

## ADRIAN SHEPPARD IN CONVERSATION WITH ANTONELLA MARZI

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*Note: The following is an edited and slightly abbreviated transcript of an interview conducted by Architect Antonella Marzi, PhD*

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### *Can you speak about the personalities of Pier Luigi Nervi and Luigi Moretti?*

I worked in Rome for two years with both Moretti and Nervi. I was invited to join Moretti's office and spent most of that time with him. Nevertheless, since they developed the design of Place Victoria together, I had the opportunity to work with both men on a regular basis. It was a unique moment in my early professional life. I was in my mid-twenties at the time.

Nervi was the older of the two; he had a unique experience designing and constructing significant buildings all over the globe. He was a dispassionate professional and a wise and amicable father figure. Because he was a rational thinker, he was a strong believer in the logic of mathematics. He strove continuously for clarity in design and economy in construction. He was a pragmatic engineer and a knowledgeable builder who left the existential questions to Moretti. Nervi appreciated being asked questions about his ideas or his design proposals. One could discuss any problem with him without ever feeling intimidated. I never saw him dismissing any suggestion out of hand, as long as the premise was valid or the reason worth exploring and made sense. Being a "scientist" by nature, he believed that mathematics was the most effective measure of any design. If a design was "mathematically" correct, the solution would be beautiful. He often spoke of *costruire bene*, meaning building well, which implied building efficiently, economically, and with a concern for permanence.

Moretti was an altogether different person. He was romantic, somewhat of a dreamer, and had a very lyrical outlook on life and on his profession. He "played" at being objective, but in point of fact, his work was subjective, personal, and idiosyncratic at times. His design decisions were, more often than not, intuitive and instinctive. He would rationalize the strange forms in his buildings by focusing on historical precedents rather than on reason to justify or explain his decisions. Moretti was an extraordinarily cultured man driven by an insatiable curiosity for related and unrelated disciplines. He was one of the most remarkable architects I ever encountered. He was a man of many lives: he had been an architect, a town planner, a businessman, an art gallery owner, a part-time professor, an urban planning consultant to Mussolini, a publisher, a collector of traditional and contemporary art, a lover of jazz, and a true gourmet. He was attracted to mathematics, psychology, art history, and contemporary politics. He lived at the epicentre of a world of artists, important religious figures, politicians, intellectuals, business people, and

socialites. He was politically and ideologically very conservative, yet culturally very progressive. He was a complex man of contradictions and paradoxes.

Nervi was a man of science with an unemotional disposition, while Moretti was an emotional artist who felt comfortable in a world of non-objective thoughts. Nervi was the pragmatic problem-solver; Moretti was the explorer of ideas and the autonomous thinker. Despite their different personae and their respective views on design, they worked well together. Their thinking was complimentary and their relationship courteous though somewhat distant. Their disagreements were always friendly.

*Do you know what Moretti thought of Nervi, and vice versa?*

There is no doubt that they had respect for one another. They also had many things in common, including a common political past and previous collaboration on a number of projects. The fact that both men had been close to the Fascist regime in the early days of their professional career placed them on political equal footing. I know more about Moretti's past than about Nervi's wartime and pre-wartime activities. Although no one ever talked about it in the studio because the topic was taboo, it was known that they had been kindred political souls.

They did not always appreciate each other's views. Often, after a working meeting (which usually took place in the architect's studio) once Nervi had gone, Moretti showed slight signs of exasperation because he had been incapable to get his point across. Nervi could always explain or justify his designs but Moretti, being the more intuitive thinker, was not as convincing. Nonetheless, Moretti seemed fond of Nervi as a person and appreciated his astonishing knowledge and experience. I do not know what Nervi thought about Moretti since my relationship with him was more distant and less personal. Likely, he refrained from making remarks about Moretti to me, knowing that I was a close collaboration with the architect.

*What is your impression of their relationship?*

I believe that Nervi saw Moretti, first and foremost, as a dreamer, an architect driven by feelings, and an artist whose decisions were often subjective. He admired him and yet questioned some of his design methods, which were diametrically opposite to his own. It was the camaraderie between a passionate artist and an impassive scientist.

Nervi was not wedded to one particular architect. He had, over the years, worked with Gio Ponti, Marcello Piacentini, Luigi Moretti, Marcel Breuer, Pietro Belluschi, and many others. Of course, that is the normal state of affairs for most consulting engineers. Moretti on the other hand, seems to have worked with only a handful of engineers.

*Moretti undertook many projects with Silvano Zorzy, another prominent Roman structural engineer. Do you know much about their relationship?*

Moretti often said very complimentary things about Zorzi. He enjoyed collaborating with him and found him highly competent. But I know nothing about their relationship. I never met the man.

*Coming back to the Place Victoria project, can you tell us about the working relationship between the architect and the engineer?*

They had, as I mentioned earlier, a fundamentally different approach for resolving design problems of the tower. The reason is obvious: Nervi had previously been the co-designer (with Gio Ponti) of the Pirelli Tower in Milan, which was one of the few high-rise buildings built in Italy at the time. It still stands today as one of the most elegant modern buildings of Italy. Nervi was interested in the high-rise building and took this opportunity to develop a clear and essentially new structural theory about high-rise structures. His concept differed substantially from that of the American skyscraper, which consisted of a neutral grid of relatively small and closely-spaced columns. The structure of the Pirelli Tower was significantly different, more economical, and more efficient.

