

# THE EIGHTEENTH CENTURY ORIGINS OF ARCHITECTURAL SCHOOLING

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Although the first full-time school of architecture seems to have been that established by J. F. Blondel (1705-1774), our present concept of architectural education unquestionably had its roots in the system which originated in Paris in 1671 as part of Louis XIV's establishment of the Académie Royale d'Architecture. In the present context, there is little to be gained from studying the first forty years of the Academy's existence. The lecture courses of the first professors (which exist as books, unpublished manuscripts, or *précis* reported in the Academy minutes) are invaluable evidence of the *theoretical* instruction imparted. But despite its royal founder's implied intentions,<sup>1</sup> the Academy's educational facilities initially comprised little beyond these lecture courses. Hence the system is best studied in the period following the grant of a Charter in 1717, when experience had taught the academicians how best to proceed, and when the new Letters Patent stated clearly the Academy's basic pedagogical responsibilities.

The general character of the school had inevitably been adumbrated well before this date, as a natural consequence of the characteristics of architectural practice in France in the late 17th and early 18th centuries. It is important to enumerate and emphasize these characteristics because of radical changes which were to occur after the French Revolution, when a very different system—usually called the "Beaux-Arts system"—was put in its place.

The first characteristic stems from the fact that the Academy of Architecture was totally independent of the Academy of Painting and Sculpture founded in 1648 by Cardinal Mazarin, an Italian prelate whose views on art were entirely ultramontane. Hence the Academy School was also completely independent of the school of painting and sculpture.

The second characteristic stems from the fact that the lecture courses given by the Academy of Architecture were *libres et gratuits*, i.e., they could be attended by anyone and attendance was free of charge. It was only gradually that there emerged a "school" in the current sense of the term: an institution where young aspirants were registered as "students," and where specific qualifications were needed to entitle them to the special educational privileges provided.<sup>2</sup>

The third characteristic stems from the fact that this was an era in which only the most important buildings were designed by persons designated as "architects." Thus, few architects were initially elected to the Academy, and they tended to regard their title *architecte-du-roi* as virtually a synonym for "architect."<sup>3</sup> But one of the conditions of election was that they must reside in Paris, so as to be able to attend the weekly meetings. Hence other architects were unrecognized, especially those who lived in the provinces.

When the Academy was founded, only six architects, plus a professor and a secretary were appointed. When J. H. Mansart became Superintendent of Buildings in 1699, the number of members was increased to fourteen.<sup>4</sup> The 1717 Charter increased this number to twenty. In 1756, membership was finally set at thirty.<sup>5</sup> This restriction on membership of the Academy vitally affected the eventual organization of the School, since the Charter laid down that the number of official "students" should be proportionate to the number of academicians. Thus article 40 stated that every academician was to nominate one student (clearly envisaged as being one of his own pupils or assistants), and that the professor could nominate six students.

The evolution of the Academy School's curriculum and policy conveniently divides itself into three phases. The first lasted from the date of the Charter until 1762 (the date of Jacques-François Blondel's appointment as Academy Professor). The second phase lasted until J. F. Blondel's death in 1771. The third phase ended with the dissolution of all the Academies by the revolutionary government in 1793. This final phase was distinguished mainly by the influence of E. L. Boullée, and others like him, who were political as well as architectural visionaries. It was their grandiose projects, and the doctrines set forth in Boullée's *Architecture, essai sur l'art*, which formed the bridge between the old academy school and the 19th-century Ecole des Beaux-Arts; and it was their political sympathies with the new *régime* which put the organization of the new school in their hands.

The second phase was undoubtedly the most important, and its importance was due to the fact that Blondel introduced many of the methods he had perfected in his own private school of architecture. I propose, therefore, to describe the development of this school and its influence on subsequent architectural education. But there were *three* Blondels teaching and practising architecture in France between 1671 and 1774, so it will be appropriate to begin by explaining clearly which Blondel is the hero of this essay.

