THE DESIGN OF THE OLYMPIC TORCH 1992

At first sight, one might imagine that an assignment of this nature referred simply to the design of a device which would enable the flame to be carried the whole length of a route of relays. This is, in fact, the case, but it is not the only thing; there is much more. As I went deeper into the question, I realized that «Operation Torch» was far more complex: not only because the functional aspect is clearly subject to the meaning but also because there exists a concatenation of factors which condition each other and which must be dealt with simultaneously.

Nor was the assignment limited to designing one single element, but rather three different ones. Besides the *hand torch*, which is the basic element, it was necessary to design a *reserve lamp* to ensure the safety of the flame and a *burner for stages* to receive the flame at the end of each day's lap.

The most important part of the assignment was, of course, the hand torch. This was what the runners would carry and what apparently three and a half million persons would see on television. It was impossible to imagine it as a static object. It would be part of a whole that included also the athlete himself, with arm held high and running. This is how it had to be imagined. Because the torch is an element of the Olympic ritual, neither could its design be limited to solving the functional problem of conveying the flame from one place to another without it going out. The whole ceremony of the flame is a clear liturgical act charged with meanings. From its kindling by the rays of the sun on Olympia, via its relay journey throughout the whole of the country, to its final arrival at the stadium thronged by acclaiming multitudes, it all forms part of a liturgy that is proper to this kind of «religion» known as Olympicism. It is important that the «reading» given to this flame-bearing object should be coherent with what it has to signify. The torch has a powerful symbolic charge proper to sacred objects. The act of designing it had to be approached with the same creative attitude that would be adopted if it were a monstrance or a chalice.

Although designing an Olympic torch is an unusual assignment, the approach has much in common with any other design problem. It is always a question of classifying the functional and aesthetic problems. In this case, there also existed side by side the requirements of the function —a torch is still a functional device which has to convey a flame without it being extinguished— and the expressive requirements, since it is an object that has to reflect a specific age and a specific culture. The usual rules had to be observed, perhaps with a somewhat greater creative tension because of the high degree of responsibility the assignment supposed.

In this case too, as in any other design process, there was a client and a user. The «client» was the city of Barcelona, represented by the COOB (the Barcelona Olympic Committee), and the «user», the olympic movement. As when initiating any design process, it was necessary to get to know both parties well so as not to betray the one yet satisfy the use requirements of the other. I knew my «client» well —it was my city: the «user», less well.

I had interviews with different persons connected with the olympic movement and my attention was drawn by the enthusiasm and reverence they showed towards the Olympic ideal. The custom appeared to be that each athlete who bore the torch kept it at the end of his or her relay. So it was not a matter of designing a single torch; there had to be as many torches as torchbearers. It was also made clear that the basic symbols to be included in the torch would be the emblem of the Olympiad (in which the Olympic rings already figure), the ordinal number of the Olympiad and the name of the city with the year. I also discovered that the ceremony of the torch was not incorporated into the Olympic ritual until the Berlin Games in 1936 and that the torch is an older symbol than the logotype or the mascot, both of which are relatively recent.

It was also important to get to know what in commercial terms is called «the competition». I am not referring to the torch which Philippe Starck had created for the Albertville Winter Games but to the torches of former Olympics. I visited the Musée Olympique de Lausanne, where I could see and handle all the torches which had beeen created up till then for former Games. I spent an afternoon handling them and making sketches of all of them since I already wanted to take something back with me to allow me to keep on thinking while waiting to receive the photographic documents. To complete this informative phase, the COOB also provided me with full technical information on the torches of Los Angeles, Calgary and Seoul.

Once this phase of documenting and briefing was over and I was acquainted with the attributes required for the torch and was also able to grasp the essence of its meaning, the moment arrived for me to envisage possible approaches to adopt. It would not be easy to imagine an innovatory form that would distinguish it from the form of the usual torches and which, at the same time, would attain the level of dignity demanded by this type of object-sign. The very form itself emits a certain message and getting this message right was precisely the focal point of the interest and challenge which this design supposed.

There were different possible approaches. The safest, although the least creative, consisted of adopting a solution of continuity —this was followed, with slight variations, by London, Cortina, Squaw Valley, Los Angeles and even the last in Seoul: that is, adopting the form of a traditional torch like that of the statue of Liberty. If this solution were carried out with well-finished quality materials, it would undoubtedly be a solution that would present no problems of acceptance, but neither would it suppose any creative contribution whatsoever. Even before I had received any indication or suggestion from the COOB or from the President of the International Olympic Committee, I had taken it for granted that this was not what was expected of me. Barcelona, which had stood out because of its special interest in innovation in everything it was doing in relation to the Games, deserved a torch which would likewise mark a difference.

