee report tells of the attempt to maintain the textile industry in New England by means of the reduction of wage and work-load differentials between New England and Southern textile mills and by increases in the Northern Mills' productivity. It contains a number of recommendations for action to improve the New England mills' competitive status, claiming that if the region is to maintain the manufacturing needed to survive as a flourishing economy, it is imperative to keep up the textile industry. The report stresses textiles' continuing importance to New England, analyzes the causes for textile losses in that region, and offers such practical recommendations as the reduction of wage differentials by a rise in Southern wages rather than a cut in Northern wages, the equalization of work-loads, and the increase of productivity by keeping abreast of the latest advances in research, technology, finance, markets, and legislation. Would be a good article for giving an overview of the domestic economy problems facing the textile industry in the two textile regions of our country.

37. Cooper, M.M. "Colorfastness of Drapery and Upholstery Fabrics: Colorfastness to Light," Journal of Home Economics, XLVI, No. 3 (March, 1954), 155-60.

Reports the colorfastness to light of 222 drapery and upholstery fabrics, representing all the colors, textures, designs, and weaves that were on the market at the time, and considers the relationship between the type of dye used and its resistance to light. Graphic presentation of information in table and chart form make conclusions more emphatic. Several comparisons were made to show the relationship of colorfastness to light of these fabrics to other properties such as fiber content, probable use, and type of dyestuff. The dyestuffs considered include Substantive, Mordant, Azoic, Acid, Acetate, Vat, and Sulfur dyes. The results of this study would be of interest to textile teachers and to those interested in home furnishings, either as teachers or consumers.

38. "Corduroy," Testing League Bulletin, XV, No. 2, 19-20.

This article presents the history, the manufacturing processes, and the finishing operations of corduroy fabrics in a clear, concise way. It would be valuable for use in any classroom study of this particular type of textile goods.

39. Corkery, J.P. "Earnings in Miscellaneous Textile Industries, October, 1953," Monthly Labor Review, LXXVII (May, 1954), 536-40.

A study by the Bureau of Labor Statistics on the average straight-time hourly earnings of production and related workers in a group of eight miscellaneous textile industries which showed that the earnings ranged from \$1.10 to \$1.60 in October, 1953. It showed that the industries differ considerably in terms of product, equipment, and other characteristics, and that variations in labor-force and skill composition account in part for the differences in the level of earnings among the industries, and also that the differences in the levels of earnings for men and women reflect, at least in part, the fact that women tend to be employed in the less skilled or arduous occupations in the textile industry. This article would have only limited value in a consideration of the economic aspects of textiles.

40. Cormany, E.M. and Densmore, B. "Crease Recovery and Dimensional Stability of Selected Clothing Fabrics," Journal of Home Economics, XLVIII, No. 4 (April, 1956), 265-68.

Points out the limitations as well as the advantages of the use of resin finishes on cellulosic materials. In explaining the advantages of improving crease-resistance, it stated that the use of resins seems to involve the formation of cross-linkages between the cellulose molecules that increase elastic recovery, and that the decrease in moisture absorption by resin-treated fibers tends to lower the extensibility and stabilizes the fabric dimensionally. In the voiles, chambrays, and crashes tested the results showed that crease-resistant finishes tend to improve the crease-recovery and dimensional stability of these fabrics but does not necessarily make them satisfactory according to consumer demands.

41. Day, Dorothy. "Changing Times - Changing Textiles," Practical Home Economics, XXXIII (September, 1954), 42-43.

Discusses the impact of our changing way of life on fashions and fabrics, particularly the trend toward wearing most of the wardrobe around the year instead of just during one season. This practice is made possible by controlled interior temperatures which have increased the use of portable wraps such as sweaters for wear in air-conditioned places and the use of light weight lingerie all year round. The great travel trend has also increased the demand for comfortable, crease-resistant, and easy-to-pack garments. Lastly, the virtual disappearance of domestic help has been responsible in great part for the demand for fabrics which require a minimum amount of care. These factors could also be considered in relation to their effect on the economic status of the various sectors of the textile industry. It would surely stimulate interest and discussion in any textile class.

42. "Developments in Industrial Relations - Textile Industry," Monthly Labor Review, LXXVII (April, 1954), 443-44.

This article contains information and interpretation of the various collective-bargaining developments in wool and worsted textile manufacturing in the first few months of 1954, showing how they grew directly out of the economic problems of the industry. Liquidation of many mills which put many out of work and lowering of tariffs which permitted unfair competition with domestic goods, led the union representatives to renew existing contracts without modification of wages or fringe benefits. The cotton and rayon divisions of the textile workers' union agreed to forego demands for wage increases also, due to the "depressed economic conditions" in the industry. It gives a clear picture of the situation caused by the decline in textile business and the lowering of the tariffs on textile imports.

43. Eurenkrans, F., Roberson, O., Kusan, E., and Petersen, N. "Here's Your Household Linen Review," Iowa Farm Science, XI, No. 1 (July, 1956), 12-14. (Reprint)

An article which surveys the linen market and gives directions on the special kinds of care needed for such items as tablecloths, placemats, bedding, and towelings. All the facts and principles concerning the buymanship and care of these articles in all the common fibers are summarized in well-organized chart form.

44. Falcone, M.A. "Dynel," Practical Home Economics, XXIX (November, 1951) 485, 516.

The technical and practical as well as aesthetic aspects of Dynel is presented in this interesting and easy to understand article by the head of the Bureau of Merchandise Standards of the Associated Merchandising Corporation.

45. Falcone, M.A. "Nylon," Practical Home Economics, XXIX (October, 1951) 429, 458-59.

This article, first of a series of four, discusses the physical and chemical properties of the polyamide fiber, Nylon, and evaluates its advantages and disadvantages for specific end-uses and care requirements.

46. Falcone, M.A. "Orlon and Acrilan," Practical Home Economics, XXX (January, 1952), 19, 41.

Points out the fact that Orlon and Acrilan are two trade names for the same synthetic acrylic fiber, the former being produced by DuPont and the latter by the Chemstrand Corporation. The properties, advantages and disadvantages, and suitability to particular end-uses for this fiber is presented in an interesting and practical manner.

47. Falcone, M.A. "Polyester Fiber," Practical Home Economics, XXIX (December, 1951), 542, 561.

Interesting discussion of the history, characteristics, and applications of the polyester fiber produced by the DuPont Company under the trade-name "Dacron".

48. Falcone, M.A. "Shrinkage-Control Treatments," Practical Home Economics, XXIX (January, 1951), 17, 48.

Considers the two types of shrinkage which cause woollens to change shape or dimensions - relaxation and felting - and discusses the two main categories of shrinkage treatments, namely, chemical treatments which modify the properties of the wool fiber, and physical treatments which consist of coating or impregnating wool yarns or fabrics with resins. The special care required for the washing and pressing of treated woollens is clearly explained.

49. Falcone, M.A. "Special Textile Finishes," Practical Home Economics, XXIX (March, 1951), 123, 152.

Gives information on the methods for applying special finishes, their durability and care required in laundering, and discusses the various types of finishes available on the market with the properties imparted to fabrics by their use.

50. Falcone, M.A. "Water-Repellent Finishes," Practical Home Economics, XXIX (April, 1951), 179, 206-7.

Emphasizes the fact that fabrics which are properly treated with water-repellent finishes not only shed water, rain, and snow but also resist the effects of perspiration, resist spots and stains of a non-oily nature, and resist wrinkling because they resist dampness. Proves that since soil does not penetrate the fiber, but remains on the surface, these fabrics not only stay clean longer, but when soiled are easier to clean or to launder. Explains the two main types of water-repellent finishes - durable and retreatable - and describes in detail the various laboratory methods used to evaluate the effectiveness and durability of this finish.

51. Falcone, M.A. "Wrinkle-Resistant Finishes," Practical Home Economics, XXIX (May, 1951), 227, 249.

Presents the principles involved in wrinkle-resistant finishes, both as to type and method of application. Analyzes the features, other than crease-resistance, which are imparted to fabrics by this kind of finish, and gives directions for proper care to prolong the desirable effects.

52. Fletcher, Hazel M. and Roberts, Helen. "Predicting the Wear-Life of Sheer Curtaining Materials," Journal of Home Economics, XLVI, No. 5 (May, 1954), 318-19.

Since both household and institutional purchasers are interested in the life expectancy of window curtaining, these buyers often appeal to the textile laboratories for predictions as to how long certain specific materials will last. This article shows how a method has been developed to use the mathematical approach in estimating the durability of curtaining, which is mainly dependent on the rate of its deterioration by light and its original strength. A good example of the type of research being done in the field. It would be valuable for use in an advanced textile course where some review of current textile research is called for.

53. France, B., Kurzman, D., Ashmore, W.G., and Thomas, P.M. "Textile Tariffs - A Three Way Battle," Textile World, CV, No. 4 (April, 1955), 91-100.

This series of four articles includes a report of what the U.S. government is trying to do in slashing textile tariffs; an explanation of why Japan has to find textile markets; a discussion of the reasons for the U.S. mill men's opposition to tariff cuts; and an analysis of what should be done about the whole problem. An excellent source for a round-up of important views of the industry.

54. Furry, M.S. "Laundering of White Nylon," Journal of Home Economics, XLIV, No. 10 (December, 1952), 793-94.

Reports a study on the selection and use of detergents, with special reference to the laundering of white nylon. The work is reported in three phases: measurement of the cleaning efficiency of ten household soaps and synthetic detergents to wash dirt out of heavily soiled nylon test fabrics; measurement of the effects of detergents on shrinkage, strength, and color of white nylon which had been laundered repeatedly with five of the ten detergents used in the soil-removal study; and determination of the best methods for keeping white nylon white, including an evaluation of the use of bleaches and bluing.

55. "Guide to Some Well Known Finishing Terms and Finishes," American Fabrics, 23(Spring, 1954), 71-75.

This alphabetized collection of definitions, descriptions, and evaluations of various finishes and finishing terms would be good to use in a lesson on labeling, because trademarks of the popular manufacturers are analyzed for claims, directions for care, and guarantees.

56. Hallowell, H.T., Johnson, A.E., Lam, L., Lovell, M., Reeves, J.E., and Talbott, P. "Standards - A Reality for Today's Textile Consumer," Journal of Home Economics, XLVIII, No. 10 (December, 1956), 758-60.

Summary of a symposium on textile standards at the textiles and clothing section meeting of the AHEA's annual convention. It explains the difference between standards such as those developed by the American Standard Association and the Textile Distributors Institute. Points out the popular objections to the use of textile standards, but then proceeds to defend the basic principles and purposes. Discusses commercial application of standards and the common retailer's outlook on the situation, which maintains that performance must become the third factor in evaluation of textiles, the two established factors being price and style. A good reference for use in studying the problems of textile consumers.

