行政院及所屬各機關出國報告

〔出國類別：考察〕

中歐（荷蘭、法國、德國）運動設施考察報告

服務機關：行政院體育委員會

出國人職稱：專門委員

姓名：胡啟邦

服務機關：行政院體育委員會

出國人職稱：科員

姓名：林炳仁

出國地區：荷蘭、法國、德國

出國期間：89年12月27日至
90年01月07日

報告日期：91年10月

摘要

本次考察之地點為歐洲（荷蘭、法國、德國），透過實地訪視，瞭解歐洲運動設施之規劃設計、營運管理，並作為我國體育建設施政之參考，以提升國內運動場館之經營管理及設施服務品質水準。歐洲體育運動發達，民間體育組織架構嚴密，全民體育推展之普及化，一向為世人所推崇，尤其各項體育建設及運動設施，更為我國學習觀摩及提升我國現階段運動場館發展之需要。近年來，國人對運動之需求已隨休閒時間增加、國民所得提高、健康促進觀念的興起及國人生活品質提升之訴求等因素而日益迫切。然運動場館為提升運動水準及發展全民運動之先決條件，有符合國際標準之運動場館，才能爭取主辦各種國際正式之運動賽會，提升我國運動水準；各地充實之運動場地，民眾才有休閒活動去處。

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壹、考察目的：

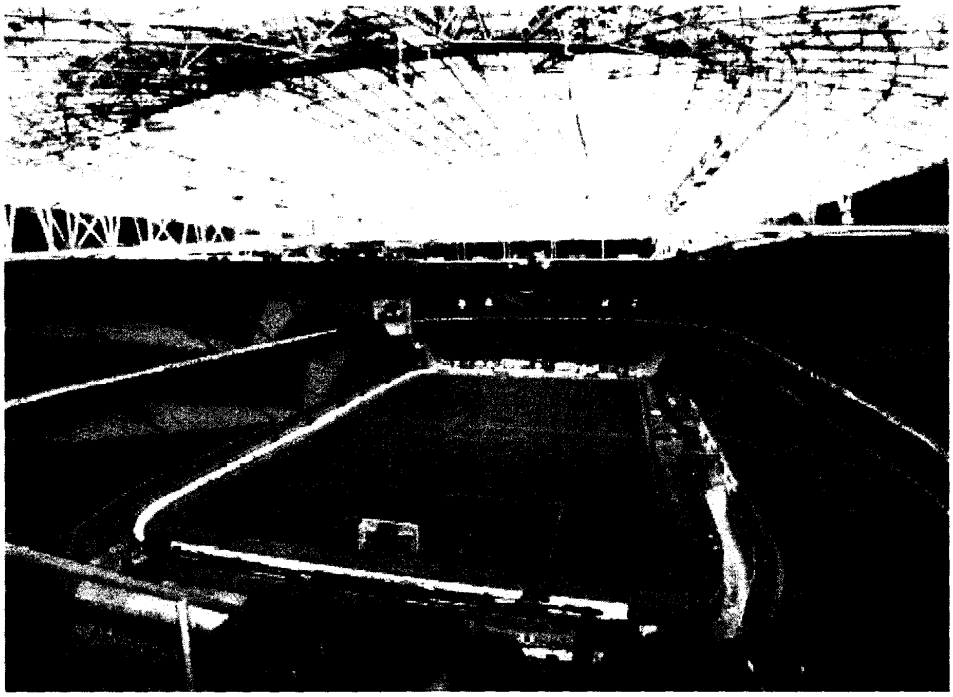
近年來，國人對運動之需求已隨休閒時間增加、國民所得提高、健康促進觀念的興起及國人生活品質提升之訴求等因素而日益迫切。然運動場館為提升運動水準及發展全民運動之先決條件，有符合國際標準之運動場館，才能爭取主辦各種國際正式之運動賽會，提升我國運動水準；各地充實之運動場地，民眾才有休閒活動去處。

根據行政院主計處在民國八十二年的調查發現，國民期待優先辦理的文化建設項目中，以增建公共休憩場所排名第一，加強體育活動的舉辦與運動設施的增建排名第三。因此，為因應民眾需要，政府相關機構積極從事開發休閒運動場地設施的計畫與方案，已成為刻不容緩的課題。

本次考察之地點為歐洲（荷蘭、法國、德國），將透過實地訪視，瞭解歐洲運動設施之規劃設計、營運管理，並作為我國體育建設施政之參考，以提升國內運動場館之經營管理及設施服務品質水準。眾所皆知，歐洲

體育運動發達，民間體育組織架構嚴密，全民體育推展之普及化，一向為世人所推崇，尤其各項體育建設及運動設施，更為我國學習觀摩及提升我國現階段運動場館發展之需要。

貳、考察行程：

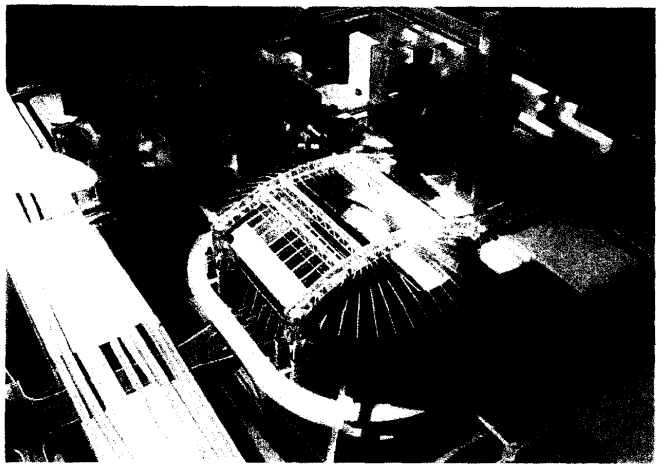


日期	地點	參訪單位	備註
00/12/27(三)	台北—阿姆斯特丹	19：35 中正機場搭乘荷蘭航空往阿姆斯特丹	
00/12/28(四)	阿姆斯特丹	上午抵達阿姆斯特丹	
00/12/29(五)	阿姆斯特丹	參訪阿姆斯特丹體育館（Amsterdam ArenA）	
00/12/30(六)	阿姆斯特丹	阿姆斯特丹體育館及周邊相關體育設施	
00/12/31(日)	阿姆斯特丹—巴黎	11：35 阿姆斯特丹機場搭乘荷蘭航空往法國巴黎	
01/01/01(一)	巴黎	參訪巴黎 the Stade de France 體育場	
01/01/02(二)	巴黎	巴黎體育場周邊體育設施	
01/01/03(三)	巴黎—德國慕尼黑	09：55 巴黎機場搭乘法國航空往德國慕尼黑	
01/01/04(四)	慕尼黑	參訪慕尼黑奧林匹克體育場	
01/01/05(五)	慕尼黑	參訪慕尼黑奧林匹克體育場	
01/01/06(六)	慕尼黑—柏林	12：5 慕尼黑機場搭乘德國航空往柏林	
01/01/07(日)	柏林	參訪柏林奧林匹克體育場	
01/01/08(一)	柏林	柏林奧林匹克體育場周邊體育設施	
01/01/09(二)	柏林—台北	柏林機場搭乘荷蘭航空往阿姆斯特丹轉往台北	