As such, Nervi was at ease with the problem of the structure of the tower. Moretti, on the other hand, had never designed a tower. He was thrilled by the idea of designing a skyscraper, but he was somewhat naïve about its structural design. Inevitably, when it came to discussions about the structure, Nervi had the upper hand, especially at the start of the design of Place Victoria. The structure of the Pirelli Tower had become a prototype for Nervi, even though it could not be replicated directly in Montreal.

Moretti understood the urban implications of the project much better than Nervi, who was concerned primarily with the structural issues and the construction of the project. He did not pretend to be an urban planner, nor did he express any opinions about its impact on the city. Their respective mandates and preoccupations were totally different. The Pirelli Tower was designed for one specific client, the Pirelli Corporation, who could operate the building as it saw fit. Place Victoria was an all-rental building designed to serve a multitude of unknown users, each occupying different-sized spaces. It had to be as flexible as possible

*Who was the general contractor of the project, and what was the process of construction? Who were the people involved in the construction of this building?*

As in all major projects, there was a multitude of actors involved in the design, construction, marketing, public relations, and coordination with the government authorities. The Mercantile Bank of Canada, a Dutch concern, headed by Henri Moquette, started the project and undertook the land assembly for the project. The *Societa Generale Immobiliare* (SGI) entered the picture later, and eventually took over the project entirely. I believe it was the Mercantile Bank that had selected Greenspoon Freeland Dunne as the initial architects for the project. I never had any significant contacts with the Dutch group, though I did attend one or two meetings at which Henri Moquette was present.

I do not know when and how the various principal protagonists entered into the fray. Many key players came from the SGI (or its affiliates) which had a pool of people with extensive experience in developing properties. The CGI had built significant projects in Berlin, Rome, Paris, Montreal, Mexico, Washington, and in countless Italian cities. The administrative and professional structure dedicated to Place Victoria was very complex and ever-changing. I do not know how the various actors were chosen. I was far-removed from the administration of the Place Victoria project.

*How was the relationship between the Immobiliare and Moretti? More specifically what was the rapport between Moretti and Aldo Samaritani? Some have claimed that the SGI did not like Moretti, but since he had the support of Samaritani he could not be dismissed from the project.*

I am not aware of the various corporate and professional alliances and conflicts within the Client-Group, but I can certainly imagine that there must have been some individuals who would be opposed Moretti. The SGI was one of the largest real estate developers in the world at the time, and certainly the largest one in Italy. They were highly proficient and very professional. On the top of this corporate pyramid sat Aldo Samaritani who was a very powerful figure and a brilliant man with a crystals-clear mind and an amazing memory. To have the support of Samaritani was primordial in such a large endeavour. Obviously Moretti had his support for without it, he would have lost the commission. As a wholly owned Vatican corporation, the SGI (and hence Samaritani) were all-powerful.

Because of their previous connections with the Vatican and with the SGI, the Moretti-Nervi team had been an obvious choice for the design of Place Victoria. I believe they were hired more or less at the same time. Nervi was known as an engineer of concrete structures. He had conceived most of his past projects using concrete structures, including that of the Pirelli Tower. No one could be surprised that the structural system for Place Victoria was going to be conceived in concrete.

I knew that there were a number of key people at the SGI who did not believe that it was right or possible to build a 50-storey tower in concrete. There were no precedents anywhere in the world for it. So, one can well imagine the intense discussions that took place within the SGI regarding both the structural system and the selection of Moretti and Nervi as prime consultants. I attended many meetings with Moretti, Nervi, and Samaritani, but never witnessed any animosity between any of them.

*Do you know anything about the initial owners of the Tower? You spoke about a Dutch bank and about their ownership of the land. Does the land still belong to them, or has it become the property of the SGI or of the Vatican?*

I do not know anything about the land ownership, either at the start of the project or at the present time. When I arrived on the scene, the Vatican, by way of the SGI, owned the land and the project. The Vatican was our sole Client. Moretti and Nervi had been given a mandate (together with their Canadian associates) to design the project. As far as I know,

none of the professional consultants had any equity in Place Victoria. Gabor Acs can tell you more about it. He was working at the administrative epicentre of the SGI, and he was close to Samaritani.

*Speaking of Gabor Acs, who is he and what was his role in the project?*

Gabor Acs is an architect of Hungarian origin who had studied architecture at the Politecnico in Milan, which was acknowledged at the time as the best professional school of architecture in Italy. After graduation, Acs practiced in the USA for a number of years, more precisely, with I.M. Pei in New York City. Pei was one of America's most important architects and the author of many excellent buildings in North America, including Place Ville-Marie in Montreal.

Samaritani recruited Acs specifically to head the SGI's Office of International Projects (*Uffici per progetti esteri*). He came to their office with a solid professional background and was probably more knowledgeable about high-rise buildings than anyone at the SGI. Coincidentally, while Moretti was in the process of designing Place Victoria, Acs was designing another important Vatican-owned building in Montreal, the Port-Royal Apartments on Sherbrooke Street. Acs was not directly involved in the design of Place Victoria though he had a significant input in the general administration of the SGI. He knew about high-rise building and he was thoroughly familiar with the North American way of building.