57. Harbison, F.H. and Ibrahim, I.A. "Some Labor Problems of Industrialization in Egypt," The Annals of the American Academy of Political and Social Sciences, CCCV (May, 1956), 114-24.

This article contrasts the advanced technology of some of the Egyptian textile mills with their relatively primitive and wasteful use of manpower resources. It explains how Egypt and other countries who are latecomers to industrialization have reaped the benefit of completely new modern plants and advanced technical equipment, but have failed to develop economically and politically in regard to world trade in textile goods.

58. Hasler, A. and Honegger, E. "Yarn Evenness and Its Determination," Textile Research Journal, XXIV, No. 1 (January, 1954), 73-85. (Reprint)

Evaluates the new automatic methods of testing yarn evenness and strength to determine the fundamental properties of a yarn. It proves the close relationship between yarn evenness and tensile strength, and shows how the irregularity diagram of an unsatisfactory yarn quality may give useful hints as to the probable sources of the deficiency. Would be valuable as an example of textile research in any advanced textiles course.

59. Henry, M.F. "The Finish Increases Beauty and Service," What's New in Home Economics (September, 1955), 100-104, 122-30.

This lengthy article covers all the fabric finishes in use today, together with the principles involved in their development, the instruments and methods used in testing their effectiveness, and the various end-uses established by their application to fabrics. An excellent two page chart summarizes some of the typical fabric finishes giving trade names; fabric treated, additional properties, guaranteed method of application, tolerance, permanence to laundering and dry cleaning, care and sample hangtags and labels used for identification purposes.

60. Hawkins, J.B. and Keeney, P.E. "Qualities of Dacron and Cotton Blends Used in Shirting Compared with All-cotton Fabrics of Similar Construction," Journal of Home Economics, XLVIII, (March, 1956), 189-194.

This article offers an objective comparison of the construction and performance features of these shirtings to determine the type of advantages offered by the blends. The advantages of crease-resistant and retention of finish proved to be dependent upon the care given during laundering.

61. Henry, M.F. "The Newer Fibers in Decorative and Household Fabrics," What's New in Home Economics (October, 1952), 67, 158-162.

Evaluates the ability of nylon, Orlon, Fiberglas, Dynel, Plastic, Fiber E rayon, and Vicara to give durability, new appearance over a long period of time, and ease of care to decorative and household fabrics in addition to the traditionally sought qualities of beauty, hand, design, and styling.

62. Henry, M.F. "New Fabrics Have Planned Performance," What's New in Home Economics (September, 1952), 82, 133-39.

An interesting account of the influence of the synthetic fibers on fabric properties. Includes a discussion of the properties and production problems of acrylic, polyester, and zein fibers, and develops the advantages and principles of blending fibers, pointing out the relationship between content percentage and effect on fabric performance. It has a chart which gives typical apparel uses and fabric characteristics of Acrilan, Dacron, Dynel, Orlon, and Vicara. This would be an excellent article to use as reference in any discussion of the synthetic fibers, because all the important facts and points of comparison or difference among the various types are summarized in brief and graphic form.

63. Henry, M.F. "Opulent or Casual - The Look of Velvet, Velveteen, Corduroy," What's New in Home Economics (December, 1955), 28-34.

This interesting and informative article analyzes the difference in construction processes involved in each of these pile fabrics, and gives principles governing their purchase, use, and care. Any unit on consumer problems of textiles would find this a valuable reference.

64. Hollen, N. and Roberson, O. "Buying Today's Fabrics", Iowa Farm Science, IX, No. 2 (August, 1954), 11-14. (Reprint)

Contains an interesting and practical discussion of the characteristics and importance of informative labels; the recommended techniques for laundering synthetic fabrics; and the problems of heat-set wrinkling, "permanent" pleats, and pilling which are often met in connection with garments made of these fibers. Another article which could be put to good use in a textile unit on consumer problems and their relation to research.

65. Honegger, E. "The Uster Instrument for the Stapling of Cotton and Rayon Fibers," Journal of the Textile Institute, XLII (February, 1951), 57-74. (Reprint)

A report from the Swiss Federal Institute of Technology on the instruments used for the stapling of textile fibers, which points out its advantages and disadvantages as well as the methods to be followed in its use. The Staple Diagram, produced by the instrument, is of considerable interest and helps in judging the quality of the fibers as well as changes of quality that occur during processing. Good source of information on the type of textile research being carried on in foreign countries.

66. "Imported Woolens - Friend or Foe of Domestic Industry?" American Fabrics, XXXI (Winter, 1954), 102-105.

This article analyzes the purpose served by imported woolens; the history of this type of importation; the effect of low wage rates in other countries; and the production of short warps in specialty fabrics. A chart summarizes information on the traditional imported fabrics giving types, uses, and countries which export them.

67. "The Japanese Again," Newsweek, XLVI (August 1, 1955), 65-66.

Considers the effect of the increased shipments of textile goods to America after the lowering of the tariff. Although the total number of square yards of imported cotton is little over 100 million compared to the 11 billion of domestic output, it has been stated that a quarter of a million yards a week of low-priced Japanese goods are ample to starve out industry of profit. It shows how Japan's low prices are made possible by low wage rates (22 cents an hour compared with \$1.30 in this country), and also by its complete rebuilding of its textile mills with modern, efficient machinery.

68. Jones, Mary Elisabeth. "Laundering the New Synthetics," Practical Home Economics, XXXI (February, 1953), 31,49.

Points out similarities and differences in properties and laundering techniques for the synthetic fibers such as Nylon, Orlon, Dacron, and Dynel. The laundering techniques included type of washing kind of soap or syndet, bleaches, dyes, ironing, and spot removal. Discusses the difficulty of keeping white nylon white.

69. Jungsman, Martha E. "New Textiles Entice the Consumer," Journal of Home Economics, XLVII (April, 1955), 239-42.

Suggests steps in the consumer analysis of textile goods which are to be purchased to fill a definite need and then stresses the importance of using it according to its intended application if satisfaction is to be assured. The three steps in the above analysis include identification of the raw material from which the fabric was made; determination of the construction of the fabric; and knowledge of the finish which has been applied to the fabric to add service and beauty. This article would be ideal to use as a basis for any unit on the consumer considerations in the textile field.

70. Eeasay, Pauline E. "Performance of Dacron-and-Cotton Shirts Compared with All-Cotton Garments of Similar Construction," Journal of Home Economics, XLIX, No. 3 (March, 1957), 187-91.

A subjective as well as objective comparison of the comfort and serviceability of these shirts to determine the validity of advertising claims. Tables summarize the characteristics most frequently noted during testing and used as a basis for the subjective evaluation; namely; wrinkling, warmth, and change in size. This report is a good illustration of how subjective opinions can be used to determine objective values in an article to be used by many consumers. It can be compared to taste panels in food research, and would be interesting to a class which is considering methods in the analysis and testing of textiles.

71. "Key to Successful Textile Maintenance," American Fabrics, XXVII (Summer, 1955), 58-63.

An excellent summary, in chart form, of all the common textile fibers in use today together with the properties they possess which affect their beauty, serviceability, and successful maintenance. Some of the properties which are considered are effect of alkali, acid, bleach, sour, and dry cleaning solvents; recommended finishing temperatures and techniques; resistance to abrasion, mildew, wrinkling, color change, shrinking, stretching; and such characteristics as bulk, strength, drapability, moisture absorption, and appearance. This chart would be a handy reference for comparisons to be made in any consumer problems which might be under consideration in a textile class.

72. "Knitting Flow-Chart," Textile World (April 1947), 89-96.

Points out practically all the manufacturing steps in knitting plants, and shows that the knitting division of the textile industry has very distinct sub-divisions, including finishing operations and garment manufacture. This flow-chart could be used effectively in giving students an over-view of this phase of the textile industry.

73. Laberthe, J. "Fabric Facts versus New Names," Journal of Home Economics, XLIV, No. 6 (June, 1952), 419-22.

This humorous and provocative article analyzes the effect of so many new fiber names and finishing claims on the mind of the consumer when she considers the purchase of a fabric. It holds that customers should have the opportunity to buy fabrics guaranteed to meet certain minimum service conditions as established by laboratory tests designed to forecast their performance in actual consumer use. It reviews the advances that have been made in fast development and publication such

74. as the Federal Trade Commission Rules for rayon and acetate; the Rayon Standards of the ASA; the wool-labeling laws; the programs of the Consumer-Retailer and Teacher-Retailer Councils; and the research of such technical societies as AATCC, AATT, and ASTM. It concludes with a consideration of the consumer's responsibility for finding the facts that are significant for the wise purchase of a textile item. Would be valuable as an example of the relationship of consumer demand to textile research.

74. Lewis, H.W. and Brooks, W.W. "How to Sew on the New Fabrics," Home Farm Science, I, No. 11 (May, 1956), 16-18. (Reprint)

Considers the possible trouble spots to be encountered when sewing on synthetic or resin-finished fabrics, and gives clear, practical instructions on the techniques to be used in overcoming these difficulties.

75. Lyle, D.S. "New Drapery Fabrics," Practical Home Economics (April, 1949), 204-5, 230-32.

An evaluation of the drapery fabrics available at the time of publication which shows that they could be disappointing as well as exciting. The article reviews the fiber combinations, fabric characteristics, methods of design application, and types of finishes which were being used to give added decorative appeal to drapery fabrics, and it presents a resume of what service could be expected from them and how they would react to drycleaning and washing. Would be interesting to use for a comparison with the type of consumer information which is available now, eight years after the article was published.

76. "The Making of Modern Textile Dyes," American Fabrics, No. 25 (Spring, 1953) 55-62.

The Ciba Company's newest Textile Dyes plant in New Jersey is used to illustrate the story of modern textile dye making. The pictures of the plant, its equipment and its operations give one a good idea of the steps involved in textile dyeing. A flow-chart for the manufacture of specific dyestuffs and a chart of dyes used for fourteen of the major textile fibers summarize the information in a graphic way. This unit of textile chemistry could be made more meaningful by use of this story.

77. "Wane from England," U.S. News and World Report, XXXVIII (June 10, 1955), 93-94.

Analyzes the external and internal causes of the critical condition of the cotton industry in Lancashire, England, birthplace of the Industrial Revolution. Among the former are included the fact that distant dominions are no longer content to accept products of Lancashire mills in exchange for raw materials; that cheap cloth from Indian mills filled the protected market in India and is even invading Britain itself; that Australia cut imports of cotton cloth by 33%; and that countries throughout the world delay buying from England in hope that the American surplus cotton will flood the market at low prices. Among the internal causes listed are the stubborn refusal of mill owners to modernize the industry; the failure to specialize in kinds of cloth with which they have competitive advantages; and the union's insistence on wasteful practices. This article would be an excellent model as well as source of information for use in the consideration of the economic aspects of the textile industry.