Chronologically, the first Blondel was François Blondel,



the Academy of Architecture's first professor, best known nowadays as the author of the *Cours d'Architecture* published in 1675. He was essentially an expert in structural engineering and stereotomy, and had been selected by Louis XIV to teach mathematics to his own son, the Grand Dauphin. The second Blondel (1683-1756), an architect who was born in Rouen, moved to Paris, and became a member of the Academy. He established a creditable reputation as an architect, interior designer and draughtsman, and taught several young architects of the next generation, including Cuvilliers and his own nephew, Jacques-François. Only Jacques-François Blondel concerns us here; so he is the only Blondel who will be referred to in the rest of this text.

Blondel's school started officially (i.e. with the Academy's permission) in May 1743;<sup>6</sup> but the date on which he actually started giving organized tuition is uncertain. In his preface to the *Architecture Française*, published in 1752, he claimed to have been teaching for fifteen years "publicly and privately," so that he must at the latest have started teaching in 1737. He did not however set up his Ecole des Arts in the rue de la Harpe in Paris until 1740.

"Before 1740," wrote Pierre Patte, who completed the last two volumes of J. F. Blondel's published *Cours d'Architecture*, "there was no school in Paris where a young man might be trained and learn everything he needed, such as architectural and ornamental drawing, perspective, stereotomy, quantity surveying and all the other numerous details involved in building construction. He had to visit successively various teachers to learn each of these subjects, which wasted time, and caused him usually to learn drawing and neglect the rest. It was for this reason that M. Blondel created an Ecole des Arts, where several teachers, specializing in these various subjects taught in one place under his directions."<sup>7</sup>

Blondel himself explained at length the purpose of his undertaking in the August 1747 issue of the *Mercur de France*. "To train skilled architects," he wrote, "it is indispensable to unite the study of all the relevant arts" (i.e. painting, sculpture, garden design, masonry, joinery, carpentry, locksmith's work, etc.); and this, he asserted, had never been done before. Thus a young man who intended to be an architect was often ignorant of perspective, mathematics, the principles of design, and the arts of drawing. On the other hand, those who were trying other professions, such as painting, neglected to study what they should know about architecture, geometry, optics, etc. Another equally serious inconvenience, in his view, was that most young men started studying architecture and its related professions as a result of advice given them, and rarely from their own inclination. If all the arts were to be explained to them one at a time, they would, he considered, be in a better position to decide for themselves which suited them best.

Another advantage was that they would understand the relationship linking the art they had chosen with all the rest, of which they could at least learn the rudiments. By these means he anticipated that there would be fewer mediocre architects, fewer superficial mathematicians, fewer tasteless decorators and fewer untutored draughtsmen. These reflections seemed to him so important that he thereupon conceived the idea of forming a school in Paris where all the arts relating to architecture would be assembled, and where reputable teachers of each could impart the subjects in which they specialized.<sup>8</sup>

In Blondel's annual inaugural address to the students given in 1754, he said: "From my experience, I judged it essential that these different branches of knowledge should be acquired according to common principles, and taught by sev-

eral professors who, being united in the same spirit, would teach in a way calculated to bring out the best in each student. Thus, as a result of careful co-ordination, those entrusted to us can progress in regular stages from the knowledge of precepts to an understanding of taste, from theory to experience, and from speculation to practice."<sup>9</sup>

It may thus be fairly claimed for Blondel that he originated, in the first half of the eighteenth century, a system of full-time architectural education which was not introduced into North America for nearly another hundred and fifty years, but which is now the generally accepted method of architectural training both in Europe and America.