*How did Moretti respond to the idea of designing a skyscraper for unknown users?*

Though Moretti never mentioned it, I think he felt somewhat uncomfortable designing a major building for an anonymous and ever-changing user. The North American skyscraper requires spaces that are neutral, flexible, and universal. The logic of universal space leads naturally to a neutral form, which was anathema to an architect like Moretti who was an expressionist at heart and wanted his buildings stand out. Moretti's early sketches of the tower reflect this desire to "break the box" and to go beyond the obvious functionalist solution. The break-up of the tower into "boxes-in-the-sky" was ultimately a dream. The assembly of boxes were visually sensational and rather unique but the idea had nothing to do with the programmatic needs since their form, size, and location were arbitrary. The compositional idea had more to do with formal considerations than social or functional needs. Indeed, these were powerful and seductive images, but they were totally utopian and impracticable. As the design development progressed, the building became more rational and to Moretti's regret, more "Americanized". His expressionistic impulses were severely tempered by the exigencies of the program. It was a blow for him because he had to surrender what was a powerful formal idea. He was unable to realize the formal precedent he had longed to create. Yet, in the end, I think that Place Victoria was his best building. His initial ideas may have been more dramatic, but they were unattainable because they were based on intuition and formal preconceptions. In my view, as the form became simplified and as the programmatic needs were addressed more effectively, the design improved and Place Victoria became a better, more sober and more elegant skyscraper. Even if I sound critical of Moretti's preliminary sketches, I

believe they were important and part of the first phase in the design process. Sketching was a way to understand and explore problems, a sort of architectural “thinking out loud”. It was his personal way of groping with a problem that was new to him.

*Do you think Moretti liked the project in the end?*

Moretti was happy and very proud of his achievement. The building was a triumph that soon became acknowledged universally. It had been a long learning experience for him, as well as for all of us who were involved in the design. Moretti had to familiarize himself with a building type he knew little about, and he had to acquaint himself with the circumstances of the North American architectural context. But by the end, he was delighted and proud of his achievement. The trial and tribulations, and the sore moments were soon forgotten, and he was looking forward to designing the second tower on the site. As I walked around the completed building with him, his pride and joy were palatable, as if the tower was the embodiment of the man. I enjoyed that moment a great deal. It was a happy culmination of many years of toil and anxiety. I know that Nervi shared that pride, and on one occasion he told me that Moretti was right about many of the design decisions he had questioned or opposed. I believe it was also a learning experience for Nervi.

I met with Moretti a few times when he returned to Montreal well after the building was completed. We discussed the project together and he asked me if I was interested in undertaking the second phase with him. He hoped for a repeat performance. He also asked me to find the best photographer in Montreal to document the finished building. He was very demanding about these photos, and gave me a six-page brief with detailed diagrams and instructions of all the views he wanted recorded. It was a typical Moretti-moment: although he did not say it, I knew that he assumed that these images would eventually belong to the history of architecture.

I never broached the subject of the refinement of the execution. I thought at the time that the execution and the material choices left something to be desired. In general, Moretti was not very demanding about the execution of his buildings.

Towards the end of the project, Moretti became very ill and lost some of his usual vigour and control of the design. Many details were worked out by the local architects (GFD) whose design attitudes were different from those of Moretti.

*And do you think Nervi felt the same way?*

In general, I think that Nervi’s buildings are superior in terms of their execution. After all, Nervi was a builder, a general contractor, and someone who cared deeply about the final quality of his buildings. Peter Collins often spoke of Nervi’s dictum *costruire bene*, to build well. But I do not know how he reacted to the inferior quality of the finishes. One has only to compare the quality of the finished of Place Ville-Marie or Westmount Square to those of Place Victoria. They are a world apart.

*So, Nervi liked the project?*

Yes. I think he saw Place Victoria as one of his more successful achievement.

*The architecture of the Pirelli Tower is quite different. It is not considered to be the best architecture, but I think the building itself and the structural system are outstanding.*

Yes, the Tower is a powerful work of architecture.

*Can you describe the relationship between Nervi and Barbacki, and between Moretti and Greenspoon?*

Joseph Dunne was the partner in charge of the project, not Greenspoon. I got to know Dunne very well, and found him a very pleasant colleague, but I always felt that design was not the central issue for him. He was a competent professionally but his main concerns were to do the job well, on time, and on budget, and then move on to the next one. GFD was known as a production firm. His understanding of professional responsibilities was a far cry from that of Moretti. I do not think that GFD thought very highly of Moretti as an architect. To them, Moretti came from a different universe because he was a non-pragmatic idealist and an artist. They were also bothered by the fact that Moretti missed many deadlines.

*How was your relationship with Barbacki and between Nervi and Barbacki?*

My relationship with Barbacki was very amiable but more distant than with Dunne. Barbacki dealt mostly with Nervi and Nervi's staff, but little with me. My Canadian counterpart was Joe Dunne with whom I met on a more regular basis. Barbacki's office, just like GFD, played an important executant role in the development of the design. They were highly competent engineers who stood their ground. I recall the "great debate" between the Italian and Canadian engineers about the design of the typical floor slabs of the tower. It was major disagreement that was eventually resolved by means of building and testing a full size mock-up of a quarter section of a full floor of the tower, which was eventually loaded with sandbags to the point of collapse. The "battle" clearly won by Barbacki, but this did not mean that Nervi's floor slab would have failed in reality, for the overloading of the mock-up was massive. The exercise was merely a way to test the relative strength of the two systems.

