

mic production, lies through the portal to which science holds the key. It is apparent, however, that in one other direction the real requirements of the case do not seem to be so well understood, and seem to demand our serious attention and the most serious advocacy. But it is not, after all, on the side of science alone that our industrial needs are most apparent to-day; it is on the side of art. It is in matters of taste that we most need training; it is the artistic element that constitutes the charm of textile productions and enables the good fabrics to hold the market. No amount of cheapening of processes can compensate for the absence of this quality, and no amount of merely technical education or mechanical skill can supply this want. Manufacturers and those who direct the affairs of great establishments, often excuse their own shortcomings in this regard by saying that matters of taste are no concern of theirs; that they try to understand the demands of the market, and are willing and even eager to produce the ugly things, as well as the beautiful, if the public seem to want them. This familiar form of argument is at once a fallacy and a confession. On the one hand the man who uses it really does not as a rule know what is good and what is bad himself and is in his heart more or less conscious of his own deficiency in matters of this kind, and on the other hand, the public is certainly ahead of the manufacturer in matters of taste. The product of foreign looms has found, and its finding a market in our midst, not because it is cheaper, but because it is more beautiful; and it is more beautiful, not because of the employment of better machinery or more economical methods of production, but because its character is determined by a finer taste. This is the real secret of the whole business. We shall fail to command in the future, as we have failed to command in the past, the market for the higher class of goods, until our workmen and designers are as tasteful as those on the other side.

The infusion of this element of beauty into our products in the future, means training in art for the men who are to do the work. It means that if his efforts are to achieve success, the student of the textile school must devote a great deal of his time to the pursuit of art; must be familiar with the principles, not only of chemistry and mechanics, but of form and color. He must be familiar with, and appreciative of, the essentials of grace and beauty, quite as much as he is with the nature of fabrics or the efficiency of machinery, for unless he can incorporate in his work the element of charm which only the æsthetic sense can provide, the most important part of it has been left undone. Earnest advocates of the art idea as a true panacea of our industrial shortcomings, have by no means been wanting, and endowments for the establishment of art schools have been made on the most liberal scale. The fundamental truth on which this effort is based is undeniable, but the discouraging fact remains that the connection between this purely artistic effort and the actual processes of manufacture, have for the most part still to be made; the chasm which still yawns between art and industry has still to be bridged. Much remains to be done on both sides, for if the technical schools have been too mechanical in their methods, the art schools have been too much occupied with things whose

connection with industry has been too remote to make their influences felt.

In the first place a great deal more attention ought to be paid to the study of nature in its more decorative aspects—that is, of flowers, fruits, birds, and all such simple forms of natural things. With this study of nature must be associated that conscious and deliberate adaptation of her forms to the purposes of practical design, which is fundamental in all practical work, intelligent conventionalization being the corner-stone of all good work in applied design. Secondly, the practical design means an intelligent grasp of the limitations imposed by the processes of manufacture. Such character as industrial design assumes that entitles it to respect and consideration as bearing the impress of that indefinable quality which we call style, is due to the frank recognition of these limitations, and to that wise adaptation of means to ends which such recognition skillfully adapts itself to meet the conditions thus imposed. It is through such practice as this that the student is prepared to take up the study of historic styles of ornament, because only in this way does he learn to understand style itself. Grammar of ornament is almost as much a study of historic tradition as is the grammar of language, and this element of the problem can no more be neglected in the study of art than it can be in the other.

TECHNICAL TRAINING.

The technical instruction committee of the Manchester corporation, controlling the Municipal Technical School and the Municipal School of Art of that city, in July of this year appointed a deputation to visit the principal technical schools, institutions and museums of Germany and Austria. The deputation occupied two months in performing their mission, and their report is an important document. The technical instruction committee desires by circulating the report, to arouse attention to the need of giving suitable preliminary training in art and science in their particular application to our chief industries, especially to day students of good general education, who wish to enter upon an industrial career.

Schools and institutions visited are: The Royal Weaving School and Textile Museum, and the Royal Dyeing and Finishing School, Crefeld; the Royal Technical High School, and the Royal Spinning, Weaving, Dyeing and Finishing School, Aix-la-Chapelle; the Industrial Art Museum, Dusseldorf; the Grand Ducal Technical High School, with the Physical and Electro-Technical and Chemical Institutes, Darmstadt; the Royal Technical High School, Charlottenberg; the Municipal Higher Weaving and Dyeing School, and the Industrial Art Museum and School, Berlin; the Polytechnic, Dresden; the School of Art, and the German and Bavarian Museums, Nuremberg; the Museum and School of Industrial Art, the Commercial Museum, the Museum of Hygiene, and the Technical School, Vienna.

The deputation found the dyeing and finishing school at Crefeld to be a state-maintained institution, equipped on a most liberal scale. Much attention is given by the students and teaching staff to the examination of coloring