

V.—*The Proposed Technical Instruction Bill, and the Science and Art Department.* By George Coffey, Member of the Council of the City of Dublin Technical Schools.

[Read 19th February, 1889.]

At the close of the last session of Parliament, the Government announced their intention of introducing, in the next session, a bill on the subject of technical instruction. It is to be presumed that the proposed bill will be substantially the same as that originally introduced in 1887, and which passed the second reading last session, but was not proceeded with owing to pressure of other business. The provisions of the bill of 1887 are conveniently summarised by Mr. Swire Smith (a member of the late Royal Commission on Technical Instruction), in a paper read before the Society of Arts, February, 1888. I extract the passage :—

“Briefly, the object of the bill was to enable a local authority—a school board, or council of a borough where there is no school board—to supplement by technical instruction the elementary education supplied in its district. Power was given to each district to provide technical schools out of the local rates ; to combine for the purpose with any other local authority, or to contribute to the maintenance, or provision and maintenance, of any technical school with the sanction of the Science and Art Department. The conditions required were, that each scholar receiving local aid should have passed the Sixth Standard of the Education Code, and that each school provided under the Act should be conducted in accordance with the minutes of the Science and Art Department, which were to be fulfilled by such school in order to obtain a grant from that department.”

The term “technical instruction” was defined, I quote the Act, to mean :—

“Instruction in the principles of science and art applicable to industries, and in the application of special branches of science and art to specific industries or employments. It does not include teaching the practice of any trade, or industry, or employment, but, subject as aforesaid, includes instruction in the branches of science and art, with respect to which grants are for the time being made by the Department of Science and Art, and any other form of instruction which may for the time being be sanctioned by that department.”

And the expression “technical school” was defined “a school or department of a school, which is giving technical instruction to the satisfaction of the Department of Science and Art.”

It will be observed, the bill places the control of technical instruction, as therein provided for, completely in the hands of the Science and Art Department, consequently the efficiency of the proposed scheme will depend on the capacity of that department to administer technical education. Now much dissatisfaction has been expressed from time to time with the Science and Art, or, as it is generally called, South Kensington system, and in the report of the late Commission on Technical Instruction, the department receives but scant praise. It is, therefore, very desirable that the question as

to how far the system and methods of the Science and Art Department are applicable to technical education, should be carefully considered before any extension of the system in that direction is decided on. The South Kensington system is essentially a centralised system, whereas technical and industrial education would appear to necessitate local freedom and development of instruction in accordance with local needs. In this respect the continental and English systems are quite at variance—technical and industrial education on the continent being, in general, controlled and determined by local requirements. Following out this line of discussion, I believe the inefficiency of the Science and Art Department can be shown to be almost entirely due to centralisation, and my object is to raise the question, with reference to the proposed Technical Instruction Bill, of the practicability of promoting technical education through the agency of that department.

The proposed bill is the outcome of the recommendations with reference to the Science and Art Department, of the Royal Commission on Technical Instruction, published in the report of the Commission, 1884. The discussion, therefore, necessarily turns rather on the report of the Commission than on the bill itself. Now, a cursory glance at the report shows that technical and industrial education on the continent is in general decentralised and in contact with local industries; the system of the Science and Art Department is, on the contrary, as already stated, a centralised system, and I need not say, that centralisation in any class of education raises questions of a fundamental character. We should, therefore, have reasonably expected that this question of centralisation or decentralisation, as between the continental and English systems, would have occupied a prominent place in the Report of the Commission. Strange, however, as it may seem, they absolutely ignore the question. The Commissioners appear to have gone to the continent in the belief, as far as South Kensington is concerned, that the existing system was perfect, and that it was only necessary to inquire as to what subjects might be beneficially added to those already provided for by the department. They do not appear to have at all realised that the information gathered and evidence taken raises the fundamental question of the constitution of the department, and not merely the surface matter of the subjects it is advisable to teach, and that the practicability of their recommendations involves the consideration of that question.

In discussing the system of the Science and Art Department, it will be convenient to consider its operation under the separate heads of art and science.

I.—ART, AND APPLIED ART.

The objects of the Art division of the Science and Art Department, as stated in the minute for the reorganization of the Schools of Design, and formation of a department of practical Art, 1852, were :—

“(a) The promotion of elementary instruction in drawing and modelling.

“(b) Special instruction in the knowledge and practice of ornamental art.

“(c) The practical application of such knowledge to the improvement of manufactures.”*

The failure of the department to fulfil the requirements of sub-heads (b) and (c) is generally admitted. In support of this statement it is only necessary to quote the following passage from the Report of the Commission on Technical Instruction. Referring to industrial designing, the Commissioners state :—

“This, for a variety of reasons, the chief of which are the want of sufficient knowledge of manufactures on the part of the art teachers, and absence of sympathy evinced by the proprietors of industrial works, has, with some notable exceptions, not received sufficient attention in our art schools and classes. In fact, there has been a great departure in this respect from the intention with which the Schools of Design were originally founded, viz. :—‘the practical application of (a knowledge of) ornamental art to the improvement of manufactures.’”†

As pointed out by the Commissioners, there has been a departure from the original intention in the teaching of the schools and classes of the department. Such modification has tended to greater weight being laid on the teaching of drawing and painting as pure art subjects, leading up to pictorial art and sculpture, and to the neglect of applied art. In fact, the department confesses its inability to teach design in an industrial sense. Thus, Mr. H. Cole (afterwards Sir H. Cole), the then secretary of the department, in evidence before the Commission on the Department of Science and Art in Ireland, 1869, stated in reply to a question as to the teaching of design with special reference to manufactures :—

“It has been attempted, and vainly attempted, a long time ago. It was attempted under other circumstances at the first formation of the Science and Art Department, and it is altogether a hazy impracticability.”

The present object of the art teaching of the department will be gathered from the following extracts from the evidence taken by the Technical Instruction Commission :—

“2845—In art you have general instruction in drawing, painting, and modelling, and you have designing for architecture, manufactures, and decoration (and I should point out that the students are only taught designing broadly, that is to say, the principles of designing—the instruction in designing is not carried to any very precise or technical stage).”—*Colonel Donnelly*, Chief of the Executive of South Kensington.

“3380—The aim of the South Kensington system is to give a good art education. . . . Students under our system pursue a systematic course, which would give a sound taste as the result.”—*T. Armstrong and H. A. Bowler*, Director, and Assistant-Director, for Art, S. and A. Department.

* *Calendar and General Directory of the Science and Art Department.*

† *Report of Royal Commission on Technical Instruction, 1884, p. 520, hereafter referred to as R. C. T. I.*

The present aim of the department is, then, to provide instruction in pure art, the application to industry of the knowledge acquired in the schools being left to outside and individual effort. Now, confining our attention for the moment to the question from the point of view of art, the objection to the South Kensington system is radical. It is an attempt to administer art-training and education on an imperial basis, centralised in, and controlled from, an imperial centre. Under the system of one annual set examination for the Three Kingdoms, and payment by results thereon, the course of instruction in the schools is necessarily everywhere the same, and determined by the department. The teachers, to entitle a school or class to payment on results, must be certified by the department, that is, must have passed the examination required for their particular grade. Putting aside the industrial aspect of the matter—the impracticability under a centralised system of directing instruction to local needs—centralisation of art-teaching is contrary to the best experience in art. Art cannot be thus administered, for the reason that art is essentially local and individual. Science is cosmopolitan; art is national and local.