78. Morris, M.A., Lund, L.O., and Phelps, E.L. "Blended Suitings Compared," Journal of Home Economics, XLVIII, No. 10 (December, 1956), 774-78.

Reports a study made on fourteen plain-weave suitings containing blends of Dacron, nylon, Orlon with wool and rayon, together with all-Dacron, all-rayon, and all-wool fabrics. These suitings were analyzed with respect to certain properties that affect durability, ease of care, comfort, and appearance, and the findings indicated that while the different fibers may complement each other in blended suitings, the customer should base his final selection of a suiting on the fabric characteristics which are of utmost importance to him. This article would be valuable to use as an illustration of the relationship between consumer demand and textile research.

79. "New England Textile Unemployment," Monthly Labor Review, LXXVIII (June, 1955), 645-48.

Analyzes the internal and external causes of the wide-spread unemployment in New England textile communities; surveys the conditions of the displaced workers; and offers remedies for this economic problem in the industry. An interesting and informative article for use in a classroom consideration of the relocation of textile mills from north to south, and the effect it has on both the industry and the community.

80. "New Finishes in the Offing," American Fabrics, No. 30 (Fall, 1954), 98-102.

Discusses the work of the textile chemist; the relationship of the research laboratory, the pilot plant, and the application laboratory to the development of new fibers and finishes; forecasts the cure for resin finishes yellowed and weakened by chlorine retention; and treats of other problems yet to be solved by textile research. Any study of textile chemistry would find practical applications in this article.

81. Padgett, Rose. "Textiles and Testing Techniques," Practical Home Economics, XXXII (June, 1954), 17-19, 41.

Summarizes the content of the three week summer course in Textile Testing offered yearly, including review of raw materials, yarns, and fabrics; methods of finishing and dyeing; physical and microscopic tests used in the identification of fibers; relationship of various branches of chemistry to the textile industry; review of bacteriology and engineering as related to textile testing; introduction to psychometrics as a method of testing and evaluating the so-called intangible properties of textiles; and field trips to such places as a dyeing and finishing plant, a tannery, a testing laboratory of a magazine for women, a pattern company, and the studio of a dress designer. The value of such a course, and even of such an article, to a class in advanced textiles is obvious. Some particularly interesting topics were Certification and Labeling to insure maintenance of quality; Application of Radioisotopes to eliminate static electricity in fabric finishing; and a complete description of the Flammability Tester to show how this factor can be quantitatively determined. The unit on textile research or on the analysis and testing of textiles would be made interesting and informative by this type of article which summarizes the important instruments and procedures in use by the industry today.

82. Paulk, R.H. "Use of Accelerator for Laundering Terry Towels, Measured by Changes in Thickness, Weight, and Absorption," Journal of Home Economics, XLIX (March, 1957), 192-96.

Reports an attempt to develop a laboratory method of duplicating normal wear of household textiles so that the length of time needed for the pre-evaluation of such items could be shortened. This well written article could be used as an example of the points to be included in the report of textile analysis and testing.

83. Phelps, E.L. et al. "Serviceability of Four Types of Cotton Fabrics," Journal of Home Economics, XLIII, No. 10 (December, 1951), 788-93.

This research report concerns the serviceability of broadcloth, poplin, suiting, and jean when used for uniforms worn by dietitians, nurses, and other professional workers who held that serviceability is an outstanding requirement for uniform fabrics. The relative durability of these four materials, based on visual evidence of wear, was substantiated by the measurement of such fabric characteristics as weight, thickness, breaking strength, and elongation. The poplin proved to be the most serviceable of the four fabrics, and the suiting the least durable. Such an article shows the practical need and application of textile testing.

84. Pressley, R.B. "Report on Non-Woven Fabrics," Textile World (January, 1956) (Reprint)

Presents the latest information on the important manufacturers of non-woven fabrics; tells what non-woven materials are used for; and describes the equipment and methods used in its manufacture. Includes felted and bonded types of non-woven goods for scores of end-uses. It would be a good reference to use for an overview of this aspect of the textile industry.

85. Price, C.A. "The Story Behind Cotton Research," Texas Agricultural Progress, I, No. 3 (July-August, 1955), 15. (Reprint)

Considers the purpose and progress of the Beasley Laboratory at Texas A and M College. The main objective of the work there is to seek out important or new and extended economic characteristics which may be carried by the cultivated and wild cottons of the world and their various hybrids. The next step is to devise ways and means of using them in the improvement of our cultivated American Upland types. This rather technical article would have limited importance in a textiles class, but it does point up very clearly another type of textile research which is being carried on in relation to raw material quality.

86. Quig, J.B. "The Consumer Looks at 1953 Fabrics," Journal of Home Economics, XLV, No. 9 (November, 1953), 643-47.

The sociological and economic factors which influence the frequent shifts in preference for one fiber over another are analyzed in this interesting article by a textile research manager from DuPont. The second problem considered is that of the channels of consumer information, and it points out the distinct objectives and responsibilities of industry and education in that regard. The third topic treated by the author is that of blended or mixed fabrics, and helps to make the article a very profitable source of significant information on economic and consumer aspects of the textile industry.

87. Quig, J.B.; Tesi, A.F., Goldberg, J.B., Getchall, N., and Laxer, G. "New Industry Research in Textiles," Journal of Home Economics, XLVIII, No. 3 (March, 1956), 177-83.

A symposium made up of representatives of industries concerned with the new synthetic fibers, with acetate, rayon, cotton, and wool, which describes some of the current commercial research on these fibers and the fabrics made from them. As for the first of these topics, synthetic fibers, the author points to a threefold aspect of research, namely, 1) development of technology for the production of aesthetic fabrics which will give the maximum utility for modern living; 2) discovery and development of entirely new fabrics and new end-uses for synthetic fibers; and 3) carrying out textile research on new fibers to determine whether creativity can be further extended to satisfy the sociological and technological needs of our progressive civilization. The second article shows how research on triacetate has made it possible for it to be used to produce the kind of fabric desired by the American textile consumer. The author of the third article shows how research by the rayon producers has resulted in constant improvement in rayon staple and continuous filament, as well as in finishes for rayon fabrics. Current cotton research, summarized in the fourth paper of this symposium, covers three levels of the industry - fiber production, textile processing, and fabric finishing. The last article of this series reveals that the areas and objectives of wool research today are concerned with production, processing, fundamental fiber properties, and fiber and fabric modification. An excellent article for an overview of industry research in textiles for use in an advanced textile course.

88. "Rayon and Acetate," Practical Home Economics, XXI (March, 1952), 118, 133.

A brief review of the Federal Trade Commission rules for labeling rayon and acetate fibers. Since these two fibers differ in the way they are manufactured, in what they will do, and in the care they require, the FTC rules to regulate their labeling and description have been promulgated to help consumers select and care for fabrics containing one or both of these fibers. The article summarizes the characteristics of each of these fibers, the manufacturing processes specific for each, and the FTC requirements. Would be ideal to use for a practical student problem in a unit on textile consumption and labeling.

89. Roseberry, ED. "A Guide to Fiber Properties," Practical Home Economics, XXII (September, 1953), 26-27.

The purpose of this guide was to have basic facts about fiber properties arranged in such a way that the consumer could compare them in considering them for a specific purpose, for example, marquisette window curtaining. The author suggested three steps to be followed in any selection of fabrics: 1) List the properties you want in order of importance; 2) Refer to the property chart and list all the fibers which satisfy these requirements in order; 3) Find those that are listed every time and look for any other characteristics which would make them more or less satisfactory. Some of the properties listed in the chart are strength, specific gravity, moisture absorption, elastic recovery, heat resistance, light resistance, abrasion resistance, wrinkle resistance, dimensional stability, and crease retention. The consumer aspect of textiles could be well illustrated by using these article in the textile classroom. A practical problem to be solved by the students could be easily worked out from this chart.

90. Saunders, D.A. "Burlington Weaves a New Pattern," Fortune, I (December, 1954), 106-109, 152-162.

Shows how Burlington Mills is in the number one position in the textile industry as a result of the Pacific Mills, Goodall-Sanford mergers. Reviews some of the advances made under the leadership of Spencer Lowe such as diversification in uses of traditional fibers, decentralization programs, and the building of modern plants with efficient equipment and layout. The effect of the recent trend in mergers is clearly seen in this lengthy but interesting article.

91. Saunders, D.A. "The Stormiest Merger Yet," Fortune, LI (April, 1955), 162-71.

A step-by-step report on the triple merger negotiations between Textron, American Woollen, and Robbins Mills to form Textron American. Gives insight concerning the impetuous Roy Little of Textron and the obdurate Joseph Ely of American Woollen and their influence on their respective companies. Points up many of the economic and managerial aspects of the textile industry.

92. Saunders, D.A. and Parker, S.S. "The Sunny Outlook for Clothes," Fortune, XLIX (April, 1954), 238-42, 133-36.

Analyses the great changes in the apparel market that have occurred during the past eight years as a result of the changing way of American life and the trend toward more casual dress. Lists some of the important factors that have been responsible for the revival in the cotton market, namely, the trend toward informal dress; the development of no-iron, wrinkle-resistant finishes, permanent glazes, and embossed effects; magnificent styling together with the traditional virtues of being washable, shrinkproof, durable, colorfast, and basically low in price. Other topics discussed at length are the growth in the synthetic market and the decline in the demand for wool, rayon, and acetate. An excellent and graphic summary of the fiber market changes from 1939 to 1953 is presented in chart form, and would be very helpful in any classroom consideration of the economic aspects of the textile industry.

93. Saunders, D.A. "The Twilight of American Woollen," Fortune, XLIX (March, 1954), 93-96, 198-204.

Report on American Woollen Company's 1952-53 deficit position, its managerial and operational shortcomings, competitor's views, fiscal and physical reorganization plan, future prospects, liquidation issue, and corporate history. Such an article points up the importance of modern equipment and efficient layout for economic success in the textile industry, and gives indirectly a better understanding of the issues involved in the subsequent merger of American Woollen with Textron.

94. "A Sick Industry Is on the Mend," U.S. News and World Report, XXXVII (September, 1954), 106-9.

This tersely informative article represents the result of an extensive research on a problem of outstanding importance, namely, the economic situation in the textile and clothing industries. It tells the signs of improvement after a few years slump, tells what is behind the change, and estimates how far it is likely to go. Each of the separate industries in turn are analyzed - cotton, rayon, acetate, and wool. A unit on textile economics would be richer by including this article in the readings.