參、考察情形

一、荷蘭—阿姆斯特丹（Amsterdam）體育館

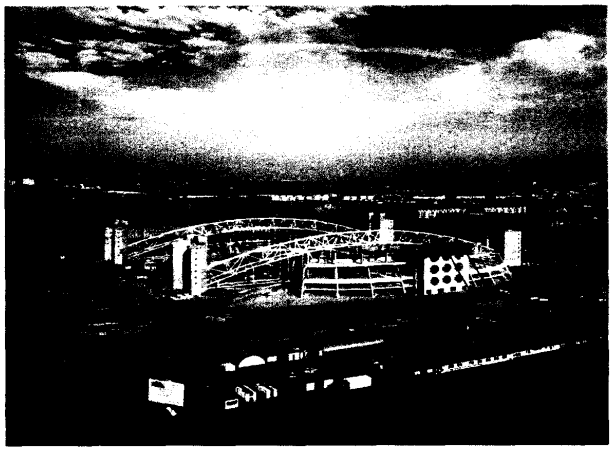
前言

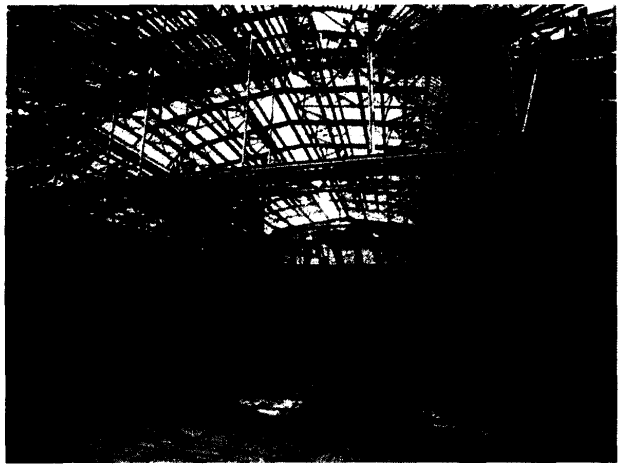


荷蘭是一個現代化與商業化的國家，其正式的國名全名是Koninkrijk der Nederlanden，翻成英文即是Kingdom of Netherlands，而其中Nederlanden在荷蘭語是表示「低地」的意思。由於地勢較低，荷蘭人與水抗爭的歷史一直是個傳奇。荷蘭境內有三分之一的土地低於海平面，而靠近鹿特丹的Alexander Polder地區，更低於海平面6.5公尺之多。首都阿姆斯特丹（Amsterdam）位於荷蘭的北方，僅有台北市的三分之二面積，是出入荷蘭必經的門檻。全市有165條運河和1292座橋樑，分為新舊兩區，平均高度在海平面下，如蛛網般的運河網逐漸向外擴展，呈現出美麗的「水都」風光；Amsterdam Arena體育館就是建在阿姆斯特丹東南方 Zuidoost 的 Burgemeester

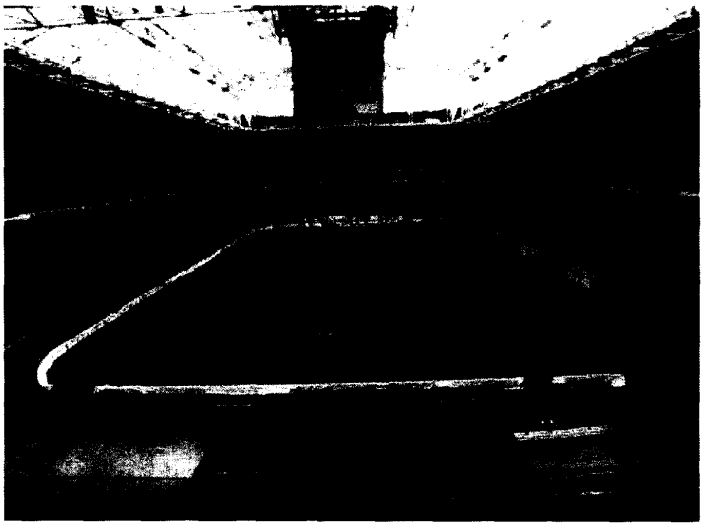
Stramanweg。

阿姆斯特丹（Amsterdam）Arena 體育館從一九九三年十二月開始興建，並於 1996 年夏天開放使用，工期約三年多，這座體育館同時是 AFC Ajax 足球隊和 Amsterdam Admirals 球隊的主場。座落於阿姆斯特丹東南方， Amsterdam ArenA 是第一座建於海邊、且擁有一個能在 20 分鐘之內打開的滑動式屋頂、兩個視訊記分板、各種餐廳及會議室，它是世界上最現代化的體育館之一，在歐洲可說是獨領風騷。





Amsterdam ArenA 總花費約為荷蘭盾二億零二百萬(美金一億三千四百萬元)。體育館設有 5 萬 2 千個觀眾席，每個座位視線都非常良好，內部並有 60 個 VIP 包廂，體育館每季計有荷蘭盾 100,000 元的收入（約美金 70,000 元）。



屋頂的設計是可伸縮式，它係由兩塊 9600 平方公尺的鑲板組合而成，總面積 38,000 平方公尺；這部分的花費為一千六百萬荷蘭盾，安裝的費用為二千四百萬荷蘭盾；屋頂使用透明薄膜材料，其有下列特點：

一、節省能源－膜布透光度約四～十%，即使陰天做練習亦不需開燈。

二、容易維護－其表面塵粒不易附著，經自然水及風吹能保持潔白。

三、質輕、韌力強，能承受強烈風吹。

四、具防火、防紫外線功能。

Amsterdam ArenA 體育場另一特色，就是體育館下方除建有兩層停車場，可供二千個停車位，並有一條公穿過體育館，使整個球場交通動線更暢通。

Amsterdam ArenA 體育館獨特兼具彈性的設計，得以承辦形形色色的各式活動，包括:運動賽會、音樂會、劇場、推廣展示的商場，甚至是提供作為大型會議場地以及各項娛樂表演活動，可說是一個多功能的體育場館；它的設施完備，包括更衣室、健身房、個別練習室、選手休息室等等；本場館同時也是歐洲盃足球賽場地，也是 AFD AJAX, 荷蘭足球協會的總部所在。

Amsterdam ArenA 體育館，它是世界上首座蓋在公路上方的體育館，也是歐洲首座具備有滑動屋頂的場館；但到底是什麼使這座建築作品與眾不同？如何做出決策？以及在建築過程中遭遇到什麼問題？我們可以從體育館的建造歷史中一窺究竟。

（一九八三年至一九八六年）

在這段時期荷蘭正參與角逐奧林匹克競賽的主辦權，為了要得到這項殊榮，必須要建造一座符合奧林匹克委員會要求的體育場。新體育場的場址選在 Strandvliet 舊址的東南地區，這地點很不錯，位置適中，有各種不同的大眾運輸工具，當時體育場設計包括：

＊一個開放式體育場，50%的座位可受到屋頂遮蔽。

＊體育場座落在阿姆斯特丹市區和 Ouder Astel 自治區的邊界上。

＊符合奧林匹克體育場的地面規劃配置，包含了跑道。

一九八六年十月，爭取奧林匹克運動會主辦權希望落空，荷蘭政府覺得在首都阿姆斯特丹蓋一座現代化體育館仍有其迫切需要性。

（一九八七年至一九九〇年）

阿姆斯特丹市立體育基金會於一九八七年成立，它以提升阿姆斯特丹地區的體育活動為目標。此基金會受委託為新的體育場擬計畫，新體育場基地規劃於阿姆斯特丹 Zuidost 的 Burgemeester Stramanweg。體育場新的規劃內容如下：

＊可容納五萬五千座位之觀眾席。

＊體育場設有兩層停車場。

＊體育場比地平面高出 8.4 公尺。

＊ 觀眾席座須全部有屋頂的遮蔽。

體育場場址選擇在 Burgemeester Stramanweg，是一塊幾未開發的處女地，設計上必須利用隧道來修建當前的道路系統，並包括路徑規劃及管理系統以提高交通流量之控制。

（一九九〇年五月）

體育場興建在此階段已略具雛形，這個設計主要是結合一九八六年為奧林匹克體育場以及 Stichting Amsterdam Sportstad 的設計，其有下列幾點特徵：

＊奧林匹克式的設計，並具有跑道。

＊完全覆蓋式的屋頂。

＊使用最先進的設計（ Skyboxes）

＊體育館建築包括球場、餐廳、房間、展覽館。

Ajax 對於新體育館的未來需要作一果斷的決定，他們將與體育館相鄰，由一跨越 Burgemeester Stramanweg 的陸橋相連接的禮堂納入設計，以增加體育場潛在的使用能力，並將覆蓋式的屋頂設計為滑動式，當時預定投入興建體育場金額為荷蘭幣二億三千九百萬，主要投資者有阿姆斯特丹市議會

及 Ajax 及 ABN AMRO，而市議會提供最重要之六千萬荷蘭幣的捐助；由於波斯灣戰爭的爆發，使原先規劃經費籌措更加困難，為了節省建築經費，迫使變更原先設計，新的計畫如下：