As was to be expected, the Academy rather resented the efforts made by an independent architect to set up a school of architecture in Paris, especially when that architect was not even an Academician. After running his school privately for two years, Blondel sought to widen the scope of his work, and to interest the public by putting an advertisement in the press. First, however, official sanction had to be obtained from the Lieutenant-General of Police; but the Academy was opposed to the idea, so permission was refused. Fourteen months later, however, the Academy reversed its policy and decided that "Mr. Blondel's school would be useful to the public and to the progress of young persons who wish to apply themselves to architecture."<sup>10</sup>

The main function of Blondel's school was to give full-time training<sup>11</sup> (as compared with the Academy School, where tuition was only given two mornings a week). We do not know how many attended, either as day students or boarders, but the school evidently enjoyed a high reputation which extended beyond the frontiers of France. One of the school prize-winners of 1755 was Jacques Heumann, a native of Hanover. Sir William Chambers, whose election as first corresponding member of the Academy took place in 1762, was one of Blondel's pupils;<sup>12</sup> and such a distinguished and successful architect as Servandoni did not hesitate to send his own son Jean-Raphael to study at Blondel's Ecole des Arts. The reputation of the school was such that the government chose it to teach architecture to the students of the Ecole des Ponts et Chaussées, i.e., the state school of civil engineering. As a result, Blondel received a grant of Fr2,400 per annum to provide these six students with books and drawing instruments, and to defray other expenses, in addition to the normal fees. This stroke of good fortune can be regarded as a reward of virtue, because Blondel himself had, from 1749 onward, awarded twelve free places in his school each year to students who were "more favoured by nature than by fortune."<sup>13</sup>

The fears of anxious parents who contemplated sending their sons as boarders were allayed by the description which Blondel gave of his establishment, which included a room set apart for, "fencing, music and dancing; exercises to which particular attention is paid, since they should form part of the education of all well-born persons who devote themselves to architecture, and who are destined to live in the best society... Moreover, to make this establishment as useful as possible, I have selected a person of recognised probity who, at my request, and under my supervision, has kindly undertaken to give board and lodging in the same well-aired house situated in a suitable part of Paris. She will supervise the endeavours and good manners of those who, sent to Paris without this help, would often find themselves left to their own devices, and thus lose the fruit of their studies. By these means, they will find under the same roof, and at a reasonable price, the necessities of life, and facilities for becoming skilled in the different branches of the Fine Arts."<sup>14</sup>



The curriculum of the school, as finally evolved, is given in the introduction to volume three of his *Cours d'Architecture*, published in 1717; and although it is difficult to imagine architectural students of any period submitting fully to such an exacting discipline, the picture it gives is probably no less accurate than most documents of its type.

Tuition was given to architectural students from 8 a.m. to 9 p.m. every day of the week except Sunday, with an hour off for lunch from 2 to 3 p.m. The morning period was entirely devoted to the theory of architecture (later published in book form), and studio work. The latter might consist of copying details, preparing improved designs of well-known buildings, or designing original schemes in accordance with programs carefully prepared and dictated.

Many of the programs were doubtless for the same rather luxurious types of building which were the subjects of the annual Academy competition. Blondel not unnaturally trained his students with an eye to the most influential type of patron; and although few can have hoped to emulate his most distinguished pupil, Richard Mique, who eventually became architect of Marie Antoinette, several rose to be Academicians. Several of the programs were, however, for simple utilitarian buildings, and Blondel makes it quite clear how important it was that this type should be included. When speaking of economy, he asserted that he intended to stop his students from always occupying themselves with luxurious projects, and to teach them to adapt buildings to restricted sites. "Make no mistake," he warned them, "this type of study is no less useful than those large compositions which are often beyond your capabilities, and which you treat superficially, eventually abandoning them for something new and even more vague."

It was his experience that they should first of all try to make something of a hilly, irregular and restricted site; that they should keep within the conditions prescribed by the program or given by the client; and that they should above all observe a spirit of suitability and economy in every type of building. "Try to reduce the cost of your work to half, then to a quarter," he told them; "it is a process one nearly always has to go through in practice."<sup>15</sup> Already in his first publication, Blondel had remarked that nothing shows more the merits of an architect than when, limited by the site and the money available, he combines good taste and good planning, and nobly relates all the parts of his building.<sup>16</sup>

Blondel's general method of dictating programs was based on the Academy system, but there can be no doubt that his were drawn up with much more care and attention to detail:

By program I mean the enunciation of a fairly detailed project, which the professor gives his students that they may understand his intentions, and the sequence they should follow in composing the *esquisse* under his supervision. The students then do a finished drawing, without being allowed to depart from their first thoughts. It is the professor's duty to explain clearly and precisely the conditions of the program, including the dimension of the site, its various levels, and any special restrictions of the type one always finds in building. Before dictating the program, he should himself, in the tranquility of his office, have made preliminary sketches, as the only means of keeping to essentials thereby in a way preparing the student's work. After having thus conceived it, he should, in everybody's presence, analyse, extend, and develop speculatively the type of project concerned, giving references to precedents, and reminding students of similar buildings by great masters, or those described by the best authors. He should try to make them realize the subtle differences which distinguished buildings constructed for the same purpose... so that those participating can stock their minds with those things bearing most analogy to the project given, and, before

beginning, conceive a clear idea which will enable them to make fewer mistakes concerning the proper arrangements and requirements of each composition.<sup>17</sup>

He always advised his students never to hurry. On *esquisse* days, they were given about twelve hours to finish; and he frequently told them to pass a third of the time thinking over the problem in complete silence, and then to spend the same length of time trying several ways of fulfilling the conditions of the program. The remaining four hours was, in his opinion, adequate time to translate their thoughts and make a precise *esquisse* to the required scale. "Remember," he would say to his students, "that the better you have digested the program, the easier it will be to produce the finished drawings. You must regard *esquisse* day as a day of triumph; any weariness you may feel on that day will ensure for you an easy time for the rest of the program; and only thus have you the right to expect the prize awaiting you." But few students followed his advice; and he lamented what a lot there were who, quickly extracting one sentence from the program, immediately grabbed a scale and dividers, and started drawing without comprehending that they should have the concept fully in their heads before putting pencil to paper.

Blondel's programs were of several kinds, according to the purpose of each exercise. The few published in his *Cours d'Architecture* are all exercises in elevational treatment: a triumphal arch, a commemorative column, a fountain, the gateway to an arsenal, a church porch, the doorway to a stable, a palace facade, a belvedere, a lighthouse, and so on.<sup>18</sup> But programs were also set as exercises in planning and interior design, and a few were devoted to the design of gardens.<sup>19</sup>

In each program the scale required for the *esquisse* and for the finished drawings was clearly stated. Before the establishment of schools of architecture, there seems every reason to believe that no architects ever drew to a regular scale. After ensuring that their drawings would fit onto the piece of paper selected, they would draw a scale line of convenient but arbitrary length, and then divide it into appropriate sub-divisions by means of dividers. It is for this reason that dividers were always the architect's badge of office, to be held in a prominent position when having one's portrait painted.