95. Sollenberger, W.S. "Cationic Softeners - Their Secondary Effects on Textile Fabrics," American Dyestuff Reporter (January 28, 1957) 41-57. (Reprint)

Since cationic softeners frequently play an important role in the various chemical finishing treatments which are applied to fabrics, a study was made to determine the effect of cationic softeners on secondary fabric properties. The softeners were applied by accepted procedures to Acrilan, Arnel, cotton, nylon, rayon, and wool fabrics under mill conditions. An attempt was made to determine relative differences between softener types on such fabric properties as tear strength, seam strength, electrical resistivity, aging, heat, color change resulting from the latter two, and from ultra violet light. Results of these tests as related to the various individual fabrics are discussed and test data is presented in table and graph form for ready reference. A unit on textile chemistry would find many practical applications to its principles in the technical article.

96. Stell, R.G. "An Improved Multipurpose Abrasion Tester and Its Application for the Evaluation of the Wear Resistance of Textiles," Textile Research Journal, XIX (July, 1949), 394-414. (Reprint)

This article reports the development of an improved multipurpose abrasion tester after systematic consideration of the mechanics of fabric wear and extensive experimentation with various test methods and machines. It claims that the apparatus is capable of quantitatively measuring resistance to flat-, edge-, and flex-abrasion under carefully controlled conditions, producing macro- and micro-wear wear patterns which are the same as those obtained in actual wear. A valuable article for gaining an appreciation of the early stages in the development of this type of testing instrument for textiles.

97. Stell, R.G. "Laboratory Evaluation of the Wear Resistance of Nonwoven Fabrics" American Dyestuff Reporter, XL, No. 10 (May 14, 1951), (Reprint)

Discusses the nature of the breakdown of non-woven fabrics by complex mechanical wear actions. Since flex abrasion and surface abrasion under dry and wet conditions are considered to be critical actions in service wear, test procedures for measuring resistance to these actions by means of a new instrument are described. The results obtained on four bonded fiber webs are used to demonstrate the relative precision of the methods and their capacity to predict wear resistance in general. Any unit on the analysis and testing of textiles would find this article a valuable source of information on instruments and procedures.

98. Stout, E.E., Zillgitt, C.L., and Ferraro, M.R. "Effects of Laundering and Dry Cleaning on Laboratory Performance of Certain Resin-Finished Winter Cottons," Journal of Home Economics, XLIX (March, 1957), 197-202.

Considers the effects of comparative care procedures on resin-finished winter cottons. The findings showed that the test fabrics performed better when dry cleaned than when washed by either method in respect to dimensional stability, strength, crease recovery, and maintenance of original color and hand. Results also showed that automatic washing, while having no more adverse effect on crease recovery than hand washing, was accompanied by greater shrinkage, loss of hand, and greater color change. This type of analysis and testing could readily be done in an advanced textile course where the number of testing instruments would be limited and the number of students small.

99. "Textile Industry Seminar," Journal of Home Economics, XLVIII, No. 9 (November, 1956), 698-99.

This article reports a four-day post-convention textile industry seminar arranged in cooperation with the four large textile companies on the east coast. It summarizes the contributions of each of these companies, the first being the duPont story which covered the broad and basic operations of the textile industry from fundamental fiber research, through production of finished fabrics, to care and handling of garments and household furnishings. The second contribution was that of the American Viscose Company which entertained the seminar group in its textile research department so that the members might observe applied textile research in industry. At the Celanese Corporation of America the seminar caught a glimpse of how a yarn producer operates in and influences the fashion world, and how trends in fabric styling are affected by European weavers. The final contribution considered in this article is that of the advertising offices of the Eastman Chemical Products Incorporated which demonstrated to the home economists the promotional activities of a fiber producer, particularly in reaching the buying public when actually he makes nothing that can be sold directly to the consumer. This report would not only give important information to textile students, but would no doubt stimulate interest in the industry itself as a future profession.

100. "Textiles: The Industry the Boom Missed," U.S. News and World Report, XI (June 1, 1956), 109-11.

A special report on economic conditions in the textile industry which shows that it has been hit by three depressions since World War II; that although it began a comeback little more than a year ago, the recovery is stepping due to the trend toward more informal dress and the fact that foreign textiles are now taking more of the world market; that it has been swept by waves of mergers, New England mill closings, relocation of factories, and modernization of equipment; and that it is seeing a trend toward fewer and bigger companies, toward greater variety of production. It would be a good article to include in a reading list for a unit on textile economics.

101. Thomas, P.M. "Japan Has Struck," Textile World, CV, No. 11 (November, 1955) 79.

An editorial which analyzes the effect of the cotton tariff laws of September 10, 1955 which opened the flood gates for Japanese imports. It tries to establish the fact that such a move is a serious threat to the U.S. textile industry, and although it is completely one sided, it gives statistics to prove any claims. Would be a good article to use for stimulating student interest in the problems of world trade in textiles and its effect on our own economic status.

102. Thomas, P.M. "What's Happening to Synthetic Fibers," Textile World, CVI, No. 9 (September, 1956), 82-83, 117.

Considers the production of new fibers such as Veral, Darlan, Creslan, Teflon, and Zefran whose properties will enable them to be directed toward specific end-uses. It also tells of improvements that have been made on the established synthetics which result in new end-uses and more desirable properties. One of the best available articles on the newest synthetic fibers for use in a textile classroom.

103. Thompson, Thelma and Bentley, Millicent. "Time Tested Lesson on Acetate Fabrics," Practical Home Economics, XXXIII (February, 1955), 82-84.

This sample lesson plan was developed with four objectives in view, namely, to distinguish acetate's qualities and how they compare to other fibers; to describe materials and methods used in the production of acetate; to point out the most suitable uses for acetate; and to give instructions on the proper care of acetate fabrics. It suggests the use of some specific visual aids and includes some test questions for use in reviewing the lesson. Although the lesson was developed for high school level, there are many ideas which could be used on a higher level as well.

104. "Uster Spectrograph Is Considered a Valuable Mill Testing Tool," America's Textile Reporter (February 14, 1957) (Reprint)

Shows how this new instrument pinpoints information from the Evenness Tester making possible the control of most yarn irregularities. It lists the four functions performed by the Spectrograph as: 1) It allows a correlation between yarn irregularities and fabric appearance. 2) It makes possible the exploration of what is causing a specific yarn irregularity. 3) It sets up a trustworthy guide so that the mill can improve its fiber control. 4) It gives a permanent "history" of the sample from raw stock to spun yarns. In spite of the fact that it is very technical in content and style, this article is one that could readily be used in a consideration of the instruments used in the analysis and testing of textiles.

105. Walmaley, L.L. "Finishing of Acetate Tricot," The Knitter (July, 1952) (Reprint)

Reviews the qualities that the consumer looks for in tricot knit garments and shows how research has developed processing and finishing techniques to ensure these qualities. Discusses the customary method of dyeing tricot in rope form, the advantages of using presetting machines in connection with a new method of continuous dyeing, and in general gives a better understanding of this phase of the textile industry.

106. Walmaley, L.L., Sollenberger, W.S., and Feyler, D.P. "A Study of Rayon in Tufted Carpeting," American Dyestuff Reporter (January 16, 1956), 30-33. (Reprint)

Presents data relative to the dyeing and finishing of 100% rayon and rayon blended with nylon, acetate, and wool in tufted carpeting. Discusses factors which the dyer must consider in piece dyeing and stock dyeing with direct or vat dyestuffs, along with test methods and end-use specifications. Some emphasis is placed on the necessity for dyestuff selection as related to fastness requirements, level dyeing, and suitability to withstand carpet cleaning and spot removal techniques. Causes of warp streaks are given and methods of isolating some causes are described. It reviews current interest in new dyeing and finishing equipment and methods, including data on the general use and value of soil-resist treatments. The article also gives information concerning discoloration in finished carpeting. Both the unit on textile chemistry which considers dyestuffs and the unit on household textiles would find valuable information in it.

107. Walmaley, L.L. "Tricot-Dyeing Methods Affect Fabric Strength," Textile World (April, 1952) (Reprint)

Reports a study made by the Textile Research Department of the American Viscose Corporation to determine the degree to which dyeing methods affected the strength, yield, and shrinkage of tricot fabrics. Two flow-charts accompany a brief description of the regular commercial method of dyeing and the new Viscose continuous presetting and dyeing method. A graphic cost breakdown of the operations included in the two methods shows how the new continuous saves two-thirds the initial capital investment and almost three-quarters the daily cost of labor. A good example of the type of research being done in the industry itself to reduce the cost of textile manufacture and to improve the product.

108. Ward, H.L. "Textile Softeners for Home Laundering," Journal of Home Economics, XLIX, No. 2 (February, 1957), 122-23.

This brief description of the nature and action of textile softeners presents rather technical information in an interesting and readily understandable way. It states that they are dialkyl quaternary ammonium salts in an alcohol and water solution, the alcohol dissolving the salt and the water insuring dispersion in the rinse water. It explains the ionic nature of these salts in solution and shows how this causes the attraction of the softener to the fabric. Since the softener forms a coating of lubricating material on the surface of each fiber and strand of yarn, and since it helps to retain an optimum amount of moisture, it contributes greatly to the extremely soft hand of the fabric. The unit in textile chemistry on quaternary ammonium compounds could be made more interesting and meaningful to the students by using this article as assigned reading material.

109. Whitlock, Mary C. "AHEA Consumer Standard for Sheetting," Journal of Home Economics, XLV, No. 10 (December, 1953), 727-28.

Four types of sheetting are covered by this standard adopted by the AHEA. In addition to specifying the physical properties of the yarns and fabric, type of yarn, yarn count, weight, and minimum breaking strength, the standard includes maximum allowable shrinkage and the ratio of wet and dry breaking strength. Maximum allowable shrinkage has been specified since the efficiency of a sheet as a bed covering depends partly upon the sheet's final length and width. A consumer can use the standard for estimating the quality of sheets at the time of purchase, providing that the manufacturer gives adequate information on the labels accompanying the sheets. By comparing any available information with that in the standard, a consumer can learn in what respects the material in the sheets may perhaps surpass, meet, or be lower than the standard, and can also learn what information may be lacking. This could be a basic reference for a unit on consumer problems in regard to household textiles.

110. Winget, A.K. "Our Worst Crisis," Textile World, CV (November, 1955), 84, 186.

Sounds the keynote of the continuing tariff battle as it looks to the southern textile mills. Calls attention to the fact that the American industry, being price-supported, is tied to fixed commitments in two items, raw materials and wages (which make up more than 80% of manufacturing costs), and are thereby helpless in the face of flood importation from low-wage countries. Would be an excellent article to use for stimulating student interest in this type of economic problem.

111. "What About Japanese Textiles and the American Fabric and Fashion Markets?" American Fabrics, No. 35 (Winter, 1955), 86-87.

Treats the question of Japanese textile imports from the point of view of international imperatives, because the United States' economic policy in Asia is so closely linked with its political and military objectives. It considers the Japanese side of the problem and offers some solutions. In studying the social obligation of world trade, this article would be very informative.