*When did Nervi make suggestions to Moretti, and vice-versa? Was their relationship good?*

Yes, it was good, friendly, and gentlemanly. They had differences but they had esteem for one another. The only time I felt some tension was at the time we were working on defining the external shape of the corner columns. I personally worked on this problem for weeks trying to come up with the perfect shape for these columns. We made numerous plaster models at many different scales, we drew alternatives, and we explored different formal solutions ad infinitum. Nervi wanted the simplest form that was structurally efficient, while Moretti was searching for the most expressive form. He wanted columns that express the loading differentials between the top and the bottom. He

wanted the shape of the column to change from floor to floor. After our meetings, Moretti would often ask me to examine the consequences of Nervi's proposals. On the whole, Nervi avoided meddling with the strict architectural issues, but he was very persuasive when he spoke of the engineering questions. It was difficult to argue against him. He was ever the rational thinker.

I recall the instance when Moretti asked Nervi to double the size of the three peripheral cantilevered blocks at the base of the tower. Nervi objected because he did not want to resort to structural acrobatics. Moretti was naturally disappointed and attributed his reluctance to his structural conservatism. This was a normal and healthy exchange of opinion. In the end they cooperated well throughout the entire process.

*Can you speak about Moretti's obsessive preoccupation for the perfect shape of the corner columns?*

As I mentioned earlier, Moretti was not governed by scientific impulses, but by intuition, feeling, and a concern for aesthetics. Like many artists, he did things by trial and error. We worked hard at defining a so-called ideal shape. Since there was no real scientific or measurable way to evaluate the various proposals, it came down to our eyeballs, and our feeling. It was not the most efficient way to define a form, as it took much time and effort and much discussion, but it was also fun. The design of the corner columns generated the most intense debates in the studio.

The study of the corner column led to the notion that the facades of the tower should be pushed slightly forward to accentuate the impression of tension between the corner columns. Moretti wanted the corner columns to "hold" the building and to express their "compressive force" on the façade as well as their load-bearing qualities. By bending the facades outward, one could achieve two things, namely, underline the primacy of the corner columns, and place the secondary pairs of columns behind the glass wall. This way the structural hierarchy would be expressed correctly. At the end, the decisions were made on the basis of our separate intuitions.

*The primary structural element, namely, the core of the tower, is located naturally inside the building. Why did the architect and the engineer feel the need to bring the corner columns on the outside of the tower? Is there a structural reason for this?*

There is no doubt that it would have been simpler and more economical to bring the entire structural system on the inside of the building, and in so doing keep the entire structure at the same temperature. Conventional wisdom requires the whole structural system be "wrapped" with a continuous thermal blanket. In other words, the thermal skin covers the bones, and these bones remain in an environment where the relative humidity and the temperature are the same throughout. In this way, one avoids the detrimental stresses in the structure caused thermal differentials. From the very start, Moretti wanted the corner column expressed on the outside, but was unaware of the stresses ensuing from the temperature differential between the warm core and the cold columns. In all his first



studies he foresaw the corner columns as the compositional parameters or constants and the rest as the variables.

He seemed unaware (at first) that the inside temperature of the tower could at times be 40 degrees Centigrade above zero while the outside temperature could easily drop to 40 below. This 80-degree differential within a continuous structural system is unacceptable as the internal stresses would be too large. The obvious solution was to bring the “external” corner columns on the inside by wrapping them with their own curtain wall. In fact, the glass and the concrete curtain walls became an unbroken skin that behaved as one continuous blanket. It was decided to leave an 18” space between the structural column and its concrete wrapping to allow for easy air circulation and maintenance.

*Would it not have been appropriate to have the entire curtain wall made of concrete, as is the case in the Pan Am Building in New York City?*

To some degree it was a question of economics and speed of construction, though I am unsure that the use of a concrete curtain wall would have slowed the construction schedule significantly. Moretti was fascinated by the reflective qualities of tall building, and he also wished for a wall that contrasted visibly with the corner columns. He spoke of the tower as a crystal-like reflector held together by the corner columns, the anchors. But at the end, it was a visual decision.

*Was the choice of curtain wall type made by both Moretti and Nervi?*

Yes, I think so. I know that Moretti made the initial decision and Nervi supported it. Nervi’s Pirelli Tower also had a metal curtain wall. On the other hand, BBPR’s Torre Velasca in Milan has a concrete curtain wall. Ultimately both are possible. It is an architectural choice.

*Were the local architects involved in the choice of the curtain wall?*

No. Not in the least. It was a unilateral decision made by Moretti and supported by Nervi. GFD executed what Moretti wanted. Moretti never discussed matters of choice of material with them.

*What is the impact of Place Victoria on the urban environment, and vice-versa?*

The city of today is radically different from the days of the early sketches. The way I saw it, the urban environment was not taken very seriously during the development of the design. I can only recall some traffic studies and some descriptive documents of the existing area. The only real urban design studies I saw were made after the tower had been designed. Moretti had first imagined a large sunken elliptical plaza in front of the tower. Later he made some sketches showing a large flat at-grade podium for the tower, which he saw it as an empty space. I believe the sunken ellipse would have been an urban disaster. It was a misguided idea about Montreal. Never did I hear Moretti speak of the urban context in a credible way. Nor did he speak of the neighbouring buildings, about the streets, about the views. When thinking about Moretti’s proposal for a sunken space, I

am reminded of the vastly more successful design of the Square by Daoust-Lestage. Many of Moretti's buildings were conceived as solitary entities and considered independently of their organic and cultural contexts. They may be beautiful but they are stand-alone objects.

Today, the impact of Place Victoria on its environment is very different. The city has changed radically, and for the better. The redesign of the square has helped Place Victoria immensely. The tower fits comfortably in its setting and had become a significant landmark in Montreal. The City together with their urban design consultants did a spectacular job in retrofitting the square. In fairness, one must remember that the area at the time was a wasteland made of decrepit or abandoned buildings and rotting infrastructures.