A passage in the Report of the Commission on Technical Instruction is instructive in this connection. In conversation with some of the leading educational officials, present at the opening of the Fine Art and Industrial Exhibition at Nuremberg, 1882, the commissioners were informed that the conviction was universal throughout the country as to the influence exercised by art and technical schools on manufactures, that:—

“On all hands this movement is progressing, and they are compelled to strain every nerve in order not to fall behind; and what is the result? They can see a superior taste in every object made by hand, as an outcome of these schools, and they can now almost tell by the work where the workman or designer has been trained. Taste has become almost like a man’s handwriting, and they can recognise the man, or, at least, his school, in his work. The great Nuremberg craftsmen of old have not ceased to inspire their followers with some of their enthusiasm and noble feeling, although centuries have passed since they lived and worked in this city. The inhabitants are all proud of the old couplet:—

‘Nuremberg’s hand
Goes through every land;’

and they claim that it is no mere figure of speech.”*

On the subject of the national and local individuality of art I might refer at length to the history of art in all times, and could quote freely from Viollet-le-Duc, Ruskin, and other critics of recognised position; it is, however, sufficient in the present paper to state, that I believe I am correct in saying, not only do all critics entitled to speak for art, but all professional artists, agree in thinking that freedom of local development in art is essential to its healthy progress.

Now, South Kensington ignores all individuality of national and local character. Under the centralised system of the department a

* R. C. T. I., p. 236.

uniform system of art teaching is spread over the Three Kingdoms. The work of students throughout the Three Kingdoms, and in some instances from the colonies, is sent in to an annual imperial examination held in London, and there adjudged. Consequently, the tendency of the system is to stamp the standard and taste of the examiners in London on the country at large, and to check the formation of local schools.

It may be asked, is not training in drawing common to all art teaching, and cannot it be efficiently taught under a centralised system? It is, however, to be borne in mind that the South Kensington Department does not confine its attention to drawing, but embraces painting, modelling, and the principles of design, and some of the schools include "life" classes. But, even in drawing—though I do not wish to push the argument too far, and would admit that drawing, as a branch of elementary education, may properly be taught on a general system—still, in drawing, artists recognise, even in mere outline, differences of quality and spirit (strongly marked as between French and German) depending on the particular artistic aims of the individual or school, and the cramping effects of early training too often last through life.

On the continent this centralisation of art teaching does not exist; the system of "results" and certified teachers is not known; the masters being drawn from the ranks of professional artists and designers, instead, as with us, from what amounts to a civil service class of certified teachers. Then the system of voluntary studios, unknown in England, preserves in a marked degree individuality in art; also, far greater freedom would appear to be allowed to the masters, in some cases the teaching of art in local schools being on independent principles. Thus, speaking of the *Ecole des Beaux Arts et des Sciences Industrielles de Toulouse*, the Commissioners state:—

"This school is well known as being one in which, by its special system of instruction, a knowledge of drawing is very rapidly acquired, and some of the most eminent artists of France owe to it their early training."—See also, *Minutes of Evidence*, 3378-9.

The local freedom of the continental schools will be more clearly perceived in the teaching of applied art; and having to some extent cleared the ground in that direction, we may now consider in detail the bearing of the continental and South Kensington systems on industry. Take first the continental systems.*

France.

The teaching of art in its application to special trades does not appear to be carried to the same extent in France, especially in Paris, as in most other of the continental countries. The Commissioners

* It may not be unnecessary to state that drawing is universally taught in the continental primary schools, attendance at which is in general compulsory: also that modelling, a subject having very direct bearing on artistic handicrafts, occupies a position almost side by side with drawing in continental industrial art teaching, and is taught from an early age. See generally *Report of Technical Instruction Commission*, and p. 520.

state that from their inquiries "in no school in Paris is drawing taught solely in its application to special trades."* We have, however, to recollect that in France design and decorative art may be said to be hereditary, and that among a people whose industrial position has been made by the union of artistic excellence with technical skill, and whose workers live in an atmosphere of artistic influences, instruction in the application of art to industry is not of the same importance as in the case of countries where art education is at a low ebb. Further, the system of private studios for design, quite unknown in England, supplies the need of specialised instruction to a very large extent. In reference to Paris this is particularly the case. Paris is at present the centre of the designing trade, and possesses an abundant supply of thoroughly trained industrial artists, many of whom have been trained in the shops and studios.

"The designers for textiles and printed fabrics in Paris form a special profession, having their trade organisations, agencies, their studios, and their system of apprenticeship."†

In fact, designing occupies in Paris the position of a recognised branch of art. Under such circumstances, the main thing required is extensive facilities for acquiring a knowledge of drawing, to enable the student to qualify for subsequent training in design, and in regard to facilities for instruction in drawing, France leaves little to be desired, the municipal evening art classes in Paris alone numbering sixty-five, in all of which the instruction is gratuitous. But, even with regard to Paris, the modifying force of the word "solely" is apt to be overlooked in the passage above quoted. On looking back a page, in the report on the *École Nationale des Arts Decoratifs*, under the direction of M. de Lajolais, described as "one of the most important of the Paris schools available for evening instruction in drawing," we read :—

"There is a special atelier for the study of industrial designing under these conditions [their applicability to the material] and some excellent drawings and models executed by the senior students were shown to us. . . . The reputation of this school under successive teachers has become firmly established, and many of the best artists and designers in France owe to it their early training."

The evidence of Mr. Armstrong, Director for Art, Science and Art Department, touching this school is striking :—

"The French artisan going into a school such as that of M. de Lajolais, arrives more quickly at that sort of work which will be immediately useful to him, for what reason I can hardly say—that M. de Lajolais and such masters have the power (whether from not being hampered by rules or not, I am not prepared to say) of putting him direct to the work which will be more directly useful to him.‡

But notwithstanding the exceptional position of Paris, the necessity for more specialised instruction in art appears to have been felt.

* R. C. T. I. p. 37.

† R. C. T. I. p. 324; See also Evidence of Mons. L. Arnoux and H. H. Mott, R. C. T. I. vol. iii.

‡ *Minutes of Evidence*, R. C. T. I. vol. iii. 3379.

The Commissioners, in the concluding portion of the paragraph referred to on drawing, state :—

“It is important, however, to notice that by decree dated December 20, 1882, the school of the Rue Ste. Elizabeth, and that of Rue des Petits Hôtels, both of which schools were visited by the Commission, have been reconstructed and created Ecoles d'Application des Beaux-Arts a l'Industrie, and thus it would appear an attempt is about to be made to give a more technical character to some of the art teaching in Paris.”

It is, however, in the provinces that the association of art and industry, and the local freedom of the schools, is most apparent. Municipal schools of art, similar to those at Paris, exist in nearly every provincial town in France. The Ecole des Beaux Arts of Lyons is almost entirely supported by the municipality, the city grant for the school amounting to £2,280 a year. In this school :—

“Drawing is taught in all its branches, and great attention is paid to designing for various art manufactures.”

There are, in addition, five municipal drawing schools supported by the city at a yearly cost of about £1,320. The municipal school of Limoges :—

“Was established for instruction in art bearing on the ceramic manufactures, for which Limoges has been long famous.”

It is right to mention that M. de Lajolais, Director of the Ecole Nationale des Arts Decoratifs, Paris, is also director of this school.* Further on, in the not very well arranged report of the Commission, we find the following conclusive passages :—

“At Limoges the splendid collection of enamels and pottery, nearly all due to private gifts, has a direct and most valuable bearing on the local porcelain industry. The art school is under the same roof as the museum, and at this school some 1,200 students, chiefly of the artisan class, receive gratuitously a sound technical instruction, not only in the principles of decorative art, but also in the direct and practical application of art to the chief manufactures of the town. The same may be said in some degree of Tours. . . . The public art schools of Lyons also, which, holding a high position as centres of pure art teaching, do very much to serve the local designing, and the collection of artistic fabrics, and of drawings and designs connected with the silk trade, forcibly illustrate the value of local effort and management in advancing the interest of special artistic industries.”

“The porcelain painting of Nantes, and the glass painting of Angers, owe very much to the direct teaching of their art schools, and to the admirable illustrative collections they possess.”

“It may be broadly asserted that every French provincial capital possesses not only an efficient school of art, but a picture gallery and museum, either of industrial or antiquarian interest, and also a good library. Nor is it found that these influences tend mainly to the creation of picture painters. That department of art is not specially encouraged, the main function and utility of their teaching being in its application to local trades and industries.” †

Under the heading “Continental Weaving Schools” will be found interesting information respecting these important schools, a number of which the Commissioners state they found in every country

* R. C. T. I p. 39.