112. "Why Textiles Are Moving South," U.S. News and World Report, XXXVI (February 12, 1954), 90-98.

Shows that the main cause of New England's textile troubles was wages, since pay in northern plants average sixteen cents an hour more than in the south. Northern workers also get bigger fringe benefits, including vacations and paid holidays. It costs much less to operate a mill in the south, since power costs, heating bills, and taxes sometimes are lower in the south. Northern mills hope that the union will accept pay-cuts as a means of checking the flight to the south. Other causes of the crisis are thought to be the more efficient machinery in the newer southern mills and the general decline in sales which has hit the entire textile industry. This phase of our domestic economic problems is well illustrated here.

113. Whytlaw, G.G. and Staff of American Viscose Corporation. "The Manufacture of Fabrics from Blends of Fibers," Journal of the Textile Institute, XLIII, No. 8 (August, 1952), 556-583. (Reprint)

This interesting and scholarly paper considers the purpose and principles of blending; fiber characteristics in relation to blending; various blending techniques; the evaluation of spinning equipment and methods to insure fiber control; the correlation of fiber properties with fabric performance; and the problems and opportunities in the field of textile engineering. An excellent reference.

114. "Wool Moves South," Textile World, CVI (October, 1956), 85-91, 184.

A special report on the growth of wool processing in the South which analyzes the causes and evaluates the effects of the trend. It discusses the pressures that were on the woollen manufacturers after World War II and their relationship to the decision of many to build new mills in the south. The disadvantages of the move, such as the problem of unskilled labor, personal habits, supplies, and technical training are considered along with the advantages. Such an article could be used to stimulate student interest in this situation.

115. "Wool's Battle with the Synthetics," Fortune (May, 1952), 128-31, 144-58.

Analyzes the latest revolution in the textile industry which challenges the position of wool as a leading fiber. Compares the qualities and limitations of semi-synthetic and synthetic fibers with those of wool, and points out advantages of fiber blends. It considers the economic effects of this kind of competition in the industry. This would surely be a good article to use as a reference in a study of the economic problems in the textile field.

Section C - Experimental and Extension Bulletins

116. Baker, C.A. "Developments in Modern Textile Testing," Testing League Bulletin, XV, No. 1 (1954).

An interesting article which was the text of a talk given at the HEIB meeting on February 2, 1954. It explains the work and influence of the U.S. Testing Company and describes the scientific instruments and procedures for evaluating such properties as flammability and pilling of fabrics; snag resistance, run resistance, and proportioning of hosiery; and wear resistance of pile floor coverings. Would be a good reference for a unit on the analysis and testing of textiles in an advanced course.

117. Bentley, M.J. "Re-upholstery Fabrics," Purdue Extension Bulletin, HE-6 (1951).

This bulletin considers not only the pattern, color, and furniture type which should enter into the selection of upholstery fabrics, but it also takes into consideration the fiber content and type of weave. The last two factors are developed in detail, and each of the several varieties are described and evaluated for specific end-uses based on inherent properties of beauty and serviceability. Any lesson on the principles of purchasing household textiles could use this bulletin to good advantage.

118. Borman, C.A. "Cotton Statistics for Texas, 1947-54," Texas Experimental Station Bulletin, MP 144.

A report which not only gives statistical data pertaining to the acreage, yield, production, and price of cotton in Texas, but also includes dot maps and charts which show graphically that although acreage has declined, yields have tended to rise. It points out that irrigation and increased use of fertilizer have been important factors in these changes. This could be used as an example of the type of research that is being carried on in regard to the economic status of the cotton industry.

119. Camstock, R.B. "How to Make Curtains and Draperies," Cornell Miscellaneous Bulletin #24 (September, 1955), 24pp.

Part of this bulletin is devoted to a discussion of the fabrics used for curtains and draperies. It considers the advantages and disadvantages of all the natural and synthetic fibers, the use of metallic yarns, and treated lining materials. Could well be used to demonstrate the fact that fiber properties affect end-use as far as household textiles are concerned.

120. Davis, S.P., Gabbard, L.P., and Wooten, A.B. "Marketing Texas Wool on a Quality Basis," Texas Experimental Station Bulletin #823 (1955).

Analyzes the feasibility of better preparation of wool for the local market by the grower; the advantages of selling on a graded or quality basis; and the comparative prices received for graded and ungraded wool of similar quality. Shows that research is being carried on even in the distribution aspect of the industry.

121. Fletcher, H.M. and Jones, M.V. "Dimensional Changes in Certain Cotton, Wool, and Rayon Woven Fabrics During Various Cleaning and Pressing Processes," U.S. Department of Agriculture Circular #793 (November, 1948), 27pp.

This circular would be a good example for textile students of a research report which includes an interesting account of the problem, scope, materials, procedures, results, and references that are involved in such an investigation. The summary gave the effect of laundering; the changes resulting from dry cleaning; the results of wet cleaning; comparative effects of cleaning procedures; effect of tension during pressing; and the creep and restorability of fabrics. Is of special interest when one considers that this study was made before resin finishes were in common use, and other methods were being tried to control the dimensional stability and hand of fabrics during laundering and dry cleaning.

122. Fletcher, H.M. and Roberts, S.H. "Properties and Serviceability of Selected Household and Clothing Fabrics," Agricultural Information Bulletin #147 (May, 1956), 126 pp.

As a guide to textile research workers and others concerned with the development of consumer standards for textiles, the results of selected investigations of quality and serviceability of textiles have been brought together in this publication. The recommended specifications and tested serviceability of such items as blanketing, curtaining, sheeting, towelings, table linens, and upholstery fabrics are organized into reference form and supplemented with an extensive related bibliography making its use in a textiles course practical.

123. Gilmore, Lois, chairman. "Directions of Programs in Textiles and Clothing in the Next Ten Years at the Graduate Level," Proceedings of the Conference of College Teachers of Textiles and Clothing - Central Region (1952).

These committee reports on the survey of institutions offering graduate work in clothing and textiles would be valuable as a basis for discussion in an advanced undergraduate textiles course. They would not only give an overview of the centers and problems of textile research, but might also encourage some of the students to go into graduate work in the field.

124. Gray, J.A. "Preparing Wool for Market," Texas Extension Bulletin #237.

Gives recommendations on the preparation of wool for market ranging from the breeding program and the management of the flock, down through equipment and methods to be used in the shearing and packing of the fleeces. Although technical in nature and seemingly far removed from the textile classroom, the information in this bulletin gives some insight as to the type of research being done on wool fibers and their preparation for processing into yarns.

125. Grimes, M.A. and Werman, C.A. "Serviceability of Shirts Made from Cotton of Two Varieties, Regions, and Seasons of Growth," Texas Experimental Station Bulletin #804, (April, 1955), 22 pp.

This study was undertaken to add to the present knowledge of the effect of varietal, regional, and seasonal differences on the wearing

quality of men's white broadcloth shirts. The life of the cotton was traced from the seed through the growth of the fiber, the manufacture of the yarn and fabric, and the life of the shirts. The study showed high correlation between loss of breaking strength and chemical degradation of the cellulose, but only little relation between loss of strength and visible signs of wear. Any unit on the analysis and testing of textiles could use this report to good advantage as illustrative and reference material.

126. Hedges, T.R. and Bailey, W.R. "Economics of Mechanical Cotton Harvesting," California Experimental Station Bulletin Bulletin #743 (April, 1954).

A study made to determine the range of situations in which machine cotton harvesting is economically feasible. The economic advantage or disadvantage of machine picking was found by adding together the costs of picking, the value of grade loss, and value of field waste, and then comparing the sum with the cost of hand harvesting. Would be of interest in a consideration of some of the economic problems of the textile industry.

127. Killough, D.T., Richmond, T.R., and Elliott, F.C. "Performance of Cotton Varieties in Texas," Texas Experimental Station Bulletin #788 (1954).

This bulletin gives information on the cotton variety testing program in Texas, which is designed to inform growers of the performance of new varieties and strains and to compare such types with the standard varieties in use. Yield in pounds of lint cotton per acre was given highest priority in selecting the varieties to be recommended. Other characteristics such as adaptation to prevalent harvesting practices, fiber properties, disease resistance, and earliness of maturity were also considered in making the recommendations. This might be a good reference to use in giving textile students some notion of the type of research being carried on in regard to fiber qualities.

128. Lear, A.M. "When You Work with Rayon and Acetate," Cornell Extension Bulletin #876 (October, 1953), 16 pp.

Although it was designed primarily to help those who wish to construct acetate or rayon garments, most of the principles discussed in this bulletin can also be used to good advantage by persons who purchase their clothes ready-made and who want to know how to buy wisely and how to care for their clothes so that they will wear well. It includes information on the differences in processing and properties of rayon and acetate; the tests for distinguishing between the two when the label is not informative; and the recommended techniques for cutting, marking, sewing, and pressing of these fabrics when used in garment construction.

129. Noons, A.A. "Laundry Soaps and Syndets," Purdue Extension News #NE-204 (January, 1954).

An arrangement in chart form of facts about all the available laundry soaps and syndets so that comparisons can readily be made at first sight. The facts include trade name and manufacturer, physical form, type of product, principle chemical builder, sudsing action, and recommended use. This chart also appeared in the January, 1954 issue of *Forecast for Home Economists* and would be helpful for students.

130. Nylon, M. "Know Your Man-Made Fibers," California Extension Service Leaflet #68 (October, 1956).

A concise and informative leaflet written in popular style to give homemakers pertinent facts on the properties and care of Acetate, Acrilan, Arnel, Dacron, Dynel, Nylon, Orlon, Rayon, and Vicara. Would be a handy reference for textile students to have in their individual possession.

131. Omen, Mary "Buying Women's Suits and Coats," Proceedings of the Conference of College Teachers of Textiles and Clothing, (AHEA - 1956).

This paper points up very well the relationship between consumer demand and textile research, because it not only analyzes what the buyer considers before spending his company's money, but it also shows the effect of consumer responses to company offerings; the means of controlling quality of fabrics in ready-to-wear; the effect of fabric finish on the price of a garment; and the differences in the same type of merchandise at various price levels. It also shows how the buyer calls upon the research laboratory to help him make final decisions. The two basic functions performed by such laboratories are: 1) It determines whether the fabrics measure up to the standards the buyer has specified and whether the manufacturers' claims are true. 2) It determines whether the fabrics will perform satisfactorily for a given end-use.

132. Porter, D.D. "Cotton Variety Test," Texas Experimental Station Progress Report #356 (March, 1956).

Reports the procedure and controls used throughout the Texas cotton variety testing; summarizes the data in tabular form; and evaluates the performance of the most productive varieties of cotton. Technical in content and style, but it could have limited value as a reference in an advanced textiles course.