*If the tower was to be built today, would it make sense to do it in the same way?*

Not entirely so. The basic shape could be the same, but one would have to use very different criteria, different materials, follow different code requirements. Safety concerns about skyscraper design have become more stringent, elevator technology has evolved immensely, mechanical systems reflect our concern for energy conservation, and external wall assemblies have improved considerably. I think the single biggest change affecting the skyscraper relates to elevator design. Modern elevators are larger, faster, and safer. Nervi's design of the core with its cross-walls would be a real handicap for the location of the elevator banks.

*Are you speaking of the types of elevators or of the configurations of the system of banks?*

The system of different elevators banks serving different blocks of floors is pretty standard. The normal bank services about 12 to 15 floors. In the typical tower, the number of elevators (or elevator banks) is largest at the bottom and is reduced as the height increases. As the elevators banks are removed, the rental space increases. In the case of Place Victoria, the core of the tower with its cross-walls remains a constant and cannot be eliminated to increase the rental space.

*Because of this reason, do you think the tower can still be considered "modern" in terms of its shape and its internal space program?*

Yes, it is still a modern building, even though one would not build it the same way today. The elevator system would certainly be different and more efficient. Since there is also a possibility of using two-level elevators, the elevator banks could be reduced by 50%, thereby increasing the rental space considerably, and since the elevators are faster, fewer elevator cabins are needed to service the same number of users. The construction of the curtain wall would be different and more efficient, the mechanical system would respond to modern energy-saving criteria.

*What about the problem of natural light in buildings such as Place Victoria?*

Ideally, the rentable floor space should be close to the periphery of the building for reasons of daylight and view. Space near a window is more valuable in terms of rent. In the case of Place Ville-Marie, which has a cross in plan, the outside perimeter is increased (as compared to a square building) so that more square meters receive natural light. The value of the rental space is in direct proportion to its adjacency to windows. In terms of real estate criteria, rental spaces should never be more than 40 feet from a window. It is not a coincidence that the wings of PVM are exactly 80 feet wide. That is the norm in North America. The same applies to Place Victoria, where the rental areas are never more than 40 feet from a window.

*Does it make sense to build a tower using a primary and a secondary structural system rather than a regular structural grid?*

I think it does. I rarely had the opportunity to discuss the principle with Nervi, but I thought about it at the time of the collapse of the World Trade Centre in New York. Until then, I never believed that modern buildings collapsed. Yet Nervi once mentioned that in the unlikely event that one of the intermediate columns collapses, the tower would still stand. He felt that the primary skeletal system consisting of the core, the outriggers and the corner columns would hold the building up, and only the small area supported by the secondary posts would fall. He compared the structure of the tower to a skier holding ski poles with outstretched arms to secure maximum stability. He wanted to have those “poles” to be as distant as possible from one another and from the core. This is how the diagonal geometry of the system was born. In the case of Place Victoria, the “skier” was provided with four arms, not two, giving the tower total stability. Nervi was also convinced that one could reduce the cost of the structural frame by using a primary and a secondary system. This meant reducing the size, the weight, and the cost of the structural members. The cost of the structure is reduced if all the columns work only in compression, never in tension. To achieve that, one had to have fewer but heavier columns holding up large spans. Furthermore, the impacts of the earthquake and wind forces would be less on large pillars, and thus reduce the risk of placing the principal columns in tension. The objective was to avoid designing columns that have to work both in tension and compression.

*Did Nervi formulate this idea from the very start, or did he ever contemplate other structural solutions?*

I was not working directly with Nervi, so I cannot tell you much about the development of the design in his studio. I have never seen sketches (coming from his office) in which the predominance of the corner column was absent. And I presumed that the presence of the large corner column implies a connection to a rigid core. That was my interpretation of his sketches. The only part of the project where Nervi designed a very conventional structure was for the 6-floor high base building surrounding the tower.

*I read a letter of Barbacki (in the archives of the Immobiliare) to Nervi in which he implied that the idea of the base buildings (the mezzanines) came from his office, d'Allemagne and Barbacki.*

I find this story strange. As far as I know, that is not correct. The early sketches of Moretti always included the base building. He wanted a transitional element between the three towers and the ground. Also, it was a way to connect the project to the surrounding urban fabric. By the way, it is interesting to note that the base building was shaped in such a way as to leave the corner columns visible at the base.

*Moreover, in the letter he stated that he was the one that had made the decision to insert the base building.*

This is the first time I hear of this claim. I can assure you that from all the studies, sketches and models that I have seen, the base building was always part of the total composition. Moretti established the form, but it is possible that Barbacki was referring to its structure and not the form.

*Yes, I think it was about the structural system.*

The base building was part of the program. It had been established from the start that the Montreal Stock Exchange which was the project's prime tenant, was going to occupy that portion of the project. The Stock Exchange was the very *raison d'être* of the project.

*When did Nervi opt for the large-span system?*

I believe that the large-span structural system was established from the very start. As I mentioned previously, Nervi had developed this structural concept for the Pirelli Tower. He was critical of the North American concept of a skeletal system for high-rise towers. He loved North American skyscraper as a works of architecture, but not for their structural system.