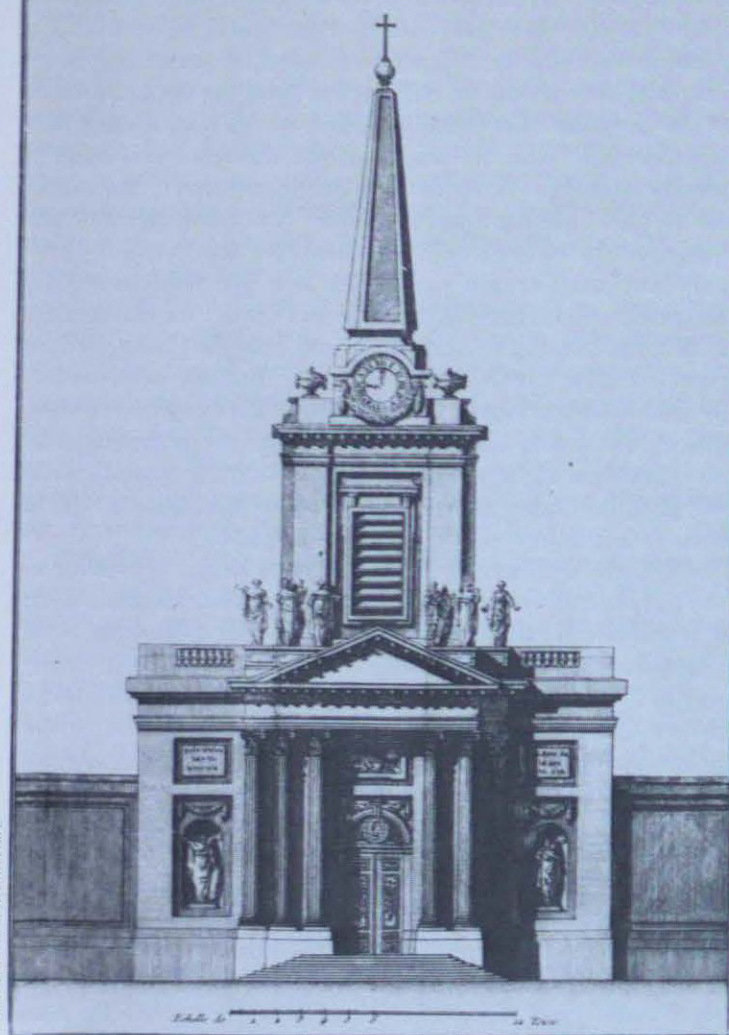
The need to establish conformity of scale first appeared when student competitions became an annual feature of the Academy. The first record of a definite scale being imposed occurs in the Academy minutes for January 10th, 1701. The subject proposed for the prize that year was a parish church porch 120 feet wide, and competitors were told to "reduce this on the drawing to 1 inch for 6 feet." From then onward, it became the rule to prescribe a convenient scale, although sometimes the degree of convenience was a matter of opinion. On one occasion, the Academy students complained that their *loges* were too small for them to make the large scale drawing to the size demanded, and begged to be allowed to plan to a scale of four-twelfths of an inch to six feet instead of to twice that scale.<sup>20</sup> The scheme for this particular year (1772) was a royal palace, which was to have an elevation 660 feet long. To the scale demanded, this would have produced a drawing 6'-3" wide, and as the students were asked for two elevations, full plans and a section, we can sympathise with their predicament.

The French units of measurement were: the *toise* of six feet, the *pied* or foot (equivalent to 1.066 English feet), the *pouce* or twelfth of a foot, and the *ligne* or twelfth of an inch. The scales chosen were not based on an inflexible system; and in the specimen programs given by Blondel in his *Cours*, the scales required for *esquisses* and finished drawings vary considerably. They are usually expressed as so many *lignes* or



*Élévation du Frontispice d'une Église conventuelle,  
de la composition de l'Auteur.*

Blondel, Cours d'Architecture



pouces to so many pieds or toises; but the fractions are frequently awkward, and drawings must still have been scaled with dividers from a specially drawn scale-line.

In addition to designing academic projects, much time was spent examining existing buildings in and around Paris:

*It is only by an attitude of comparison that we can judge the relationship of the parts of a building to the whole, so as to take what is best from each, and as it were deduce so many principles capable of leading us nearer and nearer to perfecting our art. Yet this perfection seems to draw further away, because young architects neglect to examine carefully different buildings and the finer points of edifices not generally admired.<sup>21</sup>*

Blondel would have heartily endorsed Viollet-le-Duc's dictum, written a hundred years later, to the effect that an architect is not, and never can be, anything but a part of the whole, beginning what others will finish, and finishing what others have begun; that he cannot work in isolation, for his work is not his own personal effort, like the painter's picture or the poet's verse. Thus any architect who claimed to impose an art on a whole epoch would, in Viollet-le-Duc's opinion, be committing an act of pure folly.<sup>22</sup>