Another possible approach was completely opposite: a flight into the future. Create a torch that would be a frank break with tradition, that would shock not only in its form but also in its system of combustion. I felt that this approach

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would have been opportunist and hardly in keeping with an object of such a charismatic nature. An object is understood as being symbolic if it possesses certain established signs which are precisely those which endow it with such a charge of meaning. If these are disregarded completely, it ceases to be the symbol it should be and does not perform as such.

It was clear that it was a question of making a torch by applying the norms of design: that is to say, by adopting the functional requirements and, at the same time, the meanings proper to the object. The torch had to fit in coherently with the norms of the Olympic ritual, which, like every liturgical ceremony, is what in fact justifies the very existence of the object. Thus it was not a question of inventing new ways of carrying the fire, with lasers or some other spectacular technology, nor of creating a motley of shapes which would have borne no relation at all to what people understand as being a torch. There had to be a support and a flame, generous, visible and waving like a banner. It was not possible to approach it as an «experimental design» which would have disfigured and annulled all the magic of the ceremony. The design of an object is considered to be successful when it solves correctly all the functions the object has to fulfil. There are cases, such as this, when the value of an object as a sign is an essential part of its function.

The concepts that I was able to continue envisaging would prefer certain forms and materials but nothing could be defined clearly since everything was conditioned by the system of combustion, which was still to be decided. The functional device would vary in size and permit the use of different materials depending on the type of fuel to be employed. The form of a torch that was to function with liquid fuel would not be the same as one that used gas or powder. So, before the form of the torch could be defined, it was necessary to establish the fuel to be used, in so far as this fuel conditioned its form.

But it would also be difficult, in its turn, to decide on the type of combustion system without knowing beforehand the system of relays that would be adopted. A decision which could affect the combustion system and also the design of the torch would thus not be the same if the torch had to be refuelled en route or if there was a new torch for each relay because the tradition that each athlete kept his torch as a memento was to be respected.

THE NUMBER OF TORCHES

Any decision made on this important question had to take into account the multiple factors conditioning it, whether the result of tradition or of operative necessity.

The ritual of the flame consisted in the flame arriving at the olympic stadium on Montjuïc after having traversed the whole country through a series of relays. This means that it would have to cover about 6,000 kilometres in accordance with a previously established itinerary. So that a large number of bearers of all ages and conditions could participate, the length of each relay would have to be short, about one bearer per kilometre or even less. The time taken would be between 10 and 20 minutes, depending on the runner. It was also important that the torch should not be heavy (maximum weight 1.5 kilos). This fact, which had to be taken into account when it came to selecting materials to make it with, also meant that the fuel load had to be as small as possible, while still being sufficient to last until the end of each relay. So it was essential for each runner to begin with a new charge.

With an Olympic torch, however much one's attention might be focused on the external lines of its form, its only reason for existence is still the flame that emanates from it —a flame that has to reach its objective despite the thousand and one incidents that can occur during its journey.

Although the COOB would have to make the final decision on which combustion system to use, this could not be done on the basis of the documentation available on previous torches, since this showed that there did not exist any one standard fuel. Some had preferred gas, other kerosene or paraffin, and even —as in the case of Seoul— gunpowder. It was necessary to carry out an exhaustive study of all possible systems before coming to a decision. The COOB entrusted this task to the Faculty of Projects of the School of Engineers of the Polytechnic University of Catalonia (UPC). In principle there were three possible types of fuel: solid fuel (powder or other solids), gas (butane or other gases) and liquid (petroleum, alcohol, oil or other liquids). To my great surprise, one of the first things I was asked to do was to draw the shape of the flame I imagined the torch had to carry and the colour it had to have. However suprising it was, it was a logical request since a specific aim had to be established for the investigation. They were asking for an *à la carte* flame. I drew a reddish wavering flame. This first sketch signified, in fact, the first «design» decision I took for this torch. The shape of the flame also forms part of the design. A torch is not conceived of as a static, inert staff but rather as an object which attains its true dimension when it is a lighted moving carrier. I also had to specify the shape the head of the torch would have, so that tests could be carried out in suitable conditions. I chose the shape of a conical dish, thereby taking one more step forward, with no possibility of backtracking, in the design of the torch.

The choice of fuel was the result of a laborious study in which it was necessary to take into account the reliability of the fuel, not only for its ability to keep the flame alight whatever the adverse weather conditions (wind or rain) but also for the certainty that it would not suppose any danger for those who handled the torch. Thus there was a variety of factors involved which had to be evaluated when it came to choosing the combustion system.