*Does it make not more sense to have an all-internal or an all-external structural system, rather than the one that was half-and-half as was envisaged during the early stages of the design?*

In Canada, where the climate is extremely harsh, one normally places the entire structural infrastructure on the inside, and the whole building is wrapped with a "thermal envelope" which guarantees that all parts remain equally warm. It is even difficult to design a building with its structure on the outside without resorting to complicated acrobatics because the floor assembly remains on the warm inside while the columns are on the cold side. It can be done in a warm country such as Italy, where the thermal differential between the inside and the outside is relatively small.

*Would it have made been more reasonable to clad the corner columns in metal rather than concrete?*

From a purely technical point of view it might have made sense to clad the columns with a conventional metal curtain wall. I believe you are aware that the cladding of the corner columns has to be redone in the near future. There are major problems due to the rusting

of the steel anchors holding the concrete panels. These have deteriorated badly and need to be replaced. I had a meeting with the owners of the tower not long ago about the problem of re-cladding the columns. They have studied the cost of the two options: steel versus concrete, and came to the conclusion that concrete was the least costly way of covering these columns. It would have been a major design error to use steel panels. The corner columns are the most visible structural elements of the tower and it is imperative that they clearly express the nature of the structural system.

*Are there advantages or disadvantages to linking the corner columns with 25-foot-high outriggers to the building core?*

The obvious advantage is that the system provides stability to the tower, as it ties all the major structural components together. The obvious disadvantage, on the other hand, is that every tenth floor is handicapped by the presence of the four 25-foot high “trusses”. The loss of space would have been a serious problem had these floors not been used to locate the mechanical rooms. In other words, from a spatial point of view, the mechanical and the structural requirements balance perfectly.

*Why is there not one large mechanical floor on top of the tower, as is usually done in North America? Was the option of having four smaller mechanical rooms in the tower a decision made by the mechanical engineer or was it simply a matter of utilizing four available high floors?*

I cannot tell you whether one large or three small mechanical rooms is more efficient and less costly. I notice, for instance that there are three or four mechanical rooms on different floors in the Secretariat Building at the UN in New York City. The architects of the UN had adopted a mechanical parti similar to that of Place Victoria.

*In Moretti's first sketches, the mechanical room is located at the roof of the tower.*

Moretti was rather naïve about mechanical systems. One must not put too much importance on his very first sketches. For him, the mechanical system meant blowing hot or cold air in and out of habitable spaces. One also notices that in these early sketches he placed the principal air ducts on the outside of the tower. In reality that would have been totally impossible.

*Do you think that Moretti had the future in mind when he designed Place Victoria?*

I do not consider that he was thinking seriously about the future at the time. He never spoke of possible changes that could occur over the years. Place Victoria was already a great mechanical leap into the future. I presume that today one could qualify the mechanical system of the tower as being old-fashioned, but at the time it was considered the *dernier cri*.

*Is the space-planning principle used in Place Victoria and in Place Ville-Marie similar?*

I imagine that they are similar in many ways. I presume that you are not speaking only of the mechanical aspects of the building, but of the space planning ideas as well. I am not aware of discussions or plans for an eventual redesign of either Place Ville-Marie or Place Victoria.

Maximum flexibility was a key issue in the internal planning of the tower. Flexibility is directly translatable into a rental advantage. It is axiomatic that the greater the flexibility, the higher the rent. The topic of spatial flexibility was often broached by Samaritani and by the SGI's real-estate consultants. Flexibility implies that the layout of a given space can easily be altered, that it is possible to enlarge or reduce a specific area. Finally flexibility implies the opportunity to alter the local mechanical systems to suit a new layout.

*It is a pity that the corner columns are completely covered so that you never see the actual structural element. I think they are the best elements of the tower.*

You are absolutely right.

*Could the structural principle adopted for Place Victoria be implemented in steel as well as in concrete? I am thinking of Norman Foster's HSBC headquarters in Hong Kong.*

I cannot see why such a structure could not be constructed in steel. I am not talking about the form of the tower, but about the principle using a solid core anchored to corner columns by means of large outrigger, and secondary columns whose role is limited to the support of the floor slabs.

*Jacques Chartrand stated that, often, when structural engineers begin to work with one structural system, they have difficulty changing it later during the design development phase. Many engineers have difficulty thinking of a hybrid system. They unusually prefer an all-concrete or all-steel system.*

I think Jacques is right. One develops a certain instinct and a feeling for one or another material. This can apply to the design of a specific building or to one's entire practice. Steel usually comes as prefabricated "sticks" of various sizes, and the parts are then assembled on the site. There is logic to that system. I can well understand the preference for it. An engineer who works normally in steel develops a penchant for using linear elements. Concrete, on the other hand, is a "plastic" substance that can be shaped in any way. It is used as an unbroken material, where columns, beams, and floor slabs form one continuous system. Jacques, like Nervi, sees himself as a "concrete" man.

This kind of professional predisposition explains, to some degree, the panic that resulted when the SGI, in the midst of the design phase, suddenly decided to look at the option of

constructing the tower in steel rather than concrete. The change could have meant the possibility of Nervi pulling out of the project. After all, he was THE concrete man *par excellence*. Gabor Acs should be able to tell you more about that episode. He was very involved in that debate within the SGI.

*If we compare the HSBC tower to Place Victoria, there are similarities in the structural systems, even though they use different materials. What are the differences?*

The HSBC tower is built for a single occupant, just as the Pirelli Tower was. One enters the building from a main hall at ground level, from where a series of fast elevators take the visitors to the various “sky” lobbies, each serving a specific block of floors. From these secondary lobbies, the visitors reach their respective floors by means of escalators. As such, there is a hierarchy of spaces and of circulation systems. The difference between the HSBC tower and Place Victoria is that the former relies on a system of primary and secondary vertical circulation systems, while the latter relies on a system of primary and secondary structural systems.