The assessment of the merits of existing buildings was an intrinsic part of Blondel's system; but it naturally provoked a certain amount of resentment amongst his fellow architects, especially when he published his criticisms in book form, and delivered them in public lectures. The wealth of polite cir-

cumlocution with which he gilds the pill of adverse comment shows how anxious he was not to offend, but he found it necessary more than once to defend his motives, and disclaim charges of partiality. His only aim, he asserted, was the perfection of the arts. Beauties universally approved would be so regarded by him; mediocrity would be censured in his book with suitable restraint. He knew that his sincerity would displease some people, but he contented himself with the thought that the honesty of his intentions and the esteem of scholars would sufficiently repay him for the vexations of those who sought to give a discreditable interpretation to his zeal.<sup>23</sup>

Twice a week, during April and May, Blondel spent the afternoons from 3 to 9 p.m. conducting parties of students round Paris to examine on the spot either the exteriors or interiors of churches, or the planning, elevations and interior decoration of domestic buildings.<sup>24</sup>

We have no record of all the buildings they visited; but the elaborate guide books of Paris published in many editions by Brice and Piganiol de la Force make it clear that most palaces and mansions could be fully inspected, and it seems not unlikely that Blondel's students were able to take full advantage of these facilities. In his *Architecture Française*, Blondel refers to the number of times he has shown visitors round the palace of Versailles,<sup>25</sup> and at the beginning of his *Cours d'Architecture* he remarks that it is not sufficient just to visit important peoples' dwellings: one must contemplate the facades, walk through the interior, come outside again, remind oneself of the reasons for which it was built, and reflect on the type of edifice, the uses of the rooms, and the people who live there.<sup>26</sup>

Nevertheless, he considered that an architect's first care should be to make his facades both elegant and well proportioned; always related to the internal planning, but in accordance with the laws of elevational design.<sup>27</sup> When criticizing the Collège des Quatres Nations (now the Institut de France) by François d'Orbay, he brings out this point very strongly. After criticising some of the windows, he writes:

*D'Orbay's supporters will not fail to reply that criticism is easy and practice difficult. Moreover, they will say that the interior required this particular type of window. But this excuse, if it is one, does not change the window's unsuitability, and all unsuitable architecture is imperfect, especially when the design of an important monument is involved. For after all, there are not only rules in architecture; there is also ingenuity. With a little thought it will be apparent that the latter, in the hands of a great and skilful architect, provides him with the means of overcoming the greatest difficulties, and of reconciling in a less trivial way the interior with the exterior of a building.<sup>28</sup>*

Unlike most of those who take upon themselves the duties of art criticism, Blondel was not afraid to offer his own works for public appraisal, or make positive suggestions for improving the buildings he criticised. In his first published work, containing his own designs for country houses, he states that unlike the majority of authors who, to have their work admired, show only its most attractive side, he is prepared to criticise the defects he was unable to avoid. "One can even turn these imperfections to profit, and draw lessons from them, of which a regular building would give no clue. When one has already acquired a certain knowledge of architecture, other people's errors serve as a guide. I shall not, therefore have so much vanity as to hide my own from the reader."<sup>29</sup>

One of his great pleasures was to redesign celebrated buildings in the light of his own criticism, and his students were given similar practical exercises in criticism. In the third



volume of the *Cours d'Architecture*, there are two illustrations of Perrault's celebrated Louvre colonnade. Plate VI is a view of the central portion which Blondel describes and criticizes in five pages of text. Plates VII and VIII, which are an elevation and plan respectively, show the same view "with several changes proposed by the author of these lectures," and are accompanied by four pages of explanation. Similar studies were made for other buildings, and Blondel tells us how, more than once, he got his students to draw suggested changes in the elevation of the palais du Luxembourg, the entrance to the hôtel de Soubise, and many of the other buildings he criticised during his lectures.<sup>30</sup>

Formal visits were not only made to completed buildings, but to workshops and building sites. "To merit the title of architect, it is not sufficient to have been a draughtsman for several years...Before taking the risk of actually constructing, one should have spent several years visiting workshops and buildings;"<sup>31</sup> and at a suitable time, when the weather was fine, we find Blondel taking his students round the various workshops in Paris, so that they would have practical knowledge of building and of craftsmanship, and could examine systematically the totality of systems of construction, the way they fit together, their durability, strength, weight and thrust; so that they could learn the terminology and local trade practices, and the method of drawing up specifications, contracts and site layouts. The examination of these sites continued from the time excavations started until the time the building was completed.<sup>32</sup>