＊刪除跑道使體育場周長縮短。

＊修改為一負荷式（load-bearing）建築，由四根垂直的主要支柱支撐。

＊可移動式的屋頂將作最有效的運用，並且為縱向滑動而非橫向。

＊體育館下方設有六百個停車位。

＊體育館內規劃五萬個觀眾席。

如此一來可節省約四千萬荷蘭幣，建設小組並且估算整座體育場只要在二億零二百萬荷蘭幣就可建造完成。

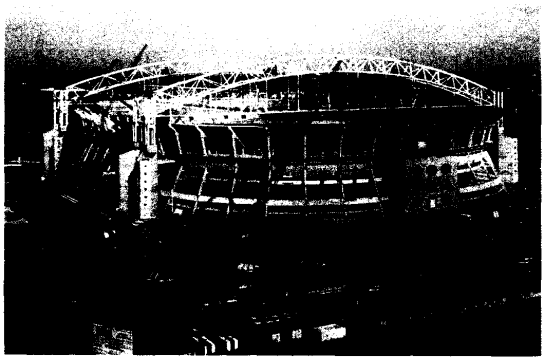
（一九九二年六月）

阿姆斯特丹都市計劃局所作的研究報告結果，決定將體育館建在 Burgemeester Stramaweg 公路之上，與馬路垂直並高於地平面八．四公尺，體育館下方有兩層停車場提供總數約二千個停車位。

（一九九三年八月）

在一九九三年八月二十七日阿姆斯特丹市議會核准了體育場的興建。

（一九九五年）



體育場工程進行至一九九五年二月基礎結構已完成，並在二月二十四日當天將支撐主屋頂結構的二千四百噸起重架起時，已達到建築物最高點。當年二月二十七日 Supervisory Board 宣布 Jan Gasterland 將以董事長的身份參與阿姆斯特丹體育場的經營管理。一九九五年三月十八日正式封頂完工，並將體育場取名為 The Amsterdam Arena.。

（一九九六年元月）

體育場的草皮在此時做成最後決策，係由一種稱為 PAT（Prescription Athletic Turf）的系統，此種草皮是由美國進口，專為密集使用而設計的，這是一種固定性的草皮，其下裝置了一導線和偵測設備的系統，它能透過電腦隨時監控草皮的狀況，在舉行大規模活動時，草皮會被調為一為一真空狀態，由一 terraplas 所覆蓋，它能使草皮支持約五天的連續

使用而不受損。另外，由兩面所組成的滑動式屋頂也於這個月開始動工，滑動式屋頂每面都重五百二十噸，面積各為四千七百二十平方公尺，分別由兩個一百公尺、上舉馬力四百噸的起重機，抬到高度七十公尺的地方，這項工作是具有一點技術與風險，由於安裝屋頂的工作非常仰賴天候，氣溫必須高於冰點，風力強度不得超過五級，所以也須老天爺配合。一月底，所有組裝工作已完成並定位，滑動式屋頂於三月初首次啟動閉合。

（一九九六年二月）

資訊中心安排參觀體育館的導覽團都已爆滿，到了二月中新增加的導覽團也都被預訂一空，體育館受歡迎的程度超乎大家的想像。

（一九九六年三月）

體育館立體交叉橋正式開啟使用，此立體交叉橋是用來連接道路主幹和 Arena 第二層共六百個車位的停車場，它使卡車、救護車和其它車輛可直接通到球場。此時體育館周邊綠美化工程也已完成。

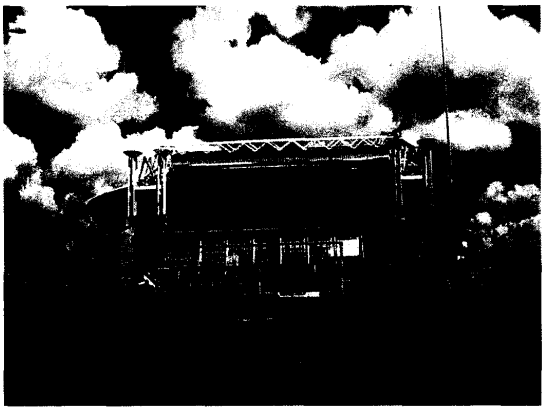
（一九九六年四月）

正在進行舖設草皮準備工作，並開始建造 PAT 系統，

此系統中需要的導線是放置在一層塑膠層之上，在此塑膠層之下則有一層沙子，而另一沙石層則是在導線之上。

（一九九六年五月至八月）

草皮已植草、播種完畢，所有工程也陸續完成，Amsterdam ArenA 體育館也在一九九六年八月正式落成。



基本資料及設施規模

名稱：阿姆斯特丹體育場

地點:阿姆斯特丹 Zuidoost 的 Burgemeester Stramanweg

經營公司：阿姆斯特丹市立體育基金會

完成年份：一九九六年

總面積：三萬八千多平方公尺

工程總經費：二億零二百萬荷蘭幣

室內球場面積：七千一百四十平方公尺

可容納座席：五萬一千八百五十九個

停車位：兩層停車場共有二千個停車位

其他資料：

＊十二個空中觀覽室

＊六十二個殘障座席

＊一百九十五個記者席

＊一千九百九十五個商務座席

＊皇家包廂共五十個座席

＊九個創造者包廂共一百一十四個座席

＊全體育場架設八十一部攝影機、三百零二台電視設備的獨立電視網路。

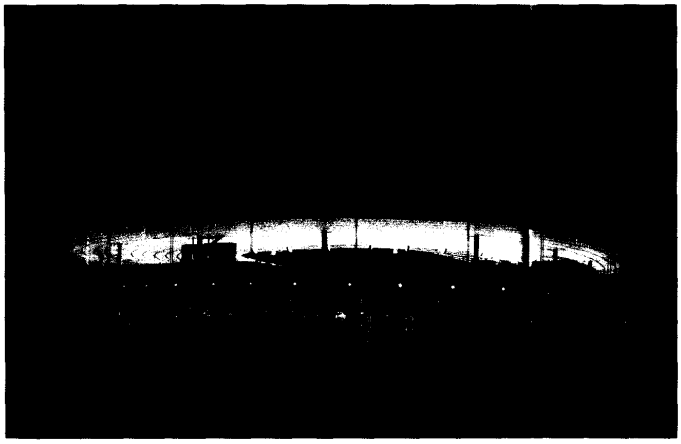
＊二台六十三平方公尺巨大露天視訊銀幕，每個銀幕面積為五十平方公尺，由一百萬個二極管所組成。

＊滑動式屋頂鑲板每塊重約四百噸，鑲板由八個馬達控制，屋頂可在三十五分鐘內閉合。

Amsterdam ArenA 體育館室內景況

二、法國—巴黎 the Stade de France 體育場

前言



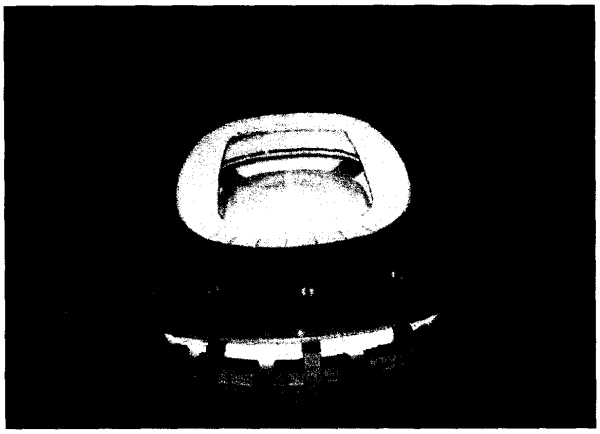
法國在取得 1998 年、也是 20 世紀最後一次世界盃足球賽的主辦權後，決定興建此法國最大的體育場 Stade de France，它擁有 80,000 人次的容量，是全國大型體育項目、橄欖球賽以及田徑競賽的最佳舉辦場所；Stade de France 座落於巴黎北邊郊區的聖丹尼斯(St. Denis)，原來是座廢棄的煤氣廠，由政府與私人單位雙方共同合作建造，於 1995 年 5 月開始動工，期間不到三年的時間，總花費二億六千萬英磅(三億六千四百萬美金)，一度有 1500 個工作人員一同參與的盛況，完成於 1997 年 11 月 30 日。the Stade de France 體育場現已成為當代法國建築的代表作之一。這是一座與周圍城市環境融合，渾然一體的體育場。the Stade de France 是法國一座全新的體育場，由 Michel Macary，Aymeric Zublena，Michel Regembal 及 Claude Costantini 四位建

築師所設計，它的屋頂已成為這座體育場最引人入勝的標誌：橢圓形的輪盤普遍象徵著運動場，它的面積廣達六萬平方公尺，和協和廣場一樣大、重達一萬三千噸，相等於一個半的艾菲爾鐵塔，如此而使它成為技術上大膽而卓越的建築物。