A study was made of the various types of fuel which would produce such a flame and which were at the same time completely reliable. A first attractive idea was to use liquid fuel with an acohol or oil base. It had both an ecological and a Mediterranean appeal but it was not the most suitable for guaranteeing the stability of the flame in bad weather conditions. Other systems with powder were tried. Finally, gas was chosen because it offered better control of the flame and was more easily stored.

THE FUNCTIONAL DEVICE

In order to carry out tests with the gas a rudimentary burner system was set up to judge the quality and stability of the flame in extreme conditions but which in no way would be able to serve as a model for use in the definitive torch. Another research team had to take over from here and develop, at prototype level, a functional device with a burner and a gas container which would have the exact characteristics of those which would be incorporated in the torch. The COOB entrusted this task to the technical office of Catalana de Gas (Catalan Gas Company), which had already advised us in the tests for a suitable fuel.

With this data, Catalana de Gas began a study process to achieve a prototype that would fulfil the necessary requirements, that is to say, the type of flame desired and the guarantee that it would remain alight without problems for the 25 minutes that were insisted on.

They had to consider the problems of the safety of the torchbearers and also problems of the influence of environmental temperature and atmospheric pressure. They consulted the national aeolic map and came up with the information that the wind speed the flame would have to resist would be 50 k/hr. Consequently tests were carried out with a centrifugal fan and the stability of the flame was demonstrated in the definitive prototype.

And so it was that, one day, in the technical office of Catalana de Gas I was able to see and raise a flame that had the shape I had imagined and which corresponded to the one I had drawn at the beginning.

The thorough study made on matters relating to the type of relays and the combustion system contributed copious complementary information about functional questions. This made it obligatory to define certain aspects such as, for example, the shape of the head in order to be able to carry out the combustion trials. Nevertheless, there still remained many aspects of the general form of the design to be decided.

I was for weeks haunted by these dilemmas, handling more documents, talking, making notes, letting vague impressions drift around. It all allowed me to plunge deeper and deeper into the heart of the matter. One thing that was becoming clear was what could not be. I knew that, in the end, I would find a convincing way to approach the form but I still did not know how to convert these intentions into concrete reality. My aims could even be specified in a series of statements. I wanted the Barcelona 92 torch to be in some way different. I felt it was important that it should be distinguished from those created before; that it should also possess a high aesthetic quality, that it should be a beautiful object; that its style should be unmistakably contemporary but without following any specific style. It had to express an image of what Barcelona is today, harmonizing with the high quality of design abuntantly displayed in the city. Finally, it had to be in keeping with the line of my work, without sacrificing anything by playing to the gallery.

Little by little and as a consequence of this input which was being stored away at more or less conscious level, there began to emerge in a spontaneous imaginative way various ideas of possible formal approaches. I made no attempt to evaluate them at that moment; I simply retained them, making quick sketches of their differentiating characteristics. I filled pages and pages of sketches, sometimes no more than a single detail or a finish. I reviewed these pages from time to time and saw how by intuition certain ideas kept on appearing as best relecting what I was still unable to express. I saw paths leading me towards what I was pursuing. At one particular moment I observed that from among numerous sketches one idea came up again and again. It was the idea of giving a sense of direction to the very body of the torch, that is to say, that it would not be, like all previous torches, a body of revolution. It was an idea which, apart from differentiating it in a very significant way, had its own logic. The torch would point to its own north: Barcelona. Another idea that stood out from the rest was that the head should have the form of a censer. The torch would thus announce the final destination of the flame in the censer inside the stadium. I also came to the conclusion that the material would have to be chromium-plated aluminium, the metal and colour which characterize our epoch. Triangular and conical forms began to emerge with strength, superseding earlier cylindrical and cubical ideas, as the former not only distanced themselves from previous torches but moreover suggested something like amphoras and had something very Mediterranean about them. Thus one main idea started to evolve out of the many I was juggling with. At one specific moment I found a form which united in a coherent fashion all those features which seemed important to me.

So the initial plans that had been entered into the computer went on evolving. Now it was necessary to make sure that none of the variations required by any of these plans conflicted with those of others. As soon as the form was fixed in a feasible solution, the computer let us see three dimensional images of what the torch would look like. They agreed exactly with what I had been imagining. As a result of this certainty, the first scale model was made. We were finally able to feel the torch in our hands, to hold it up: a wooden torch whose shape fulfilled all the practical and aesthetic premises. From this moment on production could begin of the definitive model which would one day be presented to the COOB.

