whether as a course specially designed for students of architecture it is also incomplete is a subject affording ample opportunity for discussion. Enough is included to suffice for the courses which are to follow, and the deficiency seems to be more in drill than in subject matter. Though the French seem to have found it sufficient to answer the actual needs of an architect, the American practice of adding a little more for the sake of the mental drill is a most excellent one.

In contrast with it is the course in descriptive geometry, which is very thorough, being the principal basis of stereotomy and perspective. The course includes fifty or sixty lectures, of which about ten are a review of the part required for entrance and ten on the finding of the most common shadows.

The best conception of the course is to be obtained from the examination questions, a list of which, divided into six series, is furnished to the students. The oral examination, part of which comes at the middle of the course, is on questions from the list, one being chosen at random from each series. The first series contains about twenty-five questions on the line and plane; the second, thirty on the sphere, cone and cylinder of revolution, problems of angles, the solution of trihedral angles and regular polyhedrons; the third, thirty on cones, cylinders, pyramids and prisms; the fourth, twenty-two questions on surfaces of revolution; the fifth, twenty-five on ruled and helicoidal surfaces, and the sixth, twenty-five on shadows.

Twenty-two plates of about forty of these problems must be drawn, and constitute part of the examination. The problems on the first six plates are to be chosen from the first two series, on the second six plates from series three, four and five, and the remaining ten on shadows.

One problem must be drawn en loge, for which six hours is allowed. The problem given last year was: A cube stands with its diagonal vertical; a second cube of the same size has its diagonal coinciding with the first, but is turned through an angle of 22½ degrees. Draw in plan and elevation the intersecting cubes, and find the shadows at 45 degrees on the solid and on the plane of projection. Pillet's text-book on "Descriptive Geometry" is closely followed in the lectures.

The course in stereotomy is also a thorough one, and includes all of Pillet's text-book except the skew-arch. Under the division of masonry the lecturer treats of the methods and instruments used in stone-cutting, the principles of jointing, and of vaults, niches, domes and cupolas; the arranging and proportioning of treads of stairs, also vaulted and suspended stairs. Under the division of wood-work, the general rules of framing are considered, the methods of assembling pieces, general principles of roofs and the special ironwork of carpentry. This course also includes the methods of finding patterns of stonework and bevels of rafters, and two problems are given, the one in wood and the other in stone construction. Of those given last year the first was a small railway station, which involved the design of the building, the framing plan of the roof and the principal bevels, also the framing of the stair and the patterns for the front string; the second was a building entirely in stone, to be erected in a public market square and to contain a fountain and other sources of water supply for the market. It was to be a vaulted structure, with the vaulting visible both inside and out, and a decorative motive based upon the structural form of the vaults. In the centre was to be a large stone basin, and around the walls small basins supplied with both warm and cold water for washing purposes. Outside were to be troughs for the watering of animals. The basement was to be used for storerooms, and was also to contain the apparatus for heating the water; a stone stairway was to serve as a means of communication with it. Drawings were required of the plan, facade and section, showing the jointing of the stonework, besides patterns of three voussoirs, one of which was to be from the vaulting of the stairway. A course in surveying, consisting of six or seven lectures and three days' practical field work, is appended to the above course.

The work in construction comprises twenty lectures on theoretical and thirty on technical construction. Burn's text on "Construction" is followed in outline, but in a condensed form, and the formulae which are given are demonstrated whenever possible by means of the mathematics already enumerated. The following outline is very general and the reader is expected to supply many headings which are necessarily preparatory to some of those enumerated. The lectures include internal and external forces acting on beams, application of formulæ to all usual cases, beams of equal resistance, also beams subject to inclined pressures, columns, lattice girders, roofs, calculation of strains and deformations, curved roofs, metal ribbed vaults, expansion, friction, effect of wind, stability of masses and distribution of pressures, retaining walls, problems of stability, applications to foundations in general, reservoir walls, stability of vaults and their supports, curve of the centre of pressure and its application to vaulting.

The technical part includes a description of the materials of construction, methods of handling and transporting them, foundations, rules for masonry work, walls subject to thrust, buttressing, shoeing, piers and columns. Vaults are treated first historically, after which follow descriptions of different kinds, methods of construction, centrings, piers, abutments and buttresses, stone stairs, paving with flagstone, brick and asphalt, and the draining of rain water. The lectures on wood-working include descriptions of woods, methods of preservation, general principles of wood-working, assemblages, walls, floors, scaffolding, roofs, dormers, spires, towers, effect of wind and snow, roof coverings, stairs, joinery and special iron-work. This is followed by lectures on metal work, descriptions of the useful metals, commercial shapes, iron walls and floors, masonry work of floors, roofs, trusses, arches, awnings, glazed roofs, water pipes, gutters, iron blinds and shutters, elevators, grilles, balconies, hardware, plumbing and gas-fitting, heating and ventilating, electric bells and lightning conductors.

Three problems are worked en loge during the lectures on theory, and three general problems are required during the latter part of the course. Besides these problems there is an oral examination on each of the two parts of the course of about three questions. The nature of the problem to be worked en loge is known beforehand, so the student may be supplied with whatever data and formulæ may be necessary. One of these problems called for the design of a lattice I-girder of equal resistance throughout and to maintain a uniformly distributed load and two concentrated loads at equal distances from the end. Given the size of the angle irons, height of web, width and thickness of cover plates and diameter of rivets, calculate the number of cover plates required at the centre and at what points they may be successively discontinued, also the spacing of the rivets for the cover plates and the lattice bars. Another problem was the design of a six panel triangular truss, sustaining dead load only, by both analytical and graphical methods.

The three required during the lectures on technical construction involve design as well as construction. The first usually includes the investigation of a vault, such as: Design a grand stairway leading up to a terrace, the principal landing of the stair being vaulted. Calculate the vault and its buttresses. The second in one case called for the design of one bay of a riding school, the walls to be of half-timbered work, trusses 38 metres centres and 20 metres span. Submit plan, elevation, details of framing, and the calculation of the principal parts. The third is called the general problem, and includes about all the ordinary problems of construction which can be centred in one building. The following one will serve as a sample: Design a museum building, consisting of central glass-covered court, surrounded by galleries, three stories and basement high. On the third floor is to be a library. The basement ceiling is to be vaulted, the other floors to be of iron and masonry, the roof of the court to be of iron and glass, while that of the galleries is to be of wood and metal. There are required complete general drawings, problems of the stability of the vaults, and notes on the calculations. These drawings are quite elaborately worked out and rendered in color, even the construction details having the shadows all cast at 45 deg. The feature of design enters every problem that requires drawing, no matter what the study.

The course in perspective consists of twenty lectures, and is very thorough. Three problems are required besides one en loge. The following may be considered as samples: Design a pedestal bearing a statue, the base to be about 1.5 metres across and either square or circular. Make a drawing of a public place, surrounded by arcades and with a monumental fountain in the centre. No side of the square is to be parallel to the picture plane.

Make a drawing from nature of an ensemble or architectural detail, the drawing to be at least 0.25×0.35 metres. The problem given to be drawn en loge last year was the capital, architrave and frieze of the Greek Doric order, without triglyphs. The shadows were also required.

The above is, I believe, a fair representation of the work of the school not classed under the head of design, except the diploma drawing, which is a thesis design and involves details of construction and specifications. A candidate for a diploma is also required to pass quite elementary examinations in physics, chemistry and building law.

The usual problems in design do not include any calculations of construction, as no construction is expected to be shown on the drawings.