一個名副其實的輪盤浮在距草坪 42 公尺高的空中，這座屋頂不需直接覆蓋在運動場上，就能庇蔭約莫八萬個觀眾免受日曬雨淋。所有的音響、燈光設備（36 個擴音器、550 個汎光燈）都安裝在屋頂的內部，以免遮蔽觀眾的視線。在中央，彩色玻璃使自然光擴散、柔和了對比，它過濾掉對草坪生長有害的紅光和紅外線，但保留必要的綠光和藍光。

低於前場十一公尺，這個運動場佔地九千平方公尺。它的草坪於 1996 年 7 月播種於牧草育苗場，並在 1997 年 9 月以每一平方公尺的大小，一塊塊移植到體育場來；一個星

期使用 16 小時都沒有問題，且當覆上一層特別的罩子，它就成了大型音樂會的會場了。只需一禮拜，這座多功能的體育場，就能轉換成七萬五千人次的奧林匹克體育競技場：將低層的活動式看台往後推移 15 公尺，使之位於中層看台的下方，以展露出跑道和跳躍區域。



它的表面附著一層不鏽鋼網「視覺濾器」，使體育場的形象與當前的周圍環境一致。由於它深深地被固定住了（低於前場十一公尺），而限制了它的高度，使它看起來不那麼巨大。這座體育場完全地與聖・丹尼斯市整合在一起，並提供當地居民一個大型聚會娛樂的場所；從瞭望台，可以俯瞰小鎮的全景、聖・丹尼斯的 Basilica、以及遙遠的聖心和艾菲爾鐵塔。

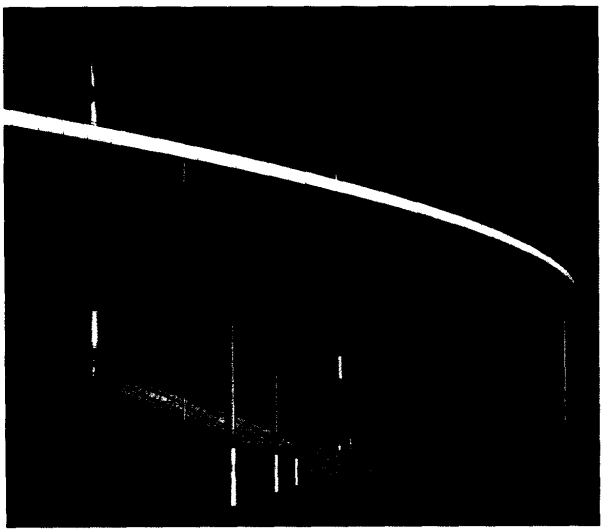
體育場於短短 31 個月完成，這座建築物需要絕對的專業，包括公共建設工程部門（處理看台、屋頂鋼索、以及它的穩固），和建築承包商（處理內部建設、看台下的座位、

以及建築物的表面)。在研究階段，工程師約莫使用一萬五千張平面圖，到工程結束時，共用了四萬張建築平面圖。Stade de France 是法國最大規模建築之體育場，其具有許多特色茲分述如下：

建築

由分別來自兩個公司的四位建築師所設計的：Michel Macary, Aymeric Zublena, Michel Regembal, Claude Constantini。Stade de France 是世界最大的活動式綜合體育場，容納二萬五千人的最低層看台可往後挪 15 公尺(鋼筋與鐵氟龍製的滾筒及氣墊)，以應活動項目不同的需要。橢圓型的構造使觀眾的視線得以集中，整個設計盡可能地拉近觀眾與活動場地的距離，以呈現最完美的視覺效果。

橢圓型屋頂



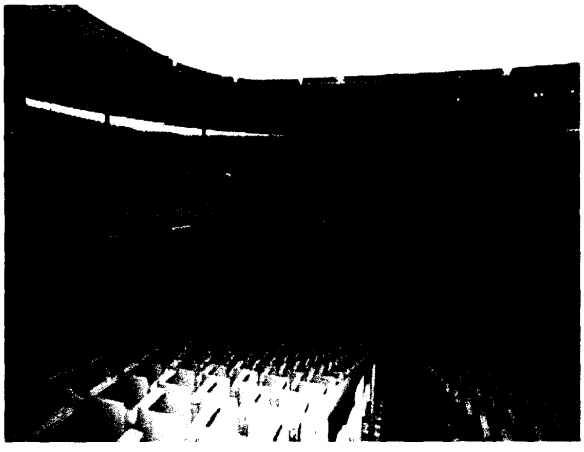
屋頂是 Stade de France 最具代表性的一部分，就像一個光環浮在距地面高 43 公尺的高空中，它的橢圓型狀象徵了運動的普遍性，而巨大的面積(6 公頃，或 14.82 英畝，相當於巴黎的 Concorde 皇宮)，更呈現了它技術上的偉蹟。它是由 18 根高 45 公尺(148.5 英呎)的鋼柱所懸吊起來的，上面覆蓋著一層五萬平方公尺的聚氯乙烯(PVC)，中間層是由 Saflex 塑膠製成的薄片玻璃，可幫助整個橢圓型屋頂成形，並在解決各種聲光效果等其他建築設計上的挑戰時，使自然光穿透玻璃射入體育場。

總面積 6 公頃、重達 13,000 噸，相當於兩座艾菲爾鐵塔的橢圓型屋頂，是由 18 根鋼柱懸吊起來的，為了提供觀眾較好的視野，所有的照明和音效儀器都安裝在屋頂內部，包括 550 架投影機、36 共鳴板(sound walls)以及 454 個汎光燈。組合的纜索將金屬架構與承重的樑桁連接起來，支撐

起了 Stade de France 的屋頂，每一根架有鋼絲的纜索都是由好幾股平行的繩索組成的，由於安全和強力負荷的特別考量，每一根繩索都鍍上鋅，分別用金屬纜索將同一組的緊繫在一起、擠壓成一死結，並由一鋼鐵套管牢牢夾住。

使用 Saflex 塑膠做為屋頂中間層是因為它的牢固和彈性的聚乙烯丁醛(PVB)，它由二層以上的玻璃夾在中間，在高溫高壓下牢牢地黏接起來。只有玻璃才能使體育場成為一視野上開放的空間，並使自然光滲透至體育場內部，以達到一種美學的景觀設計。淡色調的透光玻璃在蔽護觀眾的同時，也讓自然光直接透射到田徑場上，縮小了刺眼強光在陰暗區與明亮區的強烈對比，並過濾掉有害的紅外線，讓草皮需要的藍光和綠光通過，玻璃也使得體育場的草坪能均勻地暴露在陽光下，一致地生長。

跑道與看台



足球賽時，由於跑道環繞的田徑場會拉遠了觀眾與球場的距離，所以在設計這座體育場時，最低三

層覆蓋在跑道上的座位是可伸縮的。這個跑道是在 1999 年 4 月，體育館最後加設的一項工程。首先的準備工作是確定跑道表面是一完美的水平面，以及傾斜 0.5%~0.8%的斜坡用來排水。Sportflex 跑道表面是由一捲筒帶進體育場並組合起來，在惡劣天氣捉弄之下，Mondo 公司最後終於將它固定於跑道的位置上。

Stade de France 是世界上最大的多功能體育場，它可在不到一星期的時間內從足球場轉變成奧林匹克標準的運動場，二萬五千人次的可伸縮式低層看台，往後挪 15 公尺到中層看台底下，就會露出跑道以及跳遠的沙坑。這樣技術上的特色突顯出 Stade de France 可舉辦任何一種體育項目、和適時調整它的容量以迎接多種體育競賽的與眾不同之處。

看台是由十個部分組合起來，每一部分都重達 700 噸。只有在舉辦田徑賽時，低層看台的上幾排座位會因為往後挪而隱於中層看台之下，此時低層看台仍可容納二萬人次，並且盡可能保持觀眾與球場動態間的距離。這樣的設計不但使 Stade de France 舉辦足球及橄欖球賽時，不會影響到觀眾視野，同時也是一個容量七萬五千人次的奧林匹克運動場。

而在草坪上舉行大型音樂會時，此項技術可使體育場再多容納二萬五千人次，將 Stade de France 不可思議的巨大容量推向十萬人。中層看台擁有三萬個座位，可由 22 個入口通達；最上層看台有二萬席，由 18 個 70 階的巨型階梯上去；事實上，即使是最遠的觀眾也只距離球場 85 公尺遠而已。