† *Ib.* p. 231-2.

they visited, and in which the direction of instruction to local requirements is again emphasised. They state :—

“The chief advantage of such a school lies in the possibility which it affords of artistic training. The design, and the working out of the design—so that what appears on paper may appear also on the woven fabric—are the chief ends of the weaving school; in fact, such an institution might appropriately be called ‘a school of art applied to weaving.’”

Of the French weaving schools the Commissioners notice the Lyons schools, probably the most complete in France, established by a joint committee of Lyons merchants, and the weaving school at St. Etienne. The latter is a municipal school, and in it—

“Art instruction is given principally with a view to the training of practical designers for the silk industry.”*

Belgium.

In Belgium, the local freedom of the schools and direction of instruction to local requirements again meets us on a first glance at the report of the Technical Instruction Commission. Thus, under heading “Apprenticeship and Artizans Schools in Belgium,” we read :—

“There is no prescribed course or uniformity in the programmes of these schools. The instruction varies greatly in the different schools, being developed in accordance with the requirements of the local industries.”†

And a little further on, in the description of the Ghent Industrial School, “justly considered one of the best technical schools in Belgium,” referring to the *weaving school*, a special section of this school :—

“The reason for the existence of this special school being that Ghent is the centre of the two great textile industries of cotton and flax, the course here having special reference to these manufactures. . . . The pupils are expected to attend the weaving school every day from 9 to 12 and from 2 to 5. At least three afternoons per week are devoted to ornamental designing, and to putting the design on the loom.”‡

Germany.

In Germany, technical and applied art instruction is decentralised in a two-fold sense. In the first place there is the decentralisation of the state within the empire, and then local decentralisation within the state. The direction of technical instruction and instruction in applied art to local industries is a prominent feature of the German system. And in most of the apprenticeship schools, instruction in pure and applied art is carried on in combination with practical work in the shops.§

The Commissioners notice, among others, the *Trade School at Iserlohn* :—

“The pupils of this school go through a three years’ course, and are trained as designers, modellers, woodcarvers, moulders, founders, turners and pressers, chasers, engravers, gilders, and etchers.”

* R. C. T. I. p. 124. † *Ib.* p. 58. ‡ *Ib.* p. 60. § *Ib.* p. 50.

The instruction is in part theoretical and in part practical. The theoretical includes drawing in all its branches, modelling in wax and clay, and the history of art metal work.

Another school referred to at some length, is the *Trade School at Remscheid*, in which instruction is given :—

“In the construction of edged tools and other implements manufactured in the district, in which it competes with Sheffield and Birmingham. From this town, which a few years ago was a mere village, but is now growing and prospering in a high degree, an important trade is carried on, including some with our own colonies.”*

In the Remscheid School :—

“All the pupils are taught drawing and design in its application to iron-work, and they are made familiar with the different kinds of iron-work that can be done by hand in the small shops at their own houses.”†

Of other of these schools noticed by the Commission are the *Pottery Trade School, Hohn-Grenzhausen*; the Black Forest Trade Schools, and the village industrial schools of Bavaria.

Under the heading “Industrial Art Schools”‡ some important continental state art schools are described. The most representative of the German system of *Kunst-Gewerbe*, or artistic trade schools, appear to be the Munich and Nuremberg schools.

The Munich Industrial Art School.—In this school special departments are devoted to ceramic art, in which students are taught modelling, drawing, and painting on pottery, and a furnace is attached in which the students fire the ware after painting; textile designing, which appears, however, somewhat deficient on the practical side; lithography and wood-engraving; house painting and decorating; art applied to metal work; glass painting, “for which this school has become especially famous”; wood-carving, and architecture.

The Nuremberg Industrial Art School.—The tuition in this school, the Commissioners state—

“As seen from the drawings and applied art work shown in the Nuremberg exhibition, is probably second to none on the continent.”

The evening classes are largely attended by the artizans of the town, “especially house painters, plasterers, etc., and others who are interested in decorative work.”

The Munich and Nuremberg schools are specially referred to as having been “eminently successful in the training of industrial designers and art workmen.” §

Weaving Schools.—Germany is especially well equipped in this respect. The Commissioners state :—

“The weaving schools of Germany are among the best of their kind that we have seen.” ||

The schools they select as representative types are those of Mulhouse in Alsace, Crefeld in Prussia, and Chemnitz in Saxony.

* R. C. T. I. p. 50. † *Ib.* p. 51-2. ‡ *Ib.* p. 158. § *Ib.* p. 236. || *Ib.* p. 127.
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The Mulhouse school is maintained by the manufacturers of the district, and

“The students are almost entirely of the richer classes, sons of merchants and manufacturers.”* The school is weak in the department of design, but this appears to be accounted for by the excellence of the local art schools. The Commissioners “were informed, not only in Mulhouse, but also in Paris, that such is the repute of the art schools of the locality, and the influence of the superb museum of printed and textile designs, that Alsace sends more designers to Paris than any other district on the continent.”†

The Crefeld school is jointly supported by the state, municipality, and chamber of commerce, the deficiency over students’ fees being made up by grants in the proportions—state, one-half; municipality and chamber of commerce, a quarter each.

As indicating the local spirit in which the school is administered, it may be mentioned that there is a graduated scale of fees—(a) for Prussians; (b) for Germans, other than Prussians; (c) for all foreigners. The course of instruction includes a thorough training in drawing and practical instruction on the loom.

“When the student shows capacity for higher work, he is admitted into one of the studios, where, under the special direction of qualified designers, he is encouraged to give play to his own imagination, and to produce new and original designs in colour or otherwise, which can be woven by himself or other students on the premises, and submitted to the trade. The museum attached to the school contains a “superb collection of textile patterns.” The collection is arranged to facilitate reference by students and designers; in addition to some 5,000 framed specimens exposed in the museum, “others are arranged in cabinets in their due order as to style, material, and date, from the 10th century to the present time.”

The Chemnitz school, founded in 1856, is supported, in addition to students’ fees, by grants, in equal sums, from the state and town. The copying of patterns and adaptation of designs, and the practical details of weaving designs on the loom are taught in the school, but the provision for teaching pure and applied art is small. This the Commissioners notice as a weak point in the system of the school. ‡

I conclude this notice of industrial art teaching in Germany by a summary of the principal features of the system, which I have made from an admirable lecture on “Industrial Art Teaching and the system of Progressive Schools in Germany,” by Mr. Alfred Harris, delivered at the Albert Hall in May last. He takes as an example the schools in the small state of Wurtemberg. The chief features of the system are :—

“(1) The schools are supported by contributions from the state and municipality in equal sums. (2) The schools are managed by local councils or committees, subject to inspection by a central department for science, art, and industry. (3) The central authority is assisted by a certain number of merchants and manufacturers chosen every four years by the local chambers of commerce: but whilst always ready to help and advise, the central authority ‘does not attempt to force its own ideas of art upon the traders of the country.’ (4) ‘In the pro-

* R. C. T. I. p. 129.

† *Id.* p. 133.‡ *Id.* p. 143.

gressive schools the requirements of trade are predominant, and control the system. The provincial schools are under the direct management of local committees, composed of manufacturers and others, who know the requirements of the district, and insist upon these having the proper share of attention in the system of tuition.' (5) 'Each school lays down its own curriculum,' and (6) 'selects its own teachers from the open market.' (7) 'The masters are paid for their knowledge, and on their merits, and not, as with us, by the useless multiplication of studies for 'results,' to be judged by a central tribunal of men who know little of local requirements.' The examinations, it is unnecessary to say, are local."

Austria.