*Do you think the structural system used in the HSBC tower defined the formal system?*

One can well imagine it did, but it could also be the result of the architect’s response to the program, or his desire to break up an occupancy load of 50,000 people into more practicable social units. I do not know the real reason why Norman Foster organized the building the way he did. I can only speculate. His concern might have been about providing the occupants a better sense of arrival; he might have had doubts about a super-sized mechanical system, there might have been the structural consideration, etc. But I can imagine the opposite scenario in which the form is driven by the structural exigencies and the program made to fit the form. On the whole it is an excellent building in which form, structure, and function all work hand in hand.

*What interests you most in the HSBC tower?*

The building has a strong structural and formal parti that is clearly expressed on the outside and the inside. It is elegant, credible, simple, and exudes a sense of power. It is a true landmark.

*Returning to Place Victoria, are you aware of other problems with the concrete structure?*

No, I know of no other problems with the structure. As I mentioned earlier, I was consulted by the owners about ways to repair the damage. The problem of the cladding, by the way, is related to the deterioration and rusting of the anchors. It appears that all of them need to be replaced. Had the architects specified stainless steel anchors instead of mild steel, the problem would have been avoided.

*How do you think the users and most people in Montreal feel about the tower today?*

The tower is universally appreciated. It has become a symbol of the city and a striking work of architecture. Moreover, it has aged well. Compared to most towers, Place Victoria stands as one of the most distinctive and distinguished buildings of its era. If it has “aged well”, it is because it is an excellent work of architecture, one in which substance, rather than attention-grabbing mannerism is the order of the day. Simply put, it is an extremely good building, and for me, “good” is more meaningful than “interesting”.

*Can you speak about Nervi’s visits to Studio Moretti? What did you discuss with him?*

Nervi was always very polite and calm and willing to discuss his work with colleagues. He was open and was very direct. He often used pertinent examples to reinforce his arguments. I was young, relatively inexperienced, and very enthusiastic. I learned a lot from him, not so much about structural design, but about exercising judgement and looking at issues critically. He made the design of the high-rise buildings an interesting subject for me. What impressed me most about Nervi was his ability to look at problems without biases, to look at all the aspects and consequences of a proposed design. Nervi often answered a question by asking another question such as “Do you not think this is the best way to do it?” He always explained his decisions. He was never condescending. He spoke little, and was always courteous. Despite his universal stardom, he was a modest man, yet a man of quiet authority.

*Had you heard of Moretti before you applied for work on Place Victoria?*

No, he was unknown to me. I heard of Moretti while job-hunting in Rome. Another local architect told me about a colleague who was designing a building in Montreal, my home town. He suggested I speak to him and apply for a job. I followed his advice and so began a 2-year collaboration and a unique personal adventure.

*Did you ever participate in meetings in Montreal about the project?*

Yes I did attend a number of meetings with the various players here in Montreal. Moretti sent me to Montreal together with three other people, one from his studio, one from Nervi’s studio, and one from the SGI, to resolve a number of design and administrative problems. Moretti had wanted me to continue attending these coordination meetings in Montreal on a regular basis. He wanted me to be the link between Rome and Montreal. I turned down the offer as I was reluctant to abandon my design duties in order to become yet another administrator. I felt my task as a designer was enriching and fruitful. I did not enjoy going meetings, reading and writing reports. I left bureaucratic tasks to others who enjoy them.

*In which way was your relationship with Moretti different from that with Nervi?*

The relationships were undeniably very different. I was an employee of Moretti and worked with him on a daily basis. I saw Nervi occasionally, maybe once or twice per



month. Nervi came periodically to our studio to attend meetings, but I, in turn, often went to his studio. My relationship with him was more formal, pleasant, and provocative. With Moretti I felt I was participating actively in the architectural design. I had become an integral part of the Moretti family.

Moretti was much more authoritarian than Nervi. He was the unquestionable Master, much like Wright or Corbusier were. All the same, I enjoyed working with him, and being exposed to his wide architectural knowledge. The best moments were when he diverted our professional discussions to other subjects. Nervi rarely did so. Despite my age, I think I played a relatively important role in the development of the design of Place Victoria. It was gratifying involvement. Obviously, I was more at ease in the world of architecture than engineering, yet I was never intimidated by Nervi or by his acolytes.

*In thinking now about the design of the tower, do you believe there is a direct relationship between the formal and the structural systems? Does one predominate over the other?*

I would unequivocally say, no. At the very start of the process, the formal considerations were the dominant ones. But that was because it was a time when Moretti ruled alone. Over time, and with the ever-increasing role played by Nervi, a more logical and critical design process developed. One began to examine the work with more objectivity, and one arrived at solutions following more rigorous methods. Gradually, the structural system took its rightful place in the evolution of the design. One could say structure and form became equal design partner, and began to work hand in hand. Both Moretti and Nervi came to accept the position of the other. The structural system got better over time, and the formal system got simplified and more coherent.

*Is there was one predominant design issue that governed Moretti's thinking?*

Yes. Because Moretti was a formalist, form governed over function. There is no doubt about it. First and foremost, Moretti wanted the tower to be an emblematic object in Montreal.