田徑場

此田徑場面積共九千平方公尺，比前庭還要低 11 公尺，距最近的觀眾席 15 公尺遠。由一特殊的保護層覆蓋著，在舉行大型音樂會時它也可以用來充當座席。

1996 年 7 月播種，1997 年 9 月草皮就被一塊塊移植到體育場來，用了將近十億顆種子來培植這塊草皮，使它可以經得起一星期 16 小時的使用。Hydro Pratt 專門為 Stade de France 設計了 Robix 植草機，供鋪設草皮使用。在鋪設地下隔離層時，Solvay 集團和聚氯乙烯(PVC)都扮演了關鍵性的角色，三萬平方公尺的 PVC 底層薄膜是由 Solvay 的子公司 Alkor Draka 提供，於 San Celoni(於西班牙)製造。這底層薄膜位於地下一公尺深的地方，有效的隔離了原廢棄工廠場址底土散發的怪味，使不會擴散到草皮與跑道上。

Stade de France 協會

體育場還未建成時，Stade de France 協會的任務是與建築師合作，並為整個計劃籌措資金。現在它已完成了，協會的角色就是將體育場的娛樂價值給推銷出去，其中主要包括二項：將之租給體育組織，以及廣告區的出租；額外的收入則有餐廳、商店、會議組織、研討會及六千個停車位。

（1993 年 12 月 19 日）

巴黎的聖・丹尼斯鎮被選為 the Stade de France 的場址。

（1994 年 12 月 26 日）

the Stade de France 協會成立。這個特別聯合組織是由 Bouygues，GTM-Entrepose 和 SGE 團體組合成的，各擁有 150 毫法拉資本的百分之 33。這個協會不但負責體育場的設計（與建築師合作）、建造、籌募基金，也從 1995 年 4 月 29 日起，由國家委託經營體育場三十年。

（1995 年 5 月 2 日）

於建造場址開工。

（1997 年 11 月 30 日）

經過了 31 個月，體育場完工。

（1998 年 1 月 28 日）

開幕典禮（法國與西班牙的足球賽），法國總統 Jacques Chirac 也大駕光臨。

基本資料及設施規模

負責單位：Stade de France 協會

建築師：ichel Macary、Aymeric Zublena、Michel Regembal
Claude Constantin

承包商：Vouygues

聚氯乙烯(PVC)供應商：Solvay 集團

屋頂材料：Saflex

費用：

the Stade de France 的總花費估計約 26 億法郎，由私人企業資助百分之 53，國家擔負百分之 47。

容量：

the Stade de France 可以容納 80000 個足球或橄欖球賽的球迷，75000 個田徑比賽或奧林匹克運動會的觀眾，以及 100000 個音樂會聽眾。

年度估算：

1750000 個觀眾。20 到 40 個大型體育競賽或音樂會。

面積：

170000 平方公尺（包括前場的 45000 平方公尺）。

度量：

長 270 公尺，寬 230 公尺，長徑 247 公尺，高 35 公尺。

屋頂面積 60000 平方公尺（包括 10000 平方公尺的玻璃），由十八根 1.6 公尺寬的鋼柱支撐。

運動場區：

9000 平方公尺（119×75 公尺）。

這座體育場有 45 公里的看台，以及 18 個大型階梯，45000 個座位在距離運動場邊線不到 60 公尺的地方。

設備：

the Stade de France 大眾停車場（5000 個箱型車停車位），及 120 個出入口。

6000 個貴賓席位於 148 個分區看台，分別有 12、16 或 28 個連續座位，並提供飲料和點心；1100 個殘障保留座位；890 個記者席（足球賽時 2450 個）；兩家餐廳，其中一家有良好視野以及 320 個座位；18 家店鋪；28 個小攤子；43 家小吃館。

佔地8000平方公尺的空間，可供展覽會、會議、及研討會使用，包括一個250人次的演講廳，和一間2000平方公尺的多用途廳。商鋪共佔地4000平方公尺，辦公作業共2000平方公尺。在彎道處設了兩個120平方公尺的巨型銀幕。

建築物基本資料

總佔地面積：17公頃(41.99英畝)、包含4.5公頃(11.1英畝)的前庭

地基樁數：600根(15公尺深)

