and thereby materially aids in identification of the sample.

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The estimation of wool in a sample of cloth, consisting of wool, silk and cotton, is best done with a solution of the basic chloride of zinc, made by boiling '100 parts fused zinc chloride with 4 parts zinc oxide and 85 parts water, until a clear solution results. It the cloth be silk and wool, a weighed piece is immersed in a sufficient quantity of the reagent, whereupon the silk is dissolved quite rapidly, if heated, leaving the wool intact ; this is rinsed in water, dried and weighed. If cotton be present in the sample, as shown by examination under the microscope, it will be left with the wool, in which case the residue, after weighing, should be treated with a 10 per cent. solution of caustic soda to dissolve the wool, leaving the cotton, which is to be washed, dried and weighed.

To remove and estimate vegetable fibres in a sample of cloth, treat with 3 per cent. sulphuric acid, and dry. The cellulose will be completely destroyed, and can be removed by a little shaking. In strong sulphuric acid cotton is dissolved; wool is but little affected, but silk is at once dissolved. If water be added the wool can be removed, washed, to remove the last trace of acid, and then weighed. A solution of oxide of copper in ammonia dissolves cotton and silk, but not wool. The following solvent is very useful for silk, leaving cotton and wool: 16 grams copper sulphate, 150 c.c. water, 16 grams glycerine. Treat this mixture with a solution of caustic soda until the precipitate forn.ed is redissolved.

The analysis of raw wool is very important, and the method which the writer uses exclusively is as follows :- Moisture : Dry fifty grams (average sample) in a suitable oven at 100° C., and weigh. The best method to adopt is to put the wool in a tube of large diameter contained in the oven, and pass a current of dry air through while heating. Wool Fat : Extract the sample with ether, and agitate with water. The fat is in the etherial solution, while the oleates are in the aqueous; both are separately evaporated to dryness and weighed. Wool: Wash with distilled water to remove other oleates, and mix with the aqueous solution above. Treat the wool with alcohol, and add the weight of the oleates thus extracted to those above. Decompose the earthy oleates remaining in the wool with dilute hydrochloric acid, remove the acid by washing, dry the wool and treat with alcohol and ether; evaporate to dryness, weigh, and calculate the earthy oleates. Fnally, dry the wool carefully, and shake over clean paper to remove dirt, sand, etc. Wash on a fine sieve, dry, and weigh.

ENGLAND AND GERMANY.

LECTURE BY PROFESSOR BEAUMONT BEFORE THE YORKSHIRE COLLEGE.

Professor Beaumont recently gave the introductory lecture of the twenty-third session of the evening classes of the textile department of the Yorkshire College. The subject was "The German Textile Industry," and the lecturer observed that, amid all the prophecies concerning the decadence of British industries which German success had inspired, optimistic rather than pessimistic views might reasonably be entertained as to the future prosperity of the manufacturing arts of England. It did not follow because another competitor had appeared on the field that our trade and commercial supremacy should suffer. The resources of the skilled laboring communities of the United Kingdom were still capable of adjusting the balance of the trade in our favor. The development of the German arts and crafts practically dated from 1871, forming a natural sequence to the foundation of the German Empire. From that year the number and influence of the working classes had been substantially augmented. Necessity had coerced Germany into a policy of extending her manufacturing trades. Perhaps the extraordinary quantities of fabrics, amounting to £8,850,365 worth of woolen, £2,353,337worth of cotton, £399,494 of jute, £378.301 of linen, and £122,141 of silk, we poured into that country in 1872 may have stimulated the German Government to foster industrial pursuits. Realizing that the productions of their factories could not compete in quality and price with those of Great Britain, a system of tariffs was created, which had been by far the most potent instrument for bringing about a decline in the exports of British yarns and textures to Germany. It was the application of these tariffs which had chiefly reduced our German exports from £15,896,679 in 1868, to $\pounds 6.564.229$ in 1894. It was impossible to judge of the comparative manufacturing capacity and skillfulness of Germany and Great Britain whilst these tariffs existed, except so far as to assert that, inasmuch as the Germans found them necessary, they admitted their inability to meet us on neutral ground. The textile industries ranked among the most important industries of Germany, and over one-seventh of the operatives given in the 1882 census were occupied in textile work. During the last fourteen years remarkable changes had taken place, the productive power of the weaving trades having been more than doubled. Manufacturing in Germany, as in this country, embraced the woolen, worsted, silk and linen industries.

In briefly describing the main features of each branch of weaving, and comparing in detail the textile imports and exports of Germany and England, Professor Beaumont stated that any inquiry into the causes of the success of Germany as a competitor with this country would be very incomplete if cognizance were not taken of the two great questions of wages and hours of labor. That the former were lower and the latter highethan in Great Britain was a well-known fact. A skillful spinner there earned from qs. 8. to 14s. per week, whilst here the wages ranged from 215. 10d. to 335. 10d. It was similarly the case with the weavers of woolen fabrics, the German earning from 10s. 6d. to 14s. 4d. per week, and the Englishman from 138, 4d to 228, 104. An alteration in the value of the labor market in Ger many which would make their craftsmen of equal mone