The apprenticeship trade schools of Austria are in many respects similar to those in Germany; in fact, it was largely owing to the success of the Austrian trade schools that similar schools were established in Prussia; detailed reference is therefore not necessary. As in Germany, industrial art schools are largely represented. The Commissioners notice the important state school at Vienna:—

"It consists of the following divisions:—(1) Architecture; (2) Sculpture; (3) Drawing and Painting. The latter division is sub-divided into three departments: (a) flower drawing; (b) figure painting and ornament; (c) designing. There are also separate departments of the sculpture division, viz.: wood-carving, wood-turning, metal chasing, and ceramic art, especially modelling for china." In this latter department "the high class porcelain painting, for which Vienna has so long been renowned, is taught."

In the metal chasing and brass and bronze working department the course lasts three years, at the end of which the pupil is expected to be able:—

"(1) To make a drawing of a design for a model; (2) to make the model in clay from the drawing; (3) to cast the object in brass, or other metal, and to chase and finish it, giving it the necessary expression for a finished figure; and (4) to draw the completed figure, and compare this drawing with the original design."*

Weaving Schools.—There are twenty-two weaving schools in Austria; they are partly supported by the state, but the grants are very small, in many cases under £100 a year, the total yearly grant amounting to only £2,500. The most important is the *School for Textiles and Dyeing, Vienna*, the prospectus of which states:—

"Vienna is the seat of an industry which comprises all the branches of art-weaving, and therefore the student who is trained here has an opportunity of intimate contact with the practical processes, as well as with all desirable institutions of culture and education, such as the technological museum, as also for the further artistic development at the museum for art and industry."

It is maintained by students' fees, a state grant, and contribution from local rates, and is governed by a council of eight members, consisting of—the mayor for the time being, the director, and representatives of the state, Gewerbe School, Royal Museum, Silk Industry Society, and the textile trade. In the drawing and designing

* R. C. T. I. p. 163.

department of the school, which impressed the Commissioners very favourably—

“It seemed to be recognised more than in any other school (Crefeld excepted), that it is necessary, first, to teach original designing, and afterwards the application of designing to the loom. For this purpose drawing is taught thoroughly, and, in the first instance, as pure art, but always bearing in mind its ultimate application to industrial design.”

The walls of the room devoted to designing and painting were covered with drawings and designs, others in great variety were stored in cabinets, and with a view of facilitating work in this department, a library is attached, containing one hundred and six volumes—

“More than ninety of which relate to design, and every important new work that is published is added to the collection.”

Italy.

The commissioners refer but briefly to industrial art teaching in Italy. In the thirty-first Report of the Science and Art Department (1884) will, however, be found some interesting “Notes on the Schools of Art applied to Industry in Milan, Bologna, Padua, Venice, Rome, Naples and Florence,” visited by Mr. Armstrong, the Director for Art of the department, from which it appears that, as regards local management and the prominence given to the teaching of applied art, Italy forms no exception to the continental practice.* Mr. Armstrong states:—

“There is no uniform system for the whole of the kingdom ;” though he adds, “in essentials the course of instruction, which in its lower stages is very like our own, was the same in all the schools I visited.”

These industrial art schools are generally supported by joint contributions from the state and local authorities. Thus, the Milan upper school of art applied to industry, the annual cost of which is fixed at 25,000 lire, is maintained by contributions—the ministry of agriculture and commerce, 10,000, the city, 10,000, and the province and Chamber of Commerce of Milan, 2,500 each. The government of the school is entrusted to a council of direction, composed of two delegates of the minister of agriculture, two delegates of the city, and one from each of the other contributing bodies. The teaching staff is appointed by the council of directors, the appointment being by competition, which, however, may be dispensed with in cases of acknowledged merit. “The programme of a state-aided school must be approved by the minister.” At Venice, Mr. Armstrong says he noticed a course of drawing from nature printed leaves “which I have not seen in use elsewhere.”

“Here, as in Milan, the students’ work, after a grounding common to all, is planned with a view to their trades.”

Again, in the printed papers of the School of Applied Art at Florence it is stated that the object of the school is:—

* See also the account of the Como Weaving School, R. C. T. I. p. 155.

“To give artistic and technical instruction of a kind which may further the growth of those Florentine industries which depend on the arts of drawing and modelling.”

And Mr. Armstrong mentions, that out of a total of 146 students in 1884, there were only eight who had not chosen their walk in life. As generally on the continent, modelling occupies a prominent place in the course of instruction of the Italian schools.

INDUSTRIAL ART TEACHING UNDER THE SCIENCE AND ART DEPARTMENT.

The preceding brief sketch of applied art teaching on the continent is necessarily inadequate, but is I trust sufficient to bring out the main features of the system, namely:—(1) The local individuality of general art teaching; (2) Local management of the schools; (3) Instruction in applied art; teaching of pure art not being neglected, but directed with a view to its application to industry, and supplemented by specialised instruction in design, etc., for local trades and industries; (4) The course of instruction determined by local requirements; (5) Freedom in choice of teachers, thus securing thoroughly qualified instructors for special branches of instruction; and I might add (6) Prominence given to modelling, which occupies a position almost side by side with drawing in continental industrial art teaching.*

I need not remind you that the system of art teaching under the Science and Art Department is at issue with the continental system on all these points. The centralisation of South Kensington can only end, and it would appear to be the aim of the department, in the establishment of one set standard of art for the Three Kingdoms. This would really mean, so far from a gain in art, the reduction of taste and artistic feeling throughout the Three Kingdoms to one uniform, monotonous level. Then, the South Kensington system of certified teachers, apart from the tendency to stereotype instruction, results in the turning out of a number of indifferent professors of art, but few artists. To obtain a certificate, an art master must, in fact, possess an all-round qualification, instead of the specialised proficiency of a professional artist. Thus, in the case of “Art master’s or third grade certificates, group I,” the candidate must submit specimens of worked out perspective problems, a sheet of the classic orders of architecture, a sheet of diagrams derived from works on ornament and design, an outline figure from the cast, a sheet of foliage from a growing plant, a drawing of a plant in water colour or tempera, a design in outline embodying principles of design, and, in addition, have passed in the third grade examinations in perspective and elementary architecture, and second grade geometry.† The evidence of M. Leon Arnoux, art director of Messrs. Minton’s

* Out of a total of 41,263 students receiving instruction in the Science and Art Schools, 1887, only 487 were examined in elementary modelling, of whom 265 passed; and in the third grade, or advanced stage, but 40, of whom 17 passed.—*Report, Science and Art Department, 1888*, pp. xxi. & 166.

† *Science and Art Directory*.

pottery works, and a member of the committee of the Stoke Art Schools, forcibly illustrates the absurdity of these all-round qualifications.

"896. We are in the position, that in a school of art like that of Stoke, half-a-dozen subjects have to be taught, and we have only one master to superintend the work sometimes of eighty or one hundred pupils. . . . You cannot expect that a man who is appointed as teacher of flower painting will teach figure painting, or any other thing. We ought to have a special master for every class. It is a perfect impossibility for one master to manage the whole school and teach in every branch of art."*

But it is a matter of common sense. Take, for instance, design. If design is to be efficiently taught, instruction should not be entrusted to men who have merely qualified in design as a branch of general art training, but to men who have made a special study of the subject and are professionally competent in that department. This raises the general question of the teaching of design under the Science and Art Department. As already pointed out, the department has abandoned the teaching of design as an applied art; it still, however, professes to teach the principles of design, and offers prizes for design in the national competition of schools of art. Now, the teaching of the principles of design, especially where the teachers are not designers, and institution of national or, more properly speaking, imperial competitions in design, is of very doubtful benefit. It is true that, with the aid of a well selected series of examples, lectured on by a competent designer, valuable knowledge of the history and principles of design might be imparted, and a critical sense in design developed amongst the pupils. But, as far as I can learn, if we except the unrivalled collection of industrial art at South Kensington, no adequate provision is made in the schools of art under the department for carrying out such a course, and the report of the examiners of the national competition with reference to design is conclusive as to the neglect of this subject in the schools. The following extracts are from the report of the Science and Art Department, 1887:—

"*Designs for Damask*.—The designs for damask were thoroughly commonplace, and obtained no award."