133. Reid, M., Omen, M., Fisher, E., and Labarthe, J. Proceedings of the Conference of College Teachers of Textiles and Clothing - Central Region, (AHEA - 1957).

Some of the topics chosen by the speakers and discussion groups would be of particular interest to an advanced textile student. For example: "What Does the Consumer Want?" "Do Textiles and Garments Live up to Their Claims?" and "Contributions of Research in Solving the Consumer Problems and Promoting Satisfaction in Clothing and Textiles,". The copies of the speeches and the record of the discussions are excellent source material for information on the relationship between consumer demand and textile research.

134. Roberson, N. and Hard, G. "Removing Stains from Clothing," Texas Extension Bulletin #AP-168.

After giving proper precautions concerning certain fibers and finishes, and after providing the reader with a chart summarizing the effect of various chemicals on fibers and on dyes, the booklet gives practical methods for removing such common stains as blood, egg, fruit, grease, ice cream, ink, iron rust, fingernail polish, mildew, paint and varnish, perspiration, make-up, and tannin. A unit on textile chemistry would find this a practical help.

135. Roberson, Opal. "New Finishes for Fabrics," Iowa Extension Bulletin #18 22 (February, 1952), 11 pp.

This booklet offers the consumer practical information on the finishes which give fabrics the qualities of dimensional stability, colorfastness, crease resistance, permanent crispness, and which makes them water repellent, waterproof, flame-retardant, insect resistant, hygienic, and mold and mildew resistant. It explains each of these finishing processes, discusses the advantages, and gives examples of informative labels on garments and fabrics which the consumer can use to help identify such finishes. The value of such a booklet in a textiles course is obvious.

136. Roberson, O. and Hollen, M. "New Fabrics - More Wear with Good Care," Iowa Extension Service Bulletin #18 31, (March, 1955), 8 pp.

Gives simple and concise comparisons of the common and individual properties of synthetic fibers, characteristics of good labels, important dry-cleaning facts, and recommended home laundry methods as to choice of machine-wash or hand-wash, conditioning of wash water, use of bleach, and the solving of such unique problems as heat-set wrinkles and pilling.

137. "Science Fiber Chart," Testing League Bulletin, IV, No. 3.

A comprehensive chart giving technical information on Nylon, Orlon, Dymel, and Acrilan fibers. The facts include type of fiber, distinguishing characteristics, producers, longitudinal and cross-sectional photomicrographs, microscopic appearance, method of production, length and diameter, color and lustre, specific gravity, standard regain, tenacity, elongation, resistance to and recovery from wrinkling, flammability and burning characteristics, dyeability, applicable classes of dyestuffs, absorbency, effect of sunlight, effect of heat, resistance to acids, effect of organic solvents, effect of alkalies, and toxicological properties. Could be profitably used as a ready reference in a unit on consumer problems concerning textile goods.

138. "Science Fibers - Commercial and Experimental," Testing League Bulletin, XIV, No. 11, 16 pp.

Includes a short history of thirty synthetic fibers which are either made commercially or are still in the experimental stage and describes the methods of production, outstanding properties, and important uses of each. Would be a good source of technical information for textile classroom use.

139. Smith, H.P., Jones, D.L., and Miller, H.F. "The Cleaning of Mechanically Harvested Cotton," Texas Experimental Station Bulletin #720 (1950).

A study which was conducted to determine the amounts of different kinds of foreign matter removed in the extracting, cleaning, ginning, and spinning of cotton which had been mechanically stripped and mechanically picked at early, mid-season, and late dates. It points out one of the most important problems confronting the cotton farmer and the ginner, since more trash or foreign matter is collected with the cotton by the mechanical stripper than by the mechanical picker. Would have only limited value in the average textile course.

140. "Soaps and Synthetic Detergents," Purdue Extension Service Leaflet #316 (1951), 12 pp.

Discusses the nature, types, and cleansing action of detergents; the problems of hard water, rinsing, and bleaching; and gives pointers on the use of detergents in relation to automatic washing machines. This booklet would be good to use in conjunction with the unit in textile chemistry on soaps and detergents.

141. Stoll, F.C. and Sumner, L.E. "Know Your Fabric Finishes," Purdue Extension Mimeo #HE-9 (March, 1956), 15 pp.

This publication includes definitions of the technical finishing terms used on labels, and it summarizes in chart form the function, the desirable qualities, the care, the trade name, and the kind of fabric used as a foundation for each of the finishes in common use today.

142. Stoll, F.C. and Sumner, L.E. "New Fibers and Fabrics," Purdue Extension Mimeo #HE-5 (March, 1956), 15 pp.

A brochure which contains concise and interesting explanations of technical terms and of the properties common to Nylon, Orlon, Acrilan, Dynel, and Dacron; a graphic analysis of such fiber facts as general characteristics, special properties, type, end-uses, and care required; and a discussion of developments and improvements still in the research stages.

143. Stoll, F.C. and Sumner, L.E. "Nylon," Purdue Extension Service Leaflet #322 (1954), 12 pp.

Considers the steps in the making of Nylon, its characteristics, its recommended end-uses, its position in the field of textile research, and the techniques involved in its proper care. This leaflet is very easy to understand due to the limited number or careful use of technical terms.

144. Stoll, F.C. and Sumner, L.E. "Rayon," Purdue Extension Service Leaflet #321 (1951).

Simple presentation of such information as the manufacturing processes, forms, uses, characteristics, finishes, labeling rules, and laundering techniques of rayon. Could be a practical help in the textile classroom on either secondary or college level.

145. Staut, Evelyn. "Sheets and Pillowcases," Cornell Extension Bulletin #931 (July, 1955), 16 pp.

The selection, use, and care of these household textile items is here discussed in an interesting and practical way. Although it was written primarily for homemakers, the information on available varieties, on standardization, on the significance of technical labeling terms, and on the comparative values of different fibers for use in sheeting, has value in helping textile students see the importance of considering end-use in the evaluation of textile goods. Any unit which includes consumer problems in household textile items would find practical information in this bulletin.

146. Ward, J.M., Hessler, L.E., and Paulson, W.R. "Fiber Characteristics and Spinning Performance of Mechanically - Stripped Cotton on the High Plains," Texas Experimental Station Bulletin #757 (1953).

This bulletin gives information on the fiber properties and spinning performance of machine-stripped cottons of the High Plains, which are noted for fine fibers and relatively low tensile strength. It indicates the importance of fiber and spinning tests in connection with the merchandising of High Plains cotton since such tests disclose the best way to utilize the fiber to give customer satisfaction.

147. Williamson, Lucille. "Soaps and Other Detergents," Cornell Extension Bulletin #767 (November, 1949), 14 pp.

Discusses the different kinds of detergents and compares the degree of alkalinity in each. Explains the methods of testing to determine the degree of alkalinity. Points out some of the disadvantages of detergents and the precautions to be taken when used in automatic washers. This bulletin could well be used in connection with the unit on textile chemistry which considers soaps and syndets.

148. Williamson, Lucille. "Soaps and Water Softeners," Cornell Extension Bulletin #651 (September, 1952), 8 pp.

Lists reasons for choosing soap for laundering and compares them with reasons for using detergents. Explains the alkaline action of soapy water, the cleansing action of soap, the differences in soaps, the characteristics of hard and soft water, and ways to soften water by using either precipitating or non-precipitating softeners, and ways to prevent or remove soap curd. A good source of general information on the nature and use of these types of laundering detergents.

Section D - Industrial Publications

149. Acrilan. New York: Chemstrand Corporation

A promotional brochure with educational value. It discusses the nature, properties, and end-uses of Acrilan, and includes a simple flow-chart which describes all the steps in the manufacturing process of this acrylic fiber by Chemstrand Corporation.

150. Catalog No. 56. Providence, Rhode Island: Scott Testers Incorporated

This catalog was published for the purpose of aiding the manufacturer or the laboratory in selecting the proper testing instruments for making physical tests of textiles. It illustrates and describes many of the models which are used for tensile strength, elongation, hysteresis, fatigue, twist, plasticity, flexing, and bursting strength tests. It would be a helpful reference for a classroom discussion on testing instruments when and where such instruments would not be available to see or to use.

151. Chemistry and the Home. Wilmington, Delaware: DuPont Company

A circular issued bimonthly by the Extension Division of the E.I. DuPont de Nemours Company which presents the contributions of chemical research to the field of Home Economics. Of particular interest to textile specialists are its reports on synthetic fibers, new dyeing and finishing methods, and similar types of textile research. It would no doubt be very interesting to the students if some of these issues could be read in connection with some of the units in textile chemistry.

152. DuPont Fibers and You. Wilmington, Delaware: E.I. DuPont de Nemours Co.

This series of brochures on the synthetic fibers by DuPont would be good source material for classroom use in textile courses on either the secondary or college level. It discusses the nature; history; manufacturing, dyeing, and finishing processes; properties; care required; recommended sewing techniques; and end-uses of Acetate, Nylon, Orlon, and Dacron in a very interesting way.

153. Facts About the First Fine-Combed Cotton "Made to Behave". New York: Bates

A mimeographed, promotional leaflet which gives information on the manufacturing and finishing processes of Bates Disciplined Fabric from fiber choice to finished product. It summarizes the properties which are guaranteed by the fiber-deep treatment. It would give some specific information concerning finishes which are not ordinarily found in the average textile textbook.

154. Fade-Ometer. Chicago: Atlas Electric Devices

This catalog presents a complete description of the Fade-Ometer, and explains the principles which govern its use in textile research. The Weather-Ometer and Launder-Ometer, instruments for determining durability and performance of fabrics are also described and discussed.

155. Fiberglas Yarns for the Textile Industry. New York: Owens-Corning Glass.

Presents technical data on Fiberglas yarns as well as information on their end product uses and recommended fabrication, finishing, and dyeing techniques. Although this manual is directed primarily to direct users of the yarns - weavers, braiders, knitters - providing them with a greater working knowledge, it would also be useful to home economics educators and to users of textile products manufactured from Fiberglas yarns. It not only has valuable content but also an attractive format.

156. Fibers by DuPont. Wilmington, Delaware: E.I. duPont de Nemours.

An educational as well as promotional booklet giving technical information on the manufacturing processes, properties, and end-uses of Rayon, Acetate, Nylon, Orlon, and Dacron in a way that would be valuable for use in textile classes.

157. The Home of Dan River Fabrics. Danville, Virginia: Dan River Mills.

This promotional booklet, besides giving facts about the economic and scientific status of the Dan River Mills, explains the basic steps in fabric manufacture and includes simplified sketches of the various machines used throughout the entire process.

158. Man-Made Fibers. Wilmington, Delaware: E.I. duPont de Nemours (1952) 32 pp.

The attractive format enhances the interesting content of this booklet which presents the historical, economic, technological, and experimental aspects of the synthetic fibers industry. It would be of definite educational value in any textile course.