鋼筋補強材料：500,000平方公尺

混凝土：180,000平方公尺

結構鋼：32,000噸

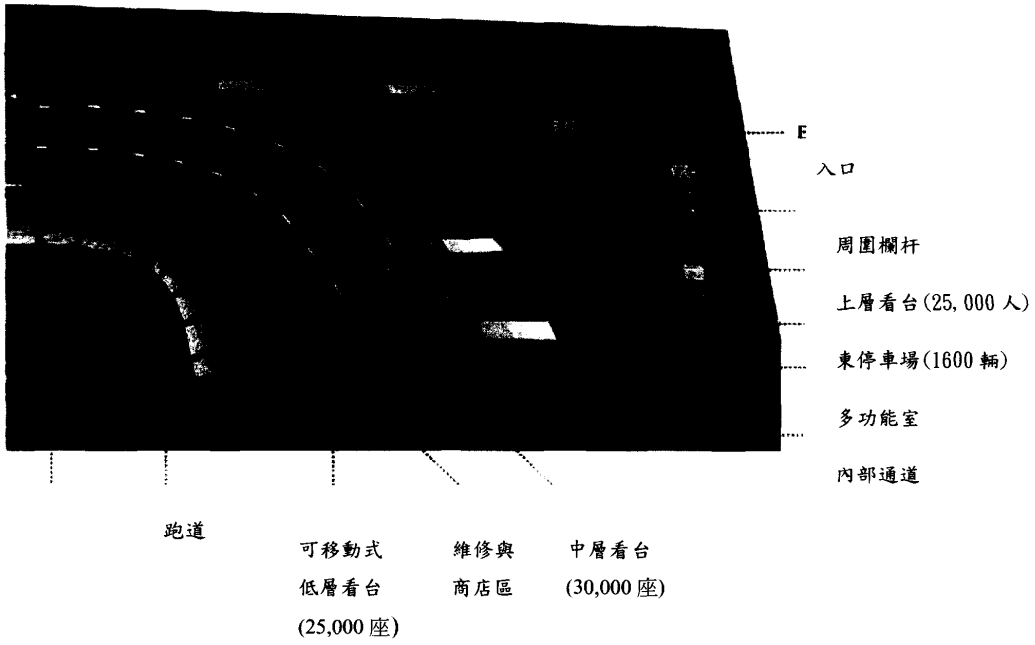
室內用水管線：50公里長

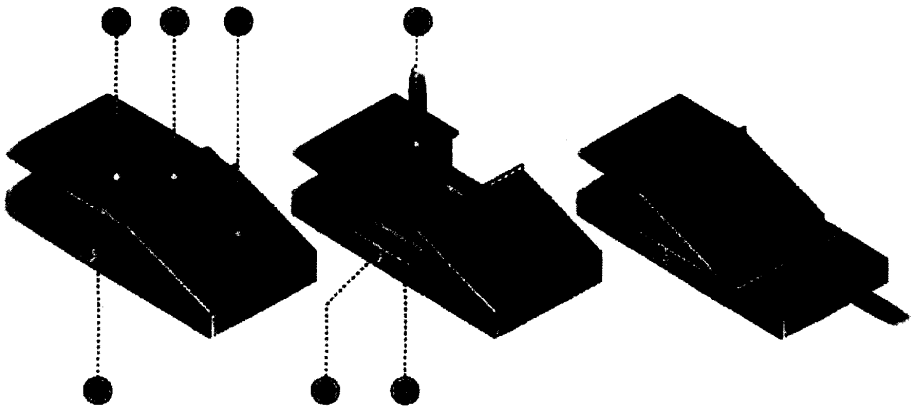
更衣室：1400間

電扶梯：18個

電梯：37個

洗手間：670

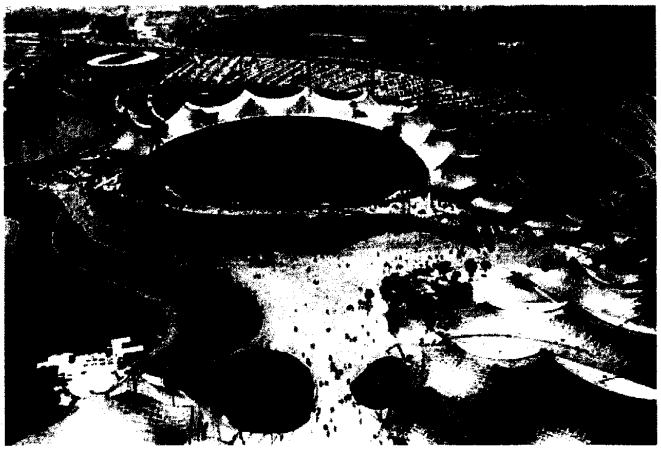




圖：最上層的 5000 個座位(1)首先往後移，接著上排(4)由伸縮柱降到地面，餘下的幾排座位(2)移到中層看台之下，並於前方有安全氣囊保護跑道使不受傷害。

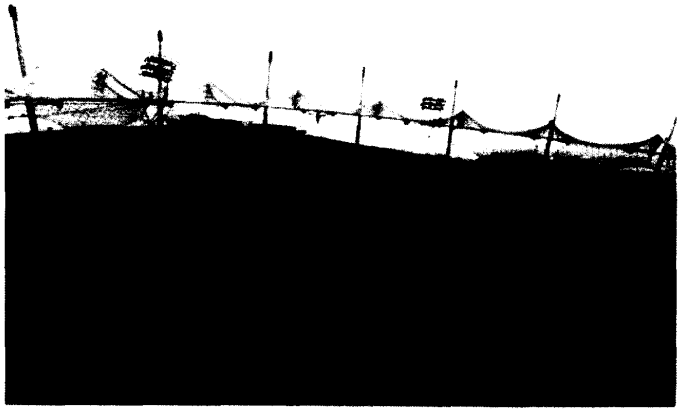
三、德國—慕尼黑奧林匹克體育場

前言



慕尼黑位在德國國土的東南方，正在多瑙河與阿爾卑斯山的中央地帶，周圍的地區森林遍佈，湖泊、山巒相鄰，景色十分的秀麗迷人，目前擁有 130 萬人口的慕尼黑，是僅次於柏林與漢堡的第三大城，也是德國佔地最廣、觀光資源最豐富，巴戈利亞邦首府所在位置，在德國具有舉足輕重的分量。慕尼黑是德國南部最大城市， 由此城向外伸展的大小道路相當繁密，交通確實稱得上四通八達，從空中到地面均極為便捷，這也是此地成為百餘萬人口聚居之大都會的主要原因。第二十屆奧林匹克運動會選擇德國慕尼黑舉辦，其交通、精密工業、自然觀光資源和豐富多彩的人文風格都有其正面評價。

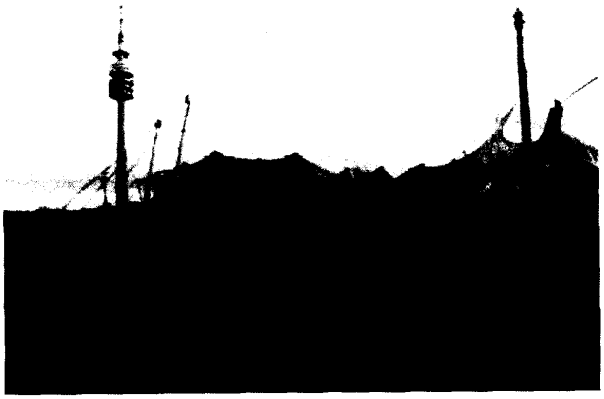
德國當初在決定如何建造這座體育場時，政策曾一度搖擺不定，若不是陪審的主席 Egon



Eiermann 及許多政壇人士的堅持，第二十屆奧林匹克運動會在德國慕尼黑所舉辦運動賽會場地，可能就是一般傳統式體育場的設計，而並不是現在這座帳篷式概念的建構。建築師 Gunter Behnisch 在西德國家奧林匹克委員會和政壇人士的支持下，將慕尼黑奧林匹克體育場建築設計發揮至極至，配合當地環境特色，大膽地凸顯出他們為「情境建築」中的傑作，除了戰爭所餘留下來的碎石堆，這一塊平坦的土地被重新塑造成一片和緩起伏的丘陵美景，高達九百五十一英呎(290 公尺)的電視塔台居高臨下，並在 Nymphenburg 運河中築壩，形成一個小湖泊，這體育館群就座落在這個新建造的競技場中。透明、外放式的競技場，看起來好像在大自然與人工建築間平滑地流動，再加上緊縮及擴張的外部空間

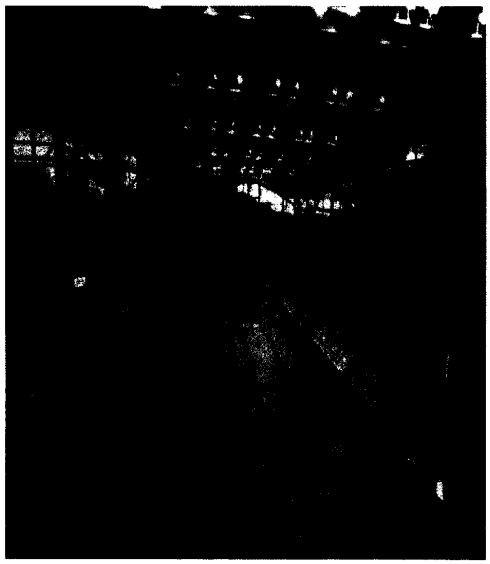
設計，都恰恰契合了慕尼黑政府所希望呈現的「祥和與快樂」氣氛。

從 12 根鋼鐵電纜塔頂披垂下來，覆蓋住三座體育館，這個透明的篷式屋頂已成為整個綜合體育場特殊象徵；體育館上空被



纜線網絡及高強度透明玻璃覆蓋住，而另外兩個場館上頭則是實體的屋頂構造，屋頂的內層則為獨立的結構元件，用以平衡天氣的波動和吸收強風。慕尼黑奧林匹克體育場這種帳篷式屋頂設計，一開始就頗受爭議，但後來卻成為國際知名的建築標誌，它不單代表著慕尼黑這個現代化城市，也象徵一個嶄新且民主的德國。慕尼黑奧林匹克體育場係一九七二年奧林匹克運動會舉辦所在場所，在奧運結束後德國政府即撥款一億四千萬馬克作為管理基金，目前每年大約虧損一千二百萬馬克，其中一百三十萬馬克係由政府補助，其餘由管理基金利息貼補，目前平均每天約有二千人到園區活動，假日高達三萬人進入園區內運動或作戶外休閒活動，館內溫水

游泳池、健身房、三溫暖、韻律教室一年四季開放，提供民眾一個很好的運動空間;慕尼黑奧林匹克體育場是以公司型態經營，公司之員工都非公職人員，但公司之經營須受當地政府單位參與之監事會及委員會監督，由於經營得宜，三十年來均能撥揮其應有之功能，是非常值得國內大型場館經營之參考及借鏡。



基本資料及設施規模

名稱:慕尼黑奧林匹克體育場

地點：德國慕尼黑

委託者：西德政府

經營公司：奧林匹克公園股份有限公司

建築師：Günter Behnisch

結構工程師：Frei Otto

平坦，最高的地方 Kreuzberg 亦不過海拔 66 公尺。統一後的柏林目前人口達 350 萬人，已成為德國第一大城。柏林雖然因歷史情結而仍被選為首都，但要恢復到以前的水準還有一段漫漫長路要走，經過此次的參訪，深深感受到這個城市充滿著生命力正努力在重生中，處處皆可發現各項設施正在施工的景象。

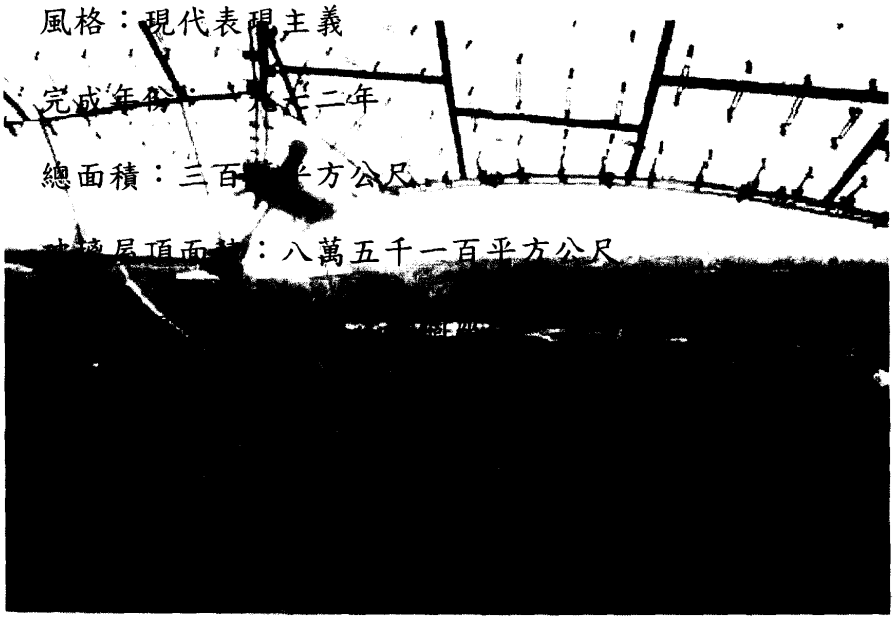
柏林奧林匹克體育場也在這波重建中進行翻修，體育場興建於一九三六年，現為了趕上國際奧林匹克各項競賽場館建築標準，以及符合現代體育活動的需求，柏林奧林匹克體育場正在全面整修，德國當局還打算於二〇〇六年在此舉辦 FIFA 世界盃足球賽，為了舉辦 FIFA 世界盃足球賽，體育場必須增設許多新的設施，並須於二〇〇四年達到 FIFA 的要求；從整修工程的起始，當地紀念館辦公室、漢堡建築公司 GERKAN MARG&PARTER、足球俱樂部、當地 BUNDESLIGA 足球俱樂部、