"*Designs for Ribbons* —These designs are this year too bad to receive any prizes."

"*Designs for Plates, Vases, etc* —The figures in these designs are generally bad, and the drawing without style or knowledge, and with little character, and the colour is very rank and unpleasant. The inaccurate drawing in the old plates is not like this, of which the examiners complain, for it has style. They deprecate the copying of old plates which were done by inferior artists from the works of the better ones of their time."

"*The Designs for Tiles* are better than those sent up last year."

"*The Designs for Wall-papers* are few in number and poor in quality."

"*Designs for Carpets* —The examiners are pleased to see large drawings well worked out, from which it is possible to form an opinion of the effect of the manufacture."

* R. C. T. I. vol. iii. *Minutes of Evidence*.

The examiners' report, extracted in the Report of the Department, 1888, is slightly more favourable, but does not specially refer to so many classes of design :—

“The examiners failed to see why, looking to the process of machine weaving, the old lace patterns intended and used for a totally different method should be so repeatedly imitated by the designers for patterns for machine-made goods. The hand-made lace designs were considerably better than of the last two years. Among the designs for cut-work applied to net there was no freshness of pattern.”

“*Printed and Woven Textiles* —The prints, though not quite so good as those of last year, were in the same style. The designs noticed were, most of them, satisfactory in style and aim.”

“*Carpets* —The examiners again complain that dull and muddy colour had been used in nearly all the designs for carpets.”

“*Wall-papers*. —The designs for wall-papers were decidedly poor, and this has been their character for some years.”

“*Designs for Ironwork* —The designs for ironwork sent in were, as a whole, poor in character.”

So much for the principles of design. But, to go to the root of the matter, the failure of South Kensington in design is due to the impossibility of teaching design as an abstract subject. Design is limited by material and process of manufacture, and in different classes of industry there are found individual qualities of expression and terms of form in design, developed in accordance with the character of material and process of manufacture: then there are the accumulated traditions of decorative treatment, peculiar to different manufactures. And as it is necessary in the teaching of music that it should be taught with reference to some one instrument in the first instance, so in design it is necessary that instruction should, in the first instance, be directed to, and the student trained in one branch of design. For as command of language is necessary to fluency in speech, so power of invention and fluency in design cannot be acquired until the student has obtained a command of the various forms of expression upon which design in a given class of manufacture is based. And this is to be obtained by persistent practice in designing for some particular manufacture, rather than general instruction in design, which by reason of its generality necessarily tends to abstract treatment. When the student has grasped the principles of design, as applied to some particular industry, having in fact, become a designer, he may transfer his knowledge, within limits, to designing for other industries—the required knowledge of the limitations of material and process having been obtained with reference to one industry, being readily acquired with regard to other industries, especially if kindred.

The Commissioners, in concluding their notice of art schools, galleries, and museums on the continent,* remark :

“The small degree in which our art schools, with few exceptions, are now contributing either to industrial or designing art, is only too well known, and a marked change in this respect is essential before our schools can hope to take rank with those of the continent in direct commercial utility.”

* R. C. T. I. vol. i. p. 235.

On looking up the "exceptions" we find they are notably the schools of Nottingham and Lambeth, of which the Commissioners say :—

"The manufacturers of Nottingham speak with no uncertain voice of the important influence of the local school of art on the lace manufacture of that town. Without the Lambeth School, the art productions of Messrs. Doulton could scarcely have come into existence."†

Turning to the evidence respecting these schools, which, unaccountably receives no notice in the report, we find the most complete condemnation of the South Kensington system and methods of teaching design; showing that, so far from the teaching of applied design being a "hazy impracticability," when carried out under proper conditions it has been eminently successful. Mr. J. S. Rawle, head master of the West London School of Art, and, formerly, for fifteen years head master of the Nottingham school, thus relates his experiences :—

"783—When I went to Nottingham, I found everything at an exceedingly low ebb, no lace designing had been done for years, and I thought that was the most appropriate work to set the students to do. We rapidly increased the number of our designing students; but the manufacturers were, in many cases, strongly opposed to our method of teaching. When I went there I found the old style of decorative treatment employed, a style far from being appropriate to the material. I set my face against that. . . . Ultimately, I think I may truly say that the character of the designing throughout the trade was completely changed. They used to send to France for designers, but latterly the great majority of designers were Nottingham men, who had received their training in the Nottingham school."

"776—I influenced the committee of the school, to induce the manufacturers to have conditions put in the indentures of their apprentices, to the effect that the apprentices should attend the school for two or three nights a week, during the years of their apprenticeship; the employers, in the great majority of instances, paid the fees; and at one time, there were between 40 and 50 apprentices attending the school under those conditions."

That number, Mr. Rawle believes, has been since maintained, and he mentions that in one instance a student of the school had obtained a position as designer in Paris.

In this case we see that where a class in designing was formed in connection with the local industry, and the students were practically acquainted with the requirements of the trade—in fact, where designing was planted on a natural soil, it has been most successful. But this was apparently due to the accidental circumstance that the school was fortunate enough to secure the services of an energetic and competent master in the particular branch of art required, who broke through the former traditions of the school.

The case of the Lambeth school is even more instructive. The evidence of Mr. J. Sparks, Principal of the National Art Training School, South Kensington, and for many years head master of the Lambeth school, speaks for itself :—

† R. C. T. I. vol. i. p. 513.

"1114—A few months after I went to Lambeth in 1857, I had one student from the potteries, and I asked him to make some trials for me ; I went to his master, but he was averse to doing anything. I then asked this man to give me clay and make certain trials for me in the kiln. By scratching the clay—by painting the clay with a stopping-out mixture, and dipping it afterwards in colour, and by making use of two or three clays, I saw there were capabilities in the material ; but it was not for some years after that I was introduced to Mr. Doulton, and it was only in 1869 that we made some serious trials to get the clay decorated."

"1115— . . . The result was that a great deal of attention was attracted by this attempt to decorate stoneware. Mr. Doulton was encouraged to take up the whole question, and from that time he provided rooms (in his own works), and a manager, and all that was necessary to carry on the manufacture on a trade basis."

"1139—What do you do for the works of Messrs. Doulton ? We take the girls, boys, men, and women, and give them this special training. The young girls who are engaged in dotting, or the lower forms of decorating stoneware, have a special teacher of elementary design ; they are taught proportion and the proper way of filling spaces, so as not to overcrowd, the value of diagonal lines, vertical lines, and so on—elementary design, in short ; and they do that every evening during the summer ; while they are working in the art school at second grade subjects, they do it two evenings in the week."

"1140—There is a class of higher design, which is attended by the heads of rooms at the pottery, and by the artists who paint and draw on the stoneware."

"1141—The difference, I take it, between the work that has been hitherto done at the Lambeth Art School and the average art school has been that we have always had life classes, always had designing classes, and always had modelling classes, three things that are not common, I should think, in the art schools, because they are costly."

"1135—The department of South Kensington gives forty shillings for each student who reaches an examiner's estimate of a good year's work in the advanced stages, but there is no special arrangement made by which a student in a very expensive class shall earn for his school more than that sum ; so that modelling schools, and life schools, and special designing classes, can only be carried on by a special subsidy, which for years I supplied myself, inasmuch as I paid the teachers ; but I had no proper rooms and machinery to carry on these classes to the point I wished ; and the city guilds stepped in and took those classes off my hands, and are now developing them under favourable conditions."

Here, again, we see the teaching of applied design, with reference to a special industry, has been highly successful. But the success of the Lambeth designing classes may be said to have been in spite of South Kensington, and due to the interest taken by the master of the school in the local industry, inducing him to support these classes at his private expense. A notable feature in the cases of Nottingham and Lambeth is the intimate relation established between the school and the work on materials in the local industries ; thus Mr. Rawle describes the Nottingham school as having special relation to the industries carried on in the Nottingham district, "especially in relation to the lace manufactures carried on there" (772) ; and Mr. Sparks speaks of the "strict alliance between the school and the factory" (1128).