Blondel advised his students never to waste their free time, but to spend it usefully visiting the studios of celebrated artists and architects, or going to various buildings being constructed in the city. In some of them they could examine the foundations, footings and various kinds of vaulting; in others the roof, roof drainage and carpentry work.<sup>33</sup>

During summer, the students spent their mornings surveying, levelling and quantity surveying; and much time was spent in other forms of scientific study and practical work. The senior students spent three or four hours every afternoon studying stereotomy (for which there was a special workshop containing full-size models of masonry), carpentry and joinery details. The junior students also studied stereotomy on Mondays, Wednesdays and Fridays, but took "history of art" (i.e. as described in classical literature) and sketching on Tuesdays, Thursdays and Saturdays. The first two or three hours of every afternoon were devoted to mathematics (for quantity surveying) descriptive geometry and conic sections (for stereotomy), mechanics (for building machinery), water supply and drainage. In November and December, part of each morning was devoted to perspective, and to experimental physics relative to the art of building.<sup>34</sup>

These different lessons were given in several rooms which looked out onto a large garden. One room was used by the junior students designing projects; in both of these rooms, sets of finished drawings to large scale were exhibited. Next to it was a room used to display various techniques of drawing, including a number of originals, with specimens of sculpture in the round and low relief. The fourth room was for lectures in mathematics, perspective, fortifications, quantity surveying and theoretical stereotomy. Finally, there was a large room which contained books, instruments, all kinds of models and a fine collection of framed drawings. It was here that lessons were given in experimental physics.

It will be apparent here that Blondel's pedagogical method was what would nowadays be praised as *une structure pluridisciplinaire des programmes d'études*. It seems clear to me



that it still persists in schools (such as my own) which have always been affiliated with faculties of applied science. At McGill, as elsewhere, there was radical departures from the traditional *architectural* courses when the influence of Le Corbusier and the Bauhaus led to the general rejection of traditional pedagogical methods; but the basic engineering discipline persisted, and recent disenchantment with Le Corbusier's *urbanisme* has caused many features of the 18th century design curriculum to be reintroduced, albeit under more trendy names.

#### NOTES:

- PV: *Procès-Verbaux de l'Académie Royale d'Architecture*.  
 MP: J. F. Blondel, *De la distribution des Maisons de Plaisance* (1737-8);  
 AF: J. F. Blondel, *Architecture Française* (1752);  
 Cours: J. F. Blondel, *Cours d'Architecture* (1771, 1777).
- |   |                                    |
|---|------------------------------------|
| 1. PV i ix;   | 17. Cours iv lxxxv                 |
| 2. PV iii 59  | 18. Cours iv xxi                   |
| 3. PV vi 22   | 19. Cours iv cxi                   |
| 4. PV iii 58  | 20. PV viii 135                    |
| 5. PV vi 341  | 21. AF iii 17                      |
| 6. PV v 314-342   | 22. Dictionnaire Raisonné, i vii   |
| 7. Cours v v  | 23. AF iv 90                       |
| 8. Mercure de France, August 1747   | 24. Cours iii lxxxv                |
| 9. Discours sur la nécessité de l'étude de l'Architecture (Paris, 1754) p. 69 | 25. AF iv 124                      |
| 10. PV 5 May 1743   | 26. Cours i 433                    |
| 11. Mercure de France, June 1755  | 27. AF iii 52                      |
| 12. PV vii 96   | 28. Cours iii 274                  |
| 13. Discours, 1754, p. 8  | 29. MP i 103                       |
| 14. Cours iii lxxxix  | 30. Cours iii 81, 140              |
| 15. Cours ii 336  | 31. Cours iii lxi                  |
| 16. MP i 126  | 32. Mercure de France, August 1747 |
|   | 33. Cours iii xxiii                |
|   | 34. Cours iii lxxxviii             |