風格：現代表現主義

完成年份：[illegible]二年

總面積：三百[illegible]平方公尺

[illegible]屋頂面積：八萬五千一百平方公尺



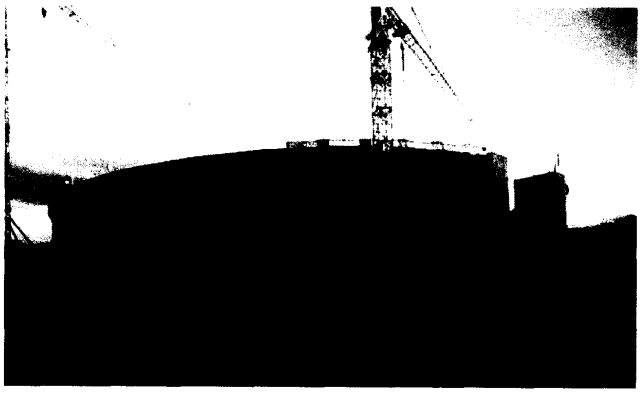
四、德國—柏林奧林匹克體育場

前言

柏林地處德國全境的東北角，1990 年 10 月兩德宣告正式統一之後，原本有若孤島的柏林再度綻放其無比魅力，被德國人民再度選擇為新德國的首都，成為世界舞台上由暗復明的耀眼的星星。大柏林市總面積為 878 平方公里，地勢

柏林HERTHA　足球俱樂部、德國田徑選手代表和WOLTER BAU AG 建築公司等都熱情參與此項計畫，希望柏林奧林匹克體育場整修工程能達到盡善盡美。

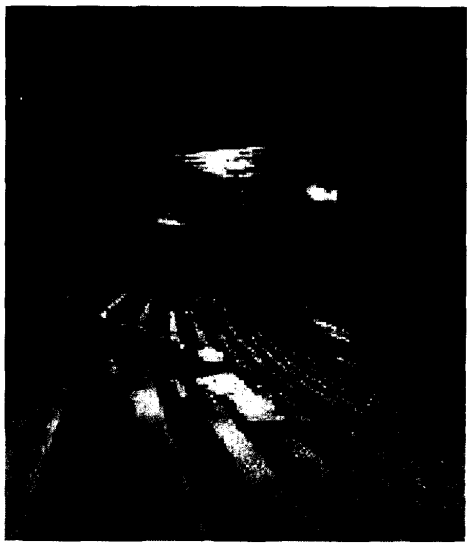
這座原先由建築師 Werner March 設計的體育場是為了一九三六年的奧林匹克運動會所建造的，體育場以寬二十五公尺的馬拉松大門聞名於世，它不但是標準的橢圓形奧林匹克體育場，場內還興設曲棍球場、游泳池、賽馬場、以及一座劇院。



柏林奧林匹克體育場曾經做過幾次大規模整修工程，一九六九年將原先煤炭渣田徑跑道改成 PU 跑道，一九七四年體育館裝設由丙烯酸為材料之玻璃屋頂；現今的改建工程是由漢堡建築師 Gerkan Marg 和 Partner 與美國建築師 NBBJ 共同設計出來的，他們將體育場設計成為同時提供足球賽、田徑賽以及大型室外音樂會的綜合多功能體育場，並可提供七萬六千個有屋頂遮蔽之觀眾席。新體育場設計最主要的代表作是運動場能在短時間內升起或降低，它是運用

類似浮在水盆凹窪中的浮塢結構，撐托住整個運動場，用水或空氣灌入浮塢，來升降運動場的高度。這種特殊的設計不但使此體育場能舉辦各類不同的田徑賽會和文化活動，同時也能符合 FIFA 和 IAAF 的國際標準。

由於考慮多功能體育場較廣而分散，而單功能的足球場則較密集、目標集中，為了要解決這個內在固有的衝突，設計時他們將運動場高度調低二·六五公尺，如此一來則多增加了兩排觀眾席，約一千六百個座位，同時也拉近了看台與足球場的距離；整修中他們將上層的幾何形看台保留下來，原本的天然石塊也僅做一些結構性的補強刷新，至於多角形的階梯，由於經濟上的考量整個重建。為了符合國際田徑場標準，運動場重新設計並升級，還增加了第九條跑道；另外專門設一媒體區，使記者能方便在比賽前後作訪問。



新的規劃中有一地下通道及六百三十個車位的地下停車場，另有二百五十個車位的地上停車場，如此一來就可直

接進到 VIP 觀眾席；從接待區參訪者只要穿過用餐區和貴賓會談區，砖能到達共一百一十三間的休息室，其中七十八間在一樓、二十間鄰近新的瀑布型貴賓看台，而另外十五間所謂的空中休息室則是在現存的記者區中。在北面和南面還有二千個 VIP 商務座席。

用餐區及商業區都經過重新設計，有小型售貨攤、店舖並在頁層和底層的一般觀眾席區還設有球迷餐廳，這樣可提高對觀眾的服務品質，也使所有設施都能做經濟而有效的行銷；另設立一座體育博物館，在體育場沒有舉辦任何活動時，仍然有吸引大家參訪價值。

新的體育場屋頂在極具堅毅的民族性建築襯托之下，顯得非常突出，這是一個由半透明屋頂薄膜覆蓋的細長鋼筋結構所組成；看台上的屋頂在馬拉松大門前保留一開口，以便能遠眺鐘塔之美景。新的規劃也將體育場廣播系統和照明設備都整合在屋頂上。

在整修的過程中為不影響體育場正常運作，在與建築公司 Walter

Bau-AG 簽約時就先談好條件，在四個階段的整修程序間，必須保證體育場活動最小容量維持五萬五千席次。以下是三個主要的階段：

＊低環樓層將會整個拆除重新建造，包括斜坡和觀眾視覺效果的調整。

＊高環樓層將會分幾個步驟來重建，包括支撐結構的重新設計、VIP 休息室和用餐設施的規劃。

＊運動場的調降工程施工，必須在二〇〇二年世界盃足球賽在韓國與日本舉行時，體育場才有足夠休息時間來施工。

除此而外，體育場外殼約有四萬天然石塊將重新被調整，包括一塊塊石灰岩、馬拉松大門上的石灰華及地板階梯的花崗岩；另地平線以下之體育館低環樓層將會整個拆除重建。為提昇體育場的品質及功能，將整個體育場區域之硬體

結構重新設計建造是必要的，柏林奧林匹克體育場也將在二○○四年六月三十日以新的面貌跟大家見面。

基本資料及設施規模

主辦單位：柏林立法院（參議院）之都市發展部

建築師：NBBJ NGM Architekten

工程設計師：ARCADIS

屋頂面積：一萬五千平方公尺

觀眾座席：七萬八千個

包廂：一百一十三個

建築物類型：橢圓形綜合體育場

停車位：地下六百三十個、地上二百五十個

整修動工時間：二○○一年七月

屋頂動工時間：二○○二年一月

運動場調裌工程動工時間：二○○二年七月

整修工程預定完成時間：二○○四年六月三十日

肆、考察心得與建議

一、考察心得

（一）積極主動的行銷機制

歐洲（荷蘭、法國、德國）之運動場館為維持永續之經營管理，皆有專責人員負責運動場館之行銷，以透過電視、電台、報章雜誌、資訊網路等大眾傳播媒體系統廣為宣傳，或利用錄製錄影帶、書面文宣、刊物及結合當地旅遊、餐飲、觀光、藝文、醫療、住宿等服務業之邊際行銷資訊策略，吸引民眾對運動之關心與參與，以達運動場館永續營運的目標。