The importance for designers of a technical knowledge of the

process of manufacture is strongly pressed by the Commissioners: throughout their report will be found several incidental references to the subject, and they refer to the "want of sufficient knowledge of manufactures on the part of the art teachers" as one of the chief reasons why industrial designing has not received sufficient attention in the South Kensington schools.* On this question of the value of technical knowledge of manufactures in designing, the Commissioners are not only supported by the practice and opinion of the continent,† but by the evidence of experts in England;‡ and in the appendices, vol. iii. of the report, will be found several interesting letters from manufacturers bearing on the subject, and pointing to the necessity of instruction in designing being placed in the hands of men possessing some practical knowledge of the manufactures for which the designs are intended.

As pointed out, the Commissioners admit the failure of South Kensington as regards industrial art; when, however, we turn to the recommendations of the Commission, we find the matter has shrunk to very small dimensions. The department is left practically untouched, the recommendations affecting industrial art teaching, in addition to powers to be given to school boards and local authorities, enabling them to contribute to the maintenance of science and art classes, being confined to the two following paragraphs:—

"(g) That in the awards for industrial design more attention be paid by the department than is the case at present, to the applicability of the design to the material in which it is to be executed, and that special grants be made for the actual execution of designs under proper safeguards."

"(h) That in addition to the loan of circulating collections and the grant of art reproductions at reduced cost, contributions be made to provincial museums, of original examples tending to advance the industries in which such museums are situated."

The recommendations in paragraph "g" have been embodied in the proposed Technical Instruction Bill, to the extent that the department is therein empowered to make payments on results in technical subjects, which would cover, should the department so decide, applied design. But the blot, as I have endeavoured to show, is really in the centralisation of the system, and cannot be removed, but is rather likely to become more marked, by increasing the area of its operation.

The practice on the continent, and examples such as at Nottingham and Lambeth, demonstrate the necessity for local control and association of art teaching with industry. Now, so far as the local art schools are controlled from a centre, and brought within the operation of a general system, they are withdrawn from local influence, and the teaching will naturally tend to be directed to subjects of a general character, rather than those bearing on the particular requirements of the locality. Moreover, the selection of teachers by the central board under a system of imperial competition (the schools

* R. C. T. I. p. 520. † See vol. i., pp. 159, 238, 498.

‡ See evidence of *Morris, Barns, Armstrong, Williams, Mitchell, Sparks, etc.*

being restricted to teachers certified by the Science and Art Department), precludes, as already said, freedom of local choice, and renders it practically impossible for the local schools to obtain masters with the special knowledge required in reference to the industries of a particular district. The system of certification creates in effect a civil service class of science and art teachers, and the area of employment being spread over the Three Kingdoms, the qualifications required for the service, and certified by the central board, must necessarily be of a general and all round character, and abstract in their nature, instead of special and practical.

The proposed Technical Instruction Bill (the outcome of the Commission), leaves this question of centralisation of instruction untouched; if, however, the line of criticism of this paper is sound, it will be apparent that the first question that should engage attention in the consideration of any scheme of technical education affecting industrial art in these countries, is in what manner the freedom of the local schools of art may be best secured, so that the course of instruction in the schools may be directed to local requirements, and to this end, freedom in selection of masters from the open market facilitated.

That the commission had some suspicion that the defect lay in the system and not in the programme of South Kensington would appear from a passage in the report touching art museums:—

“Short of a complete reorganisation of the principles on which our national art institutions are administered, it would be difficult to suggest a plan by which the right of large provincial centres of industry to share the advantages of the national art treasures and imperial support could be fully and practically recognised.”

But, surely, if necessary, the question of the reorganisation of “our national art institutions” should have engaged the attention of the commission, and, as I trust I have shown, there was in this direction ample field for investigation.

Notwithstanding the defective system of instruction, England has undoubtedly made very considerable progress in industrial art during the past thirty years. This improvement in taste the Science and Art Department is inclined to take credit for as due solely to its agency. It is, of course, largely to be attributed to the number of exhibitions held throughout England since 1851, to increased facilities for travelling, and in recent years to the influence of individual designers, such as Mr. William Morris, whose designs are now so extensively pirated in America. But though we cannot concede that English progress in industrial art is wholly due to the Science and Art Department, it would be unfair to that department not to acknowledge the great service it has rendered to design by the magnificent collection of industrial art objects it has brought together at South Kensington. The collection is quite unrivalled, and though the policy of such enormous museums, in which interest is apt to become too diffused, may be questioned, the department has done a noble service to English art and to the country, in having secured for England so many priceless objects of artistic value.

The question of how far it is desirable that provincial museums should be under the control and direction of a central authority, raised by the second recommendation of the commission, is, however, another matter. The advantage to be derived from gifts and loans from a central museum are, at first sight, considerable; but, on looking into it, we see that such can only be obtained at the sacrifice of local individuality in management and the selection of objects—too high a price to pay in the general interests of art. We rarely value a thing which does not cost us trouble; and the interest which a town will take in its museum if its own, will be sensibly diminished if the museum is provided for it from outside, and can at best be but a second-rate reproduction of the central institution. It is at once stamped with a mark of inferiority, and loses interest accordingly. Further, the formation of provincial museums, fed and controlled by a central one, tends to the establishment of a stereotyped class of museums throughout the country; so that the visitor finds in these Science and Art Museums, everywhere, more or less the same sort of collection. This, I believe, cannot but have an injurious effect on art, in so far as it tends to check the formation of local "schools." The question, however, does not come within the immediate scope of this paper, and would lead us too far for discussion within present limits.

II. SCIENCE, AND THE SCIENCE AND ART DEPARTMENT.

It is not necessary to compare in detail science and technical instruction on the continent with that of South Kensington. Much that has already been said on the subject of continental industrial art teaching, with reference to the local character of the schools, direction of instruction to local industries and trades, and the combination of theoretical with practical instruction, applies equally to the teaching of applied science. It would be tedious to retrace our steps through the Report of the Technical Instruction Commission on these points; and as in the system of instruction in applied science, adopted by the majority of the municipal and voluntary technical schools, established throughout England within recent years, a more or less practical recognition of these features is to be found, it is not, perhaps, required.

In view, then, of the proposal in the Technical Instruction Bill to hand over the administration of technical education to South Kensington, we may pass at once to the consideration of the character and efficiency of the science teaching as at present administered by the department. The original intention of the science branch of the Science and Art Department was, as stated in the Board of Trade scheme, when in 1853 the department was enlarged to embrace science as well as art—

"To extend a system of encouragement to local institutions for practical science, similar to that already commenced in the department of Practical Art."*

* *Calendar and General Directory of the Science and Art Department.*

As in the case of industrial art, that intention has been largely departed from, and the science teaching administered by the department is now purely of a theoretical and abstract character, and is, as a rule, in the hands of men without knowledge of the practical application of their subject.

As already stated, science teaching admits of centralised administration to an extent not possible in art; science is general, art is particular. The facts and principles of science are well-established and universally recognised. In science, questions of quality and selective taste do not come in; there is no French, as distinguished from German science, in the sense that there is a distinctive French and German art; there are not "schools" in science. Consequently, in science it is possible, under a centralised system, by means of a written examination, which shall be thorough so far as it goes, for a single board of examiners to examine students from many and widely separated schools. The defects of such examination are those common to all paper examinations on practical subjects—the difficulty of thereby testing practical knowledge on the part of the student, and of securing practical teaching on the part of the master. For elementary and theoretical sciences, the South Kensington system may then be taken as fairly good; when, however, we come to applied science, or criticise the system with reference to the certification of science teachers, and as a test of practical knowledge on the part of teachers—in fact, examine it from the point of view of technical education—it breaks down utterly.