*Speaking of Moretti's work in general, do you think he worked with the structure and the form in parallel, or was it a case of an infatuation with a specific form for which he created a structural system?*

Moretti's formalistic impulses were all-powerful and ever-present. He always began the design process by devising a formal parti. His architecture was not the outcome of any serious analytical exploration. He investigated his first concepts by way of models, or even paintings. The significance of the image always seemed to be foremost in his thinking. That is not to say that structural considerations were ignored. But he placed greater importance on the symbolic and iconic value of the structure than on its technical performance. He saw the structure as an organizational device of the space. He accepted that an apparent structure does not necessarily represent the real skeleton, unlike Nervi who believed that the structure was primarily an expression of the lines of forces at play.

Moretti liked to refer to the Michelangelo's Campidoglio in Rome, which he had sketched many times as a student of architecture. He was well aware that the pilasters on the back wall of the porticos were plaster and did not support anything. But they were significant in terms of making the geometric ordering devices of the building manifest. In other words, the pilasters were an impressionistic idea of the structure, but they were as important as the actual bearing columns.

*If the focus on the structure is taken to extremes, do you think it offers another way of making architecture?*

Yes, it could. If one were to start, for instance, with the idea that structure should provide the cheapest, most rational, most effective, most solid building, the form would certainly be affected by such a position. I recall a discussion with Nervi about the shape of the ideal tower. He believed that the most important and costliest aspect of the structure is its ability to resist wind and earthquake forces, and the ideal shape would be the circle, then the square, and then the triangle. Surely, if one believes that if the structure ought to be the dominant generator, the form would be affected profoundly and not necessarily for the better. Good architecture is the synthesis of many concerns.

*Were Moretti and Nervi instrumental in convincing the SGI that the square was the ideal shape of the tower?*

I can only presume so but convincing an experienced developer that the square is an ideal form for an office tower is not that difficult. The square is rational form, it has four equal facades, it is easily subdivided, and requires the least perimeter for a given floor area.

The significant problem of the form was not the square but the instance by the SGI to build three diagonally-placed square towers in close proximity to one another on a relatively small site. The City, quite rightly objected to this concept. It would have been a catastrophic urban blunder for the area. The owner's initial demand can only be explained in terms of real estate greed. Not only was the land too small for a 3-million square foot project, but the finished project would have constituted a formidable wall between the river and the downtown core of the city. The square form was not the problem, the size of the project was.

*I understand that the initial 3-tower project was six floors higher. Why were these floors eliminated?*

The problem was with the elevators. The more floors, the more elevators are required to operate the building. More elevators means larger elevator banks, and hence less rental space. So the ratio of net-to-gross area becomes unacceptable. There is always a mathematical correlation between rentable space and the number of elevators. If the aggregate area of elevator cores throughout the tower is too large, the rentable space is proportionally diminished, and the project becomes unprofitable. The only way to rectify this situation would be to make the towers larger, not higher.

*In your view, what should the predominant concern of architecture be: originality or technique?*

This is a broad subject. Every architect, good and bad, would answer you differently. Of course they are both important, yet today, originality seems to be gaining this battle. Originality, in and of itself means very little. Originality implies uniqueness, exceptionality, and individuality. In the past, good cities were made of buildings that spoke to one another, not buildings that competed and stood alone. I am more interested in excellence and significance than in originality. What is the significance of building a skyscraper in the shape of a banana? For a while it may be seen as original, until the next banana comes along. Being original does not make the building a masterpiece. Amsterdam, as a city is a unique masterpiece, yet very, very few of its buildings are masterpieces in themselves. Most buildings are very good, but average. It is the ensemble that is very special. The parts, though modest, sing together with one voice. It is a beautiful chorus.

*Is originality not considered a basic ingredient of genius?*

You are right when you speak of the true genius. Matisse, Gerhy, Wright, and le Corbusier were giants and all were original creators. They all created something new and changed our world forever after. And of course, there is a need for such creators, but “invention or reinvention” is not creativity. I am leery of the second-level “geniuses” who just want to be different. Some cities on our planet are filled with “original” buildings that are the work of mediocre minds. And look at the mess and the visual chaos these individuals have created.

*Originality is not the same as making funny shapes. Is it not the predominant condition of genius, or is it technique?*

As far as architecture is concerned, I believe, yes, the real genius is an original creator and a strong technical innovator. I am thinking of the Imperial Hotel in Tokyo, the Sagarata Familia in Barcelona, the Centraal Beheer Office in Appeldoorn, which set new precedents in design, structure, and construction. These are original works of architecture and structure. One is simply astounded by their technical prowess as much as by their originality of these buildings.

*Let me ask you one last question. To me, the monastery of Ste-Marie of La Tourette by Le Corbusier, is simply an amazing building and is an exquisite example of the fusion of structure and originality. Do you share that view?*

Absolutely. The monastery of La Tourette is like no other post-war building in Europe, not only because it is a truly original and a moving work of architecture, but also because it is intellectually so brilliant. It is an authoritative reinterpretation of a 1,000-year old building-type. Kenneth Frampton refers to La Tourette as “that paradigm of solitude and communion”.

La Tourette is at once an indisputably contemporary building, yet one that adheres to the letter and the spirit of the Rules of Saint Benedict. La Tourette, as a work of architecture,

transcends time and place. It skilfully resolves the problem of placing a monastic building on a steeply sloping site. Ultimately, it establishes a dialogue between the man-made world and the natural world. Le Corbusier was a great poet and one of the giant of our time. Yes, it is the embodiment of genius and originality. You have chosen an excellent example.