（二）有效安全的維護管理

歐洲（荷蘭、法國、德國）大型之運動場館大多以舉辦職業比賽為首要，所以從場外到場內皆有嚴密之監控系統，除提供大眾傳播媒體相關資訊外，更可藉以掌握觀眾及選手等相關人員進出之動態。另考量激情觀眾熱情之參與情緒，觀眾席皆依不同隸屬之球隊觀眾作區隔，並將選手比賽場地及選手休息區與觀眾區做適當之區隔，並設有專責之醫療救護中心、安全維護設備及緊急疏散設施，以確保比

賽時選手、教練、裁判及觀眾之安全。

（三）經營觀念的多元企業

歐洲（荷蘭、法國、德國）運動場館之經營除比賽門票收入外，場館週邊平常皆可提供企業廠商經營餐飲、紀念品、運動商品、運動休閒服務、會議、停車等多元化之服務項目，以增加收入維持運動場館之營運。

（四）規劃設計的多元功能

歐洲（荷蘭、法國、德國）運動場館之設施，皆以規劃設計多元化、運動種類多元化為目標，運動場館之設施規劃設計及經營管理，除提供體育活動使用外，亦兼顧藝文、商業、餐飲、娛樂、休閒、親子活動等綜合性多元功能之方向發展，並結合社區居民之生活型態及自我認同觀念，以提升當地居民之參與及運動場館投資使用之效益。

（五）熱心參與的社區志工

歐洲（荷蘭、法國、德國）運動場館大多委託民間企業維護管理，除有限之正式編制人員外，大多建立有完善之體育志工制度，依靠多數服務體育志工人員之

協助，來負責運動場館之維護管理工作及推廣各項全民運動。歐洲（荷蘭、法國、德國）運動場館之建設除考量全國性體育發展外，非常尊重當地居民生活上之需求，所以運動場館之興建及經營皆能夠與當地居民生活相互結合，而鼓勵當地居民自動參與運動場館維護管理之志工人員（例如：運動選手、教練、指導員、醫療、服務志工等），以負責運動場館之維護管理及運動推廣之工作。

二、建議事項

（一）鼓勵民間企業經營管理

近年來由於公有運動場館之興建維護、經營管理費用大幅增加，政府大多無法繼續負擔沉重的經費預算，所以公有運動場館如何交由民間企業、組織或俱樂部營運管理為未來之趨勢，並應審慎評估各運動場館之營運管理及認養之方式。

（二）建立有效之行銷機制

運動場館之永續經營及發展，除經營者之努力及民眾之認同外，還須建立有效之行銷機制，經由電視、電台、報章雜誌、資訊網路等大眾傳播媒體系統，廣為

宣傳體育活動及運動賽會，以鼓勵民眾踴躍參與增加門票收入，或利用錄製錄影帶、書面文宣、刊物及結合當地旅遊、餐飲、觀光、藝文、醫療、住宿等服務業之邊際行銷資訊策略，吸引民眾對運動之關心，以達運動場館永續營運的目標。

（三）便捷之交通路網系統

大型運動場館週邊規劃便捷之交通網路系統，將為其可否成功經營的重要因素之一，大型運動場館之興建將提供國際性或全國性之大型運動賽會使用，有關交通路網之規劃應考量大量車輛、人員之進出及疏散，如與捷運、高速公路、地下鐵路、機場等便捷之交通路網相結合，將可提升大型運動場館之使用效能。

（四）興建國際標準之運動場館

為爭取我國主辦國際性之綜合大型運動賽會或單項運動賽會之目標，對於國內現有之運動場館設施是否符合國際比賽之標準，先進行調查及檢測，並針對調查及檢測之結果，擬定中長程國際標準運動場館興建計畫，規劃興建符合國內體育發展需求之國際標準大型運動場館，以奠定我國爭取主辦國際性之綜合大型

運動賽會或單項運動賽會之基礎，並提升我國運動場館設施之國際化水準。

（五）體育志工服務之建立

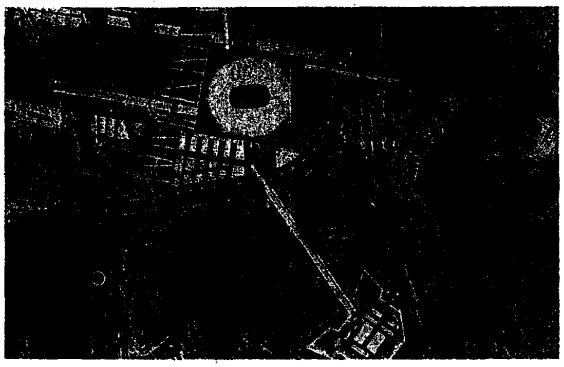
鼓勵社區民眾自動參與當地運動場館維護管理之志工服務工作（例如：運動選手、教練、指導員、醫療、服務志工等），已成為未來運動場館之維護管理及推動全民運動工作之重要趨勢。今後如何建立有制度及有效率之體育志工服務體系，以節省運動場館經營管理者經費支出，將為運動場館維護管理成功與否的重要課題之一。

（六）運動場館功能之多元化

未來運動場館之經營，除以運動休閒為主軸外，更應結合觀光、遊憩、藝文、商業、餐飲、娛樂、休閒、親子活動等綜合性多元功能之方向發展，並應結合社區總體營造及當地居民之生活型態、自我認同觀念等多元化之特色，將運動場館設施之規劃納入多元活潑之生活概念，吸引不同階層及年齡之民眾使用，以提升運動場館之使用頻率並增加其營運之收入。

伍、附錄

The Stade de France was designed by four architects: Michel Macary, Aymeric Zublena, Michel Regembal and Claude Costantini. In an interview with Philip Jodidio, M. Macary and A. Zublena speak of this vast stadium built at Saint-Denis, less than two kilometers north of Paris, for the 1998 World Cup tournament.



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Connaissance des Arts: When did you enter the competition and how did the group of architects who designed the Grand Stade with you come together?

Michel Macary: This project attracted a large number of candidates because of its size and its programme. It was a competition involving both design and construction, the architects being directly associated with the builders, and there are not that many big French building contractors. The latter were subjected to friendly pressure from numerous architects and thus decided to create groups that included at least two architects' practices. I naturally had dealings with the various big contractors and consortiums, as did my associate, Aymeric Zublena. We thus suggested working as a team, but we nevertheless had to be associated with another practice. We really wanted such an association to have a meaning with regard to the project, with regard to the architectural style of the two practices, and with regard to, let's say, the psychological relationship that might develop. We also wanted to work with architects who were a little younger than us. We eventually came to an agreement with Michel Regembal and Claude Costantini, whose architectural work belongs to the same school of thought as ours. We were able to work together without a hitch.

CdA: Could it be said that one or other of you had greater responsibilities, for example in the choice of the configuration, or in the idea of the suspended roof?

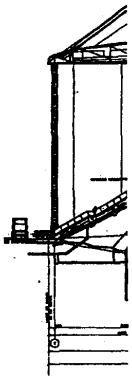
Aymeric Zublena: No, the fact that there were four architects gave rise to a working method that we don't necessarily apply to other projects. We adopted a conceptual approach, rather than comparing different designs expressing different architectural biases. In that case, there would have been a risk of one of the four archi-

Preceding double page:
2. In October 1993, Cornillon (Plaine Saint-Denis) was chosen as the site for the Stade de France. In addition to its proximity to Paris, the area had the advantage of being large enough (330,000 m²) to house the adjoining facilities (shops, offices, dwellings).

3. Set in the urban fabric of Saint-Denis, the stadium is bordered by the A1 and A86 highways and the Saint-Denis canal.

4. Sectional view of the interior looking west. The crane used to lift the roofing elements is included in this drawing.

5. Plan of the stadium designed by Michel Macary, Aymeric Zublena, Michel Regembal and Claude Costantini, in association with the Bouygues-Dumez-SGE group.



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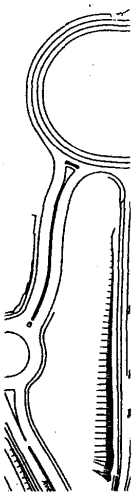

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