The application of science to a particular trade or industry requires special knowledge, and though a general knowledge of that science, from which aid may be derived in a particular industry, is necessary before its specialised application can be properly understood, yet, even from an early stage, in the hands of a competent teacher, instruction can be directed to the end in view. Take, for instance, the subject of geometrical and mechanical drawing. At present it is both an art and a science subject, and a teacher holding an art certificate may earn payments in it as a science subject, and the holder of a science certificate as an art subject.* Now this, though perhaps convenient for purposes of imperial examination, takes the whole reality of the subject out of it. Anyone practically acquainted with mechanical drawing in connection with, say, engineering or building construction, knows that it can be given a lead from the very start, and that it cannot be efficiently taught with reference to these subjects except by a practically qualified draughtsman. Take, again, the important industry of dyeing. On the continent a special profession of colourist chemist exists, which the Commissioners observe—"has not yet obtained a firm footing in our own country." The superior facilities on the continent in this respect is illustrated by the evidence of Mr. W. Q. Ewart, of Belfast. He says:—"As regards dyeing, I cannot speak, but to show you our ignorance in the matter." He then describes how, having taken a contract for goods of a particular shade, he sent the yarn to be dyed,

* *Minutes of Evidence, R. C. T. I., Armstrong, 3348.*

and it came back almost the right shade, but not being exactly the shade, the goods were thrown back on their hands. He thought the matter worth following up, and sent test quantities to two of the best dyers in Belfast, but neither succeeded. Samples were then sent through their Manchester office to four of the Manchester dyers, but with like result; and their representative wrote back—“These are Belgian goods; the yarn is bought in Manchester, and dyed and manufactured in Belgium, where it seems they have special facilities for dyeing.”* No doubt, for the profession of colourist chemist, a very high training in chemistry is necessary; but all through the dyeing industry, knowledge of chemistry applied to dyeing is most useful; and, not to go into other instances, it is impossible that adequate instruction can be given in this branch of chemistry, by teachers whose only qualification is that of having passed an examination in general chemistry, under South Kensington, and who have no practical acquaintance with the subject as applied to industry.

The inadequacy of South Kensington science teaching, and the injurious effect of the centralisation of its administration as bearing on technical education, are admirably summed up in the evidence of Mr. C. J. Woodward, Principal of the Chemistry and Physics Department, Birmingham and Midland Institute:—

“Since the payment to an institution depends on the number of students who pass the [government] examination, the bad tendency of such a system is, that the teacher gives his attention only to the subject of examination, as detailed in the syllabus drawn up by the government examiners. Take, for instance, the applications to trade. One would feel inclined, if we were giving a course simply of chemistry and its applications to brassfounding and jewellery, etc., to launch out into a variety of matters, not even mentioned in the government syllabus, whereas, to obtain the government grant, we must keep to a particular scheme laid down. In an institution like ours, I think it would be beneficial to measure the grant, not by an examination, having no regard to local circumstances, but by the amount which the locality, which knows its own wants, is willing to apply to those wants. This would give us the liberty of teaching we require.”†

Touching the qualifications of the science teachers turned out by the South Kensington system of examination and certification, I may refer to the observations of Professor Silvanus Thompson, of the City Guilds Technical College, Finsbury, in the discussion on Mr. Swire Smith’s paper before the Society of Arts:—‡

“His objection to the Science and Art Department being entrusted with technical education, as well as with education in science and in art, was a radical one. Their whole system of certificating science teachers and art masters, which might be very well so long as only children had to be taught, would break down utterly the moment they attempted to apply it to the technical training of workmen. Such teaching must be essentially by specialists. . . . The South Kensington system was most fatal to the actual training of the workmen; the

* *Minutes of Evidence*, vol. iv. 6005.

† *Ib.* vol. iii. 4201; See also evidence of Prof. J. V. Jones, Principal of Firth College, Sheffield.

‡ *Journal of the Society of Arts*, 2nd March, 1888.

science they could learn, such as it was, under that *regime*, was of very little use to them. What was the result of this system? In trying to create an universal science teacher, they created a man with a little superficial knowledge on a lot of topics, who would never be able to take his students outside the limits of the code. Little cram-books came into use, written from a narrow range of knowledge, with absolutely nothing in them but what was required to fit the code."

Professor Thompson's remarks led to a correspondence between him and Major-General Donnelly of the Science and Art Department, which was carried on for some weeks in the *Journal of the Society of Arts*. It turned, so far as Major-General Donnelly was concerned, mainly on a personal matter concerning the accuracy of Professor Thompson's statements touching a Science and Art scholarship, which he had incidentally mentioned as having obtained when a student of the department, and the restrictions on which he referred to as illustrating the all-round tendency of the science teaching of the department: Major-General Donnelly's point being that it was not a scholarship, but only an exhibition. I take from Professor Thompson's last letter a few passages, in which he restates and illustrates his objections.*

"For years it has been only too well known to those who were acquainted with the actual working of the Science and Art Department scheme of national science teaching and art teaching that it presented many unsatisfactory features. The department's way of promoting the spread of scientific education, good though it may have been at the time when it was founded, had largely degenerated, under the debasing system of payment by results, into the mere cramming for examination for earning grants and prizes in certain five-and-twenty specific subjects, under a rigid code which had little or no relation to local industries, or to the definite applications of science to trade. . . . It is easy to show how utterly at variance the regulations of the Science and Art Department are with that which is required for really *technical* instruction. Take, for example, the subject of building construction and design—one of the five-and-twenty specific science subjects. Now, one would have thought that for the teaching of this subject to be of any use, the prime qualification of the teacher would be that he should have a technical knowledge of the subject—that he should himself have worked at building, either as a builder or architect. But what do the official rules lay down as a qualification? . . . There is not a word in the rules requiring, in the remotest way, that the teacher of building construction shall have had any technical acquaintance with the subject of building. The fact of having properly learned building construction in a builder's or architect's office is not recognised as any qualification at all."

To this Major-General Donnelly replied in a letter which closed the correspondence:—†

"As a matter of fact the department has, in numerous cases, dispensed with examinations, when the applicant could show that he was possessed of special qualification. But what difficulty can there be to a man who has properly learned building construction, or anything else, anywhere, passing the examination of the department, and thus obtaining in the regular way at least the minimum qualification requisite to enable the school in which he teaches to receive payments on the results of his instruction?"

* *Journal of the Society of Arts*, 6th April, 1888. † *Id.* 13th April, 1888.

Professor Thompson, it would seem, rather overstated the case against the department as regards the recognition of practical qualifications. But does not Major-General Donnelly's statement amount simply to this, that the department will permit practically qualified teachers to be employed as instructors in building construction, but that it is quite unnecessary for a teacher to be so qualified to entitle him to teach and earn results in that or any other subject.*

Building construction is a subject favourable than otherwise to the department, as, being essentially of a practical character, and direct in its bearing on trade, it would be reasonable to expect that teachers would be more likely to offer in it who had a practical training, than in science subjects of popular as well as practical interest. In the case of the subjects of sound, light, and heat, the report of the examiners bears out Professor Thompson's remarks, almost in his own words:—

“There is still a great deal of unsatisfactory answering, which seems to be the result of bad teaching and the use of *bad text-books* specially prepared to help candidates to cram for the Science and Art examinations. The bad points of these books are reproduced without evidence of much thought on the subject.” †

SUMMARY AND CONCLUSION.

We have seen how on the continent industrial art teaching and technical instruction is, in general, decentralised under local management, and directed to local trades and industries. The proposal in the Technical Instruction Bill is to hand over the industrial art and technical instruction of the Three Kingdoms to a central department in London, which shall determine the course of instruction and certify the qualifications of the teachers in the local schools. Now, apart from the question of the traditions of the Science and Art

* As to the general inefficiency of the teaching in building construction under the department, it appears to me only necessary to refer to the examiner's report on that subject. I take a few passages from the report of Lieutenant-Colonel H. C. Seldon, R.E., *Report of Examiners on the Science Examinations*, 1888. “Last year the per-centage of failures was very heavy, and there was a marked falling off in the number of first-class papers. This year the failures are 6.4 per cent less than last year, whilst the first-class papers have increased by more than 10 per cent. Altogether the result may be considered as very satisfactory.” Where the examiner finds matter for satisfaction it is difficult to see, for when we come to the detailed report on certain of the questions we find the astounding statement, with reference to Q. 4. “Very few indeed of the candidates seemed to understand the meaning of coursed rubble. As a general rule they showed ashlar masonry.” And in the advanced stage, referring to a question on “hydraulic lime” we read: “Though very simple, was attempted the fewest number of times, and a very general mistake was to confuse limestone with lime.” Again on a simple girder question:—“There were very few good answers to this question; very many of the candidates not being able to distinguish a strut from a tie.” In “Honours” we learn that out of a total of 271 honour candidates only one obtained a first class. See also statement of Mr. J. Channon, R.C.T.I. vol. iii. Appendix B, and his evidence 2379-85.