159. Milestones in the DuPont Company's Textile Fibers History and Some Important Industry Dates. Wilmington, Delaware: E.I. DuPont de Nemours

A brochure from the Product Information Section of DuPont Textile Fibers which gives a simple chronological account of the history of synthetic fibers from the work of Chardonnat in 1884 to the status of the entire industry in 1955.

160. The Most Amazing Fabric Development in the 5000 Year History of Cotton Textiles. Danville, Virginia: Dan River Mills

This leaflet, promoting Wrinkl-Shed fabrics by Dan River, clearly illustrates the principles involved in resin finishes for fibers, showing the desirable effects of heat-set resin polymerization on the naturally porous, crease-susceptible cellulosic fibers. Could well be included in the illustrative material for any textile course.

161. Preview of American Viscose Corporation. American Viscose Corporation.

A booklet which was prepared as an informal outline for the use of college graduates interested in general information about the American Viscose Corporation. It discusses the purpose, organization, and status of the corporation; tells the story of rayon, acetate, and cellophane production; and reports the current research being carried on in its laboratories. Effective use of excellent photographs throughout the booklet make it interesting and attractive. Such a publication might encourage students to work in the textile field after graduation from college.

162. Shrinkage in Wool Fabrics. New York: The Wool Bureau.

A leaflet which analyzes the two types of shrinkage - relaxation and felting - and explains the best known commercial processes for reducing felting shrinkage by chlorination, resin treatments, and treatments with synthetic latexes. A good source of such fundamental information in any classroom consideration of the nature, properties, and care of wool fabrics.

163. Some Aspects of Carpet Soiling, Soil Resistance, and Restoration After Cleaning. A paper presented by W.S. Sollenberger at the New York Carpet Cleaners Institute on February 14, 1956.

Analyzes the relationship between fiber surface characteristics and the mechanism of carpet soiling by contact and by retention. It discusses types of soil retardant finishes, their advantages and disadvantages, and the recommended techniques for proper application. It reports on a study made to determine the influence of rayon carpet construction on location cleaning and texture restoration, and concludes with a description of the recommended techniques for such restoration of texture after cleaning. Although it is technical in nature it is simple and interesting in style, and would be of some value in a textile course.

164. The Spectrograph "Uster". Switzerland: Zellweger Ltd. (December, 1954) 20pp.

This booklet explains a new means for analyzing irregularity in fibers and yarns. It gives a short description of the "Uster" spectrograph and some examples of application of its use for practical investigations. It has a very technical approach to the subject, but it would be a good example of some of the scientific instruments and procedures being used in textile research in other countries.

165. Tailoring of "Wash and Wear" Suits from Fabrics Containing "Dacron" Polyester Fiber or "Orlon" Acrylic Fiber. DuPont Preliminary Bulletin #X-29 (February, 1955).

A report which gives technical information and recommended procedures for making men's suits, primarily from fabrics containing substantial quantities of Dacron and Orlon. It includes such steps as designing, cutting, sewing, trimmings and accessories, washing, alterations, and pressing. This information would be practical for instructors in textile and clothing construction courses where the interest in the use of synthetic fabrics by students is becoming more common.

166. Testing League Bulletins. Hoboken, New Jersey: U.S. Testing Company

A monthly bulletin which emphasizes the technical aspects in the analysis and testing of textiles, and which reviews the progress being made in textile research. Would be a valuable periodical to use in connection with an advanced course in textiles.

167. Testing Terms for Better Understanding. Hoboken, N.J.: U.S. Testing Co., 34 p.

Lists the important tests for textile merchandise, with descriptions of test methods and analysis of test results. Standards and minimum specifications where available are given. A ready reference for a class concerned with textile research methods.

168. Textile Fibers - Basic Materials for Industry. Wilmington: DuPont Company

This booklet shows how various problems in industry have been solved effectively and economically using the DuPont synthetic fibers. After giving the relatively common properties of such fibers as Acetate, Viscose, Cordura (high-tenacity rayon), Nylon, Orlon, Dacron, and Teflon, the special properties of each are explained to show their potentialities for use in such things as industrial belting; filtration; tires; rope and netting; coated fabrics for many protective coverings and tarpaulin applications; industrial and fire hose; industrial felts; electrical insulations; and many other industrial end-uses. Would be a handy reference to have in connection with a unit on the economic aspects of the textile industry.

169. The History of Cotton Textiles. Textile Information Service: National Cotton Council of America.

A comprehensive picture-story of America's pioneer industry from its beginnings to the present day. Includes a graphic account of the contributions made to the industry by such men as Samuel Slater, Francis Cabot Lowell, Michael Schenck, Joel Battle, William Mowry, James Thorpe, William Gregg, and James Northrop. Although it was written for junior high school level, some of the information in it would be interesting to use in textile classes on higher levels.

170. Monsanto Wrinkle Recovery Tester. Technical Service Bulletin #T30-45.1, Textile and Paper Resins Department: Monsanto Chemical Company.

This bulletin explains the principles involved in the construction of the Monsanto Wrinkle Recovery Tester, and it describes the test conditions, specimens, and procedures to be followed in the use of this instrument. Evaluation of test data is explained and schematic diagrams and photographs of the instrument itself make the technical explanation easily understandable.

171. This Is Coronizing. New York: Owens-Corning Fiberglas Corporation.

A folder which includes not only a schematic drawing of the Coronizing operation for finishing Fiberglas fabrics, showing the basic operations performed, but it also explains the development of the process itself and evaluates the properties it gives to the fabric. Would be a valuable piece of illustrative material for use in a textile course on any level.

172. Wash-and-Tear and other Durable Finishes for Rayon. A paper presented by I.H. Welch at the Fourth Seminar for Textile Institute Faculties on June 18, 1956.

Includes definitions of various finishes; describes the application and formulation of Avco-set for durable shrinkage control; discusses the use of additives to achieve special effects; analyzes the chemical, mechanical, and physical modifications which are necessary to assure minimum care properties; and reviews the advantages to be gained through the use of Avco-set formulation. These advantages include stabilization, chlorine resistance, hand, strength retention, non-fibrillation, reduction of seam fraying, and ease of laundering. Although it is technical in content and style, this paper would be a good source of information on some of the less well known finishes.

173. A Capsule Course on Wool. New York: American Wool Council, Inc. 1945
States reasons for Wool Labeling Acts; analyzes the physical and chemical properties of the wool fiber; surveys the historic and geographic aspects of wool production; and gives recommendations on the cleaning and care of woolen fabrics. Would be a good basis reference for any unit considering the economic aspects of the wool industry.
174. Woolletter. New York: The Wool Bureau
A folder published periodically by the Education Department of the Wool Bureau which includes pertinent wool information, especially from the economic, scientific, and fashion areas, along with implications for classroom use in textile courses on any level.
175. Woolfacts for Educators. New York: The Wool Bureau
A periodic report of the problems and progress in the wool industry designed for use in textile education and research. It would be a helpful reference for teachers who have not the time nor the opportunity to read some of the more technical publications which carry the same general type of information.

TEXTILE CHEMISTRY

<u>Functional Groups</u>	<u>Typical Reaction</u>	<u>Application to Textiles</u>
Alkanes see A-10,11,13,24	Substitution	Raw materials
Alkenes see A-6,10,11,13,19,24	Addition	Dyestuffs
Alkenes see A-10,11,19	Addition Polymerization	Orlon, Dynel, Acrilan
Alcohols see A-6,10,11,12,13,24	Oxidation	Bleaching of Cellulose
Aldehydes see A-10,11,13,24	Aldol Condensation	Resins
Acids - Amides see A-10,11,13,19,24	Condensation Polymerization	Nylon and Dacron
Organic Salts see A-10,11,12,13,24	Saponification	Soaps and Detergents
Esters - Anhydrides see A-10,11,12,13,19,24	Acetylation of Cellulose	Cellulose Acetate, Rayon
Amines see A-10,11,13,24	Quaternary salt formation	Softeners - Finishes
Carbohydrates see A-10,11,12,13,20,24	Acidic Hydrolysis	Hydrocellulose
Carbohydrates see A-10,11,12,13,20,24	Action of Alkali	Mercerization

Dyes and Dyeing

I. Definitions

- A. Color
- B. Colored compounds
- C. Dye
- D. Mordant
- E. Lake

II. Classification

A. As to Structure

- 1. General structure
 - a) chromophores
 - b) auxochromes
 - c) bathochromes
- 2. Specific structure
 - a) Azo dyes
 - 1. Type of chromophore
 - 2. Chemical nature
 - 3. Preparation
 - 4. Extent of use
 - 5. Example
 - b) Indigo dyes
 - c) Triphenylmethane dyes
 - d) Nitro- and Nitroso-phenol dyes
 - e) Sulfur dyes
 - f) Phthalein dyes
 - g) Anthraquinone dyes
 - h) Basic dyes

B. As to Method of Application

- 1. Direct dyeing
 - a) Procedure
 - b) Type of dye used
 - c) Extent of use
 - d) Value
- 2. Vat dyeing
- 3. Ingrain dyeing
- 4. Mordant dyeing

Esters

I. Definition - Formula

II. Application to Textiles

A. Cellulosic Polyesters

- 1. Cellulose Acetate (Acetate)
 - a) Preparation
 - b) Properties
 - c) Uses
- 2. Cellulose Xanthate (Viscose)
 - a) Preparation
 - b) Properties
 - c) Uses

B. Synthetic Polyester - Dacron

Polymerization

I. Addition Polymerisation - Alkenes

- A. Definition**
- B. Types**
 - 1. Simple polymerization
 - 2. Copolymerisation
 - 3. Heteropolymerisation
- C. Examples**
 - 1. Orlon
 - 2. Saran
 - 3. Acrilan

II. Condensation Polymerisation

- A. Definition**
- B. Types**
 - 1. Polyamide
 - 2. Polyester
- C. Examples**
 - 1. Nylon
 - 2. Dacron

Bleaching

I. Bleaching agents

- A. Actual**
 - 1. Mature - Nascent oxygen
 - 2. Function
- B. Potential - Hypochlorous acid**
 - 1. Mature
 - 2. Function
- C. Prepared bleach liquor**
 - 1. Composition
 - 2. Bleaching power
 - 3. Rate of bleaching

II. Bleaching substrate

- A. Native cellulose**
 - 1. Chemical structure of pure cellulose
 - 2. Coloring matter associated with impurities
- B. Processed cellulose**
 - 1. Stained
 - 2. Yellowed by heat or alkali