There remained one question: the symbols the torch was to bear. The COOB had approved the suggestion I had made to inscribe on the torch just the words «XXV OLIMPIADA BARCELONA 1992» and the logotype. This formula meant that the necessary bilinguism could be united in one single statement. Nevertheless, it was still a long text which had to be made to fit on to the front side of the torch. When I chose this directional form, I realized that there would have to be some inscription on it. I talked to Josep Maria Trias so that he, as creator of all the graphic imagery of the Games, should design the text. We both agreed that a vertical inscription would be far more appropriate and that a lapidary style letter would be better for an object of such charisma. In fact, Trias was the first, apart from my own team, to know what the torch would look like.

THE FINAL TORCH

At the end of January 1991 we already had plans in which the form was definitive. The torch would be 66 centimetres high and would weigh 1 kilo, 200 grams. It was composed of

a self-standing structure of injected aluminium in which were united the *head* at the top, a *rear cover* to protect the fuel tank in the central part and the *grip* at the bottom.

With all this data and these plans it was possible to begin to construct what was to be the definitive model in which we should see exactly what the object we had been designing would look like. It was in mid-February, 1991, that I was able to see my ideas materialized in a torch that was perfect in all its details.

I shall never forget the emotion with which we opened the box that contained the definitive model. It was the moment of truth, the final point in a long process of gestation which had started out with those tentative sketches and had finished with this model. Many months had passed since I had decided to develop this idea and no other. Months in which the imagined approach had been opening a way towards reality. What is a fact is that solving incidental problems and touching up details makes one forget the vision as a whole. Suddenly, on that day, the result of so much effort was there, about to be revealed. Although the computer had showed us convincing images and we had seen satisfactory volumes, now we were to see the torch as it would be in reality, with all its details and quality of materials, as millions of persons would see it in 1992. Would it fully match up to our expectations? The die was cast, it was no longer possible to go back. It was thrilling to see that shining form appear from inside the papers that were protecting it. Perhaps we were too overcome with emotion to be impartial, but to us it appeared magnificent.

On 13 March, 500 days to the Games, the torch was presented to the media in the stadium of Montjuïc. On 4 September, 1991, the Musée Olympique de Lausanne opened an exhibition called «The Barcelona Torch 1992», in which was displayed the model, surrounded by documents relating to the process of its design.

At the same time as the torch was being designed, the other objects that formed part of the assignment were being created —the safety lamp and the relay censer.

In any relay race the possibility must be envisaged that during the running any kind of mishap might occur which would extinguish the torch that was being carried at that moment: the runner might fall, there might be a failure in the combustion system, for example. For this reason, besides the torch which begins the run, three other safety lamps are kindled on Olympia to ensure that, in whatever circumstance, there will always be an original flame which can be used to relight it. These flames that burn discreetly in the safety lamps have the same symbolic value as the flame that burns in full view of the public in the torch.

They are a safety reserve to ensure that the flame that arrives at the stadium and lights the great censer which presides the Games will be an authentic flame taken on Olympia. These lamps are also used to transport the flame on those parts of its journey when it is necessary to travel by sea or by air.

The model adopted for the design of these lamps was that which miners used to employ. We felt that these were the ones that had given ample proof of their reliability. It was in Asturias that we finally found artisans still able to manufacture them, since it seems they are no longer used.

Starting out from the functional principle they possess, we modified them so that they would be better adjusted to the special purpose they were to fulfil. We increased the capacity of their fuel tank, we changed the system of opening and the size of the glass, since they were not intended to give light, but rather to light a torch. As they stood, with a large area of glass and an inaccessible flame, relighting became a difficult operation. We also asked for a device which would lift up the wick without the lamp having to be opened, as they would have to be continually alight 24 hours a day for more than two weeks.

After we had calculated that the amount of fuel in each lamp would last at the very least eight hours, it became clear that the number of lamps to be carried by the line of followers in the run would be three. In this way, by refuelling one of them every eight hours, in chronological order, any possible maintenance fault during the fifteen days' run could be remedied. There would always be a flame in the other two. The fuel was required not to give off smoke when it was burning, as these lamps would always be inside some vehicle, and to have an absolutely reliable combustion system with a wick. After trying out various possible liquid fuels, the technicians proposed kerosene.

The other element to be designed was the relay censer. Each day the relay was to finish in a town in which there would be an official act to receive the flame, when a censer would be lit and would remain alight for hours. This flame would have to be of a larger size and easily visible to the public. So a censer was designed to accept the flame in a ceremonial form. This censer is a granite monolith topped by a head like that of the torch but of much greater dimensions. It bears an inscription that refers to the event and the logotype of the Games.

Finally, as I have already said, the design of the torch has been one of the most important in my professional career, not only because of the significance the object has in itself in the Olympic ritual but also because it was the city of Barcelona that asked me for it.