† “*Report of Examiners on Science Examinations*, 1888, and see generally the report. The reports on chemistry and electricity are not given; probably had not been received in time.

Department, which may be expected to exercise a blighting influence on the project from the start, I trust, though the evidence has been by no means exhausted on the subject, that the radical objections underlying the centralisation of the scheme have been sufficiently established in the present paper. In industrial art there is, firstly, the objection to centralisation in art generally, then the difficulty in regard to the direction of instruction to local industries, and lastly, the difficulty of obtaining teachers practically qualified in reference to local industries. In science there is the objection to centralisation as tending to abstract teaching, and as placing a serious obstacle in the way of local instruction in special branches of science, especially applied science, also the restriction placed on local choice of teachers.

But will the centralisation of technical education bear looking into, when we consider that all the principal local centres of England, Manchester, Birmingham, Liverpool, and others, possess independent educational institutions of high position? And is it not obvious that technical instruction in schools—round, say, Manchester and Liverpool, or, in Ireland, round Dublin, Belfast, and Cork, will be more efficiently cared for, if they are grouped round these cities as district centres, instead of being controlled by a central board, removed from contact with local requirements, and moving along the resultant of forces acting from all parts of the Three Kingdoms? Though I have, perhaps, overburdened this paper with quotations, I cannot forbear quoting on this head a passage from a speech by Mr. Gladstone at Birmingham some months ago:—*

“I am of opinion that the more that the interest of local communities, and the persons well informed upon such particular subjects, is brought close to the plans for the development of technical education, the more effective it will be, and the more disposed it will be to respect and to recognise the vast moment of leaving scope to the freedom of the human spirit, in the choice of means for the development of natural gifts and talents, and their application to purposes of industry, not to override by cast iron rules, which tend to destroy individuality of mind and action, and thereby rob us of many of the benefits of those efforts.”

So far, we have discussed the Technical Instruction Bill from general stand-points. Its relative bearing on England and on Ireland has not been touched upon. But this is important; for, whereas the bill, if not likely to do much good in England, can do little harm, in Ireland, a measure such as that proposed is likely to have very injurious effects, in so far as it shuts out the possibility of a more practical scheme. England, owing to her great commercial and manufacturing prosperity, can look to wealthy corporations and associations of merchants in all her centres of population to take up this question of technical education, and to provide the necessary schools outside state aid; and, to a great extent, technical education in England is already so provided for. Thus, the City Guilds have expended about £36,000 on the erection of a technical college at Finsbury, not in any way under the control of South Kensington, and important technical schools have been provided

* 6th November, 1888.

out of local funds at Bradford, Leeds, and many other towns. In Ireland it is unnecessary to say we have no such help to look to. Take even the case of the linen trade. The commissioners on technical instruction state, and they are fully borne out by the evidence taken at Belfast :—

“ It is generally admitted that in certain of these processes (weaving, bleaching, dyeing, and printing of linen goods) the Belfast industry is not so advanced as that of France or Belgium. Even in the higher class of damasks, the Irish production is hardly holding its own, while in fancy and coloured goods, where a knowledge of design and of the chemistry of dyeing come most into play, the superior attractiveness of many continental productions is placing the Belfast makers at a serious disadvantage, especially in large markets like America, where the Irish goods once enjoyed almost a monopoly.”*

To remedy the defects here referred to, a weaving school was started a few years ago in Belfast, and an attempt made to associate instruction in the weaving school with that of the Belfast art school. In Belfast, then, some local effort may be looked for, though, in so far as South Kensington enters into the scheme, we must not be too sanguine as to the result. But take the outlying districts of the industry and the hand-loom districts. In Germany, in the hand-loom district round Laichingen, in Wurtemberg, owing to the competition of the power looms in other countries, this industry suffered serious depression until about 1885, when the government stepped in and established a school for weaving and design in the district. Up to that time only coarse goods had been made, but with the aid of the school these industrious people were enabled to push their industry into new branches of the trade and thus maintain their commercial utility. And now, though far from any railway station, and paying an import duty of fifteen per cent. on yarns, the industry is in a most flourishing state, and the district not only supplies fancy goods to the home trade, but for export to America and other countries.† In Ireland the hand-loom industry is being passively allowed to decay, and it does not appear to be anybody's business to interfere in the matter. Then, there is the important industry of flax cultivation, so imperfectly understood at present in Ireland; and generally the deficiency in skill and habits of industry of the people due to the absence of the educational influences of manufacturing centres. In fact, looking broadly at the question of industrial education, as between England and Ireland, I think it must be apparent that, whereas in England, where a high development in industry has already been reached, further development may be left to take place to a great extent automatically, in Ireland, where conditions are very different, it will not be possible to develop the country wholly on English lines, and that any scheme of industrial development, to be efficient, must be framed to some extent on the German model.

If this be so, the very first condition of any scheme of technical instruction for Ireland is that it shall be flexible; permitting, as in Ger-

* R. C. T. I. p. 496.

† Lecture on *Industrial Art Teaching in Germany*, by Alfred Harris: London, May, 1888.

many, the adaptation of instruction to the circumstances and special needs of particular districts. It will probably be found necessary to form a special department for Irish industry, with a view to the development of the congested districts of the West and other poorer parts of the country; but for other purposes the powers of such central department should be restricted, as far as possible, to inspection and audit, and should not partake of an administrative character; the local direction of industrial instruction, where capital centres, as Dublin, Belfast, Cork, Derry, Waterford, Limerick, and Galway, exist, being left to such centres as the natural heads of their respective districts.*

In conclusion I should state, that it does not appear to me to be advisable at present to put forward in detail any constructive scheme of technical education. The direction in which decentralisation is desirable has been indicated generally, but, until some agreement has been arrived at on the general question of centralisation or decentralisation, and the necessity for reorganisation of the South Kensington Department—a subject on which the public is as yet imperfectly informed—constructive details would only serve to divert discussion from the main issue of the question.†

VI.—*Forestry in Ireland.* By W. F. Bailey, Barrister-at-Law,
Legal Assistant Land Commissioner.

[Read Tuesday, 2nd July, 1889.]

I.—*The importance of the Forestry question in Ireland at the present time.*

IN view of the proposed extension of the Land Purchase Acts, the question of the protection and development of Forestry in Ireland is one of very great importance and interest to the entire community. The effect of transferring to the occupiers the ownership of their holdings has in this respect been up to the present overlooked. Those who have opportunities of travelling much through Ireland, must very quickly notice the result of such sales of farms as regards the plantations thereon. It is pitiable in many cases to see the occupier, as soon as he gets a conveyance executed to himself, proceed to cut down and sell any trees that may be on his holding. In some instances these trees were planted for ornament, in others to give shelter; but in most cases they have been placed on parts of the farm which otherwise would be waste and useless. Whatever was the purpose with which they were planted, the actual gain to

* A Technical School has been established in Dublin (1887), to which the Corporation contributes £500 a year, and a movement has recently been set on foot to found one in Limerick.

† As regards the mode in which state aid may be granted for technical instruction there is no difficulty in the way, as the government already recognises, in the grants to industrial schools as such, the principle of state contribution to schools for industry, unconditioned by any system of payments by results.