III. Bleaching action

- A. Desirable effects if well controlled**
 - 1. Conversion of coloring matter into colorless substances
 - 2. Removal of stains and general whitening
- B. Undesirable effects if overbleached**
 - 1. Conversion of surface to oxycellulose - decreased durability
 - a) Types of oxycellulose
 - 1. Reducing type - Fehling's Test
 - 2. Carboxyl type - Titration
 - b) Chemical reactions - oxidation of functional groups
 - 1. Alcohol to aldehyde to acid
 - 2. Chain splitting

- c) Measurement of oxycellulose formation
 - 1. Copper number
 - 2. Methylene Blue number
 - 3. Viscosity of Cuprammonium solution
- 2. More readily scorched by heat or yellowed by alkali
- 3. More soluble in hot alkali - outer layer dissolved

Aldehydes - Resins

I. Chemical Properties of Aldehydes

- A. Contain the carbonyl group
- B. Undergo addition reactions due to unsaturated linkage
- C. Can undergo self-addition reactions - aldol condensation
 - 1. Basis of polymerization
 - 2. Form viscous, insoluble resins

II. Classification of Resins

- A. Thermoplastic
 - 1. Characteristics
 - a) Long chain molecules with no cross linking
 - b) Softened by heat
 - c) Dissolved by certain organic solvents
 - 2. Types
 - a) Polyvinyl - Koreseal, Saran
 - b) Acrylates - Plexiglas
 - c) Polyethylenes - Polythene, Teflon
 - d) Polyamides - Nylon
- B. Thermosetting
 - 1. Characteristics
 - a) Cross linking takes place between chains
 - b) Harden when sufficient heat is applied
 - c) Infusible and insoluble after being set
 - 2. Types
 - a) Formaldehyde resins
 - 1. Types - Urea, Melamine, Phenol, Acetone
 - 2. Uses - Finishes for fabrics
 - b) Alkyd or Glyptal resins
 - 1. Dibasic acids plus dihydric alcohols
 - 2. Uses - Paints, Enamels, Varnish
 - c) Silicones
 - 1. Composition
 - 2. Uses

Amines

I. Definition - Formula

II. Classification

- A. Aliphatic
 - 1. Characteristics
 - 2. Application to textile field - Softeners, Detergents
 - 3. Chemical reactions
- B. Aromatic
 - 1. Characteristics
 - 2. Uses - dyestuffs

Detergents

I. Definition

II. Classification

- A. Soaps - metal salts of fatty acids**
 - 1. Neutral**
 - a) Hard
 - b) Soft
 - 2. Built**
 - a) Composition
 - b) Efficiency
- B. Syndets - metal salts of long-chain alcohols**
 - 1. Anionic**
 - a) Alkyl aryl sulfonates
 - 1. Preparation
 - 2. Types
 - 3. Importance
 - b) Sodium alkyl sulfates
 - 1. Preparation
 - 2. Importance - Dreft, Cardinol
 - 2. Cationic - seldom used in competition with soap**
 - 3. Nonionic**
 - a) Types
 - 1. Alkyl-phenol-ethylene oxide
 - 2. Esters of polyhydric alcohols
 - b) Properties

III Mechanism of Cleansing Action

- A. Emulsification of fats and oils to facilitate removal from surfaces**
 - 1. Molecular structure of a detergent**
 - a) One end highly polar, ionic, water-soluble
 - b) One end non-polar, hydrocarbon-like, oil soluble
 - 2. Effect on oil and water mixture of this molecular structure**
- B. Lowering of the surface tension of water**
 - 1. Penetration
 - 2. Emulsification
 - 3. Wetting Power

IV. Scum Formation

- A. In acidic solutions**
 - 1. Displacement of insoluble fatty acids from their salts
 - 2. Importance of controlling pH in laundering
- B. In hard water**
 - 1. Fatty acids form insoluble salts with Ca, Mg, and Fe of water
 - 2. Syndets do not form insoluble salts with these ions

TEXTILE TECHNOLOGY

I. Fibers

- A. Determination of Quality - see A-20 B-81,104 C-125,132,137,146
 - 1. Length - see A-1,5,16,18,21 B-28,31 D-164,167
 - a) Standards
 - b) Testing Instruments
 - c) Testing Procedures
 - 2. Strength - see A-1,5 B-31,65 D-150
 - 3. Fineness - see A-1,5 B-31,65
 - 4. Evenness - see A-1,5 B-31,65
 - 5. Cohesiveness - see A-1,5 B-65
 - 6. Permeability - Dyeability - see A-1,5
- B. Development of Quality - see A-1,5,15,17,20,23, B-28,31,65,87,104
 - 1. Research on fiber production B-104,113 C-118,120,123
 - 2. Research on fiber analysis C-124,125,126,127,132,139,146 D-162,164,166,169,173,174,175

II. Yarns

- A. Determination of Quality - see A-1,20 B-28,81 C-137,146 D-164,167
 - 1. Strength - see A-1,5,16,18,21 B-58 D-150
 - a) Standards
 - b) Testing Instruments
 - c) Testing Procedures
 - 2. Twist - see A-1,5 D-150
 - 3. Evenness - see A-1,5 B-58,104
 - 4. Count - see A-1,5
 - 5. Size - Number or Denier - see A-1,5
 - 6. Sewability - see A-5
- B. Development of Quality
 - 1. Research on yarn manufacture see A-17,20,23 B-28,58,87,104,113 C-123,146 D-162,164,166 175
 - 2. Research on yarn analysis - see above

III. Fabrics

- A. Determination of Quality - see A-1,3,5,8,16,18,20,21 B-33,81,97
 - 1. Type of Construction C-125,137 D-167
 - a) Woven
 - b) Knitted
 - c) Felted
 - d) Bonded
 - 2. Thread count - see A-1,5
 - a) Standards
 - b) Testing Instruments
 - c) Testing Procedures
 - 3. Weight - see A-1,5 B-83
 - 4. Thickness - see A-1,5 B-83
 - 5. Strength
 - a) Tearing - see A-1,5,4,6,21 B-83,95,98,107 C-125 D-150
 - b) Bursting - see A-4,6,21 C-125 D-150
 - 6. Elongation - see A-1,5 B-83 D-150
 - 7. Dimensional Stability - see A-1,4,5, B-28,40,48,98,107 C-121 D-162

- 8. Abrasion Resistance - see A-1,5,6,21 B-83,96,97 C-116
- 9. Porosity - see A-5,21
- 10. Permeability - see A-5,21
- 11. Absorbency - see A-1,5,21 B-28
- 12. Flammability - see A-1,5 B-81 C-116
- 13. Drapability - see A-1,5,21
- 14. Hand - see B-98
- B. Development of Quality - see A-1,5,8,15,17,20,23 B-87,96 C-123,125
 - 1. Research on fabric manufacture D-162,166,169,175
 - 2. Research on fabric analysis (for non-woven see B-72,84,105)

IV. Finishes

- A. Determination of Quality - see A-1,16,18,20,21 B-28,49,55,60,81,105
 - 1. Colorfastness C-137 D-153,160,167,171,172
 - a) to light - see A-6 B-27,95,98 D-154
 - 1. Standards
 - 2. Testing Instruments
 - 3. Testing Procedures
 - b) to laundering - see A-4 D-154
 - c) to crocking - see A-4
 - d) to perspiration - see A-4
 - e) to chlorine bleaches - see A-4
 - 2. Grease resistance and wrinkle recovery - see A-1,5 B-40,51,98
 - 3. Water repellancy - see A-1,5 B-50 D-154 D-170
- B. Development of Quality
 - see A-1,5,15,17,23 B-35,48,49,50,51,55,60,87,105 C-123
 - D-153,160,162,166,169,171,172,175

TEXTILE ECONOMICS

I. Factors affecting foreign trade

- A. Social obligation of world trade
see A-15,17,18 B-66,77,87,94,99 D-173
- B. Differences in production costs - see A-17,18
 - 1. Labor - see B-66,67,110
 - 2. Raw materials - see B-77,110
 - 3. Modern equipment in recently industrialized countries
see B-57,66,77
- C. Lowering of tariffs regulating import of Japanese textiles
see B-30,34,42,53,67,94,101,110,111
- D. Import and export trends in other countries
 - 1. England - see A-17 B-66,77, D-173
 - 2. India - see B-77
 - 3. Egypt - see B-57
 - 4. Japan - see B-30,34,42,53,67,94,101,110,111

II. Factors affecting domestic economic status

- A. Competition between natural and synthetic fiber industries
 - 1. Production costs
see A-17,20,23 B-90,92,115 C-118,120,126,139
 - 2. Production risks
see A-17,20,23, B-99,114,115, C-118,120,126,139 D-174
- B. Regional differences
 - 1. Labor costs - Minimum wage laws
see B-30,36,39,42,94,112
 - 2. Cost of living
see B-112
 - 3. Work loads
see B-36,112
- C. Production efficiency
 - 1. Location of mills in relation to raw materials sources
see A-18 B-42,79,90,93,94,100,112,114
 - 2. Specialization
see B-66,77,79,90,93,100,107
 - 3. Modernization of methods and materials
see A-17 B-36,57,77,79,90,93,100,107
- D. Consumer trends
 - 1. Changing to more casual way of life
see B-30,41,86,92,100,112
 - 2. More light-weight, year-round garments - air conditioning
see B-41,86,92,87
- E. Competition versus Mergers within the textile industry
 - 1. Specific mills - Natural fibers
see A-20,23 B-30,87,91,93,94,100,114 C-120,139 D-157,174
 - 2. Specific mills - Synthetic fibers
see A-3 B-87,90,91,94,99,100,107 D-161

TEXTILE CONSUMPTION

I. Items to be considered

- A. Household Textiles - see A-9
 - 1. Curtains and Drapery fabrics
see A-25 B-37,52,75,89 C-119,122
 - 2. Table linens and toweling
see A-25 B-43,82, C-122
 - 3. Bedding
see A-7,25 B-43,109 C-122,145
 - 4. Upholstery
see A-14,22 B-37 C-117,122
 - 5. Floor coverings
see A-25 B-106 D-163
- B. Garments - see A-9
 - 1. Manufactured
see B-59,70,78,83 C-128 D-165
 - 2. Constructed at home
see B-38,74,78,83 C-128 D-165

II. Aspects to be considered for each item

- A. Functional standards
 - 1. Intelligent use of informative labels
see A-15,25 B-29,43,55,56,60,64,69,73,81,86,
B-88,89,109 C-122,128,135,136,141,145
 - 2. Quality differences based on "end use"
see A-15,16 B-29,43,60,61,69,78,89,109
C-117,119,122,131,133,145
 - 3. Relationship between consumer demand and textile research
see B-69,73,109 C-131,133
 - 4. Textile standards
see B-56,73,81,88,109 C-145 D-167
- B. Aesthetic standards
see A-22 B-38,61,63 C-117,141
- C. Care required
see A-9,16,26 B-59,60,61,63,64,69,75,78,82,88
B-89,103,106 C-130,136,141,145 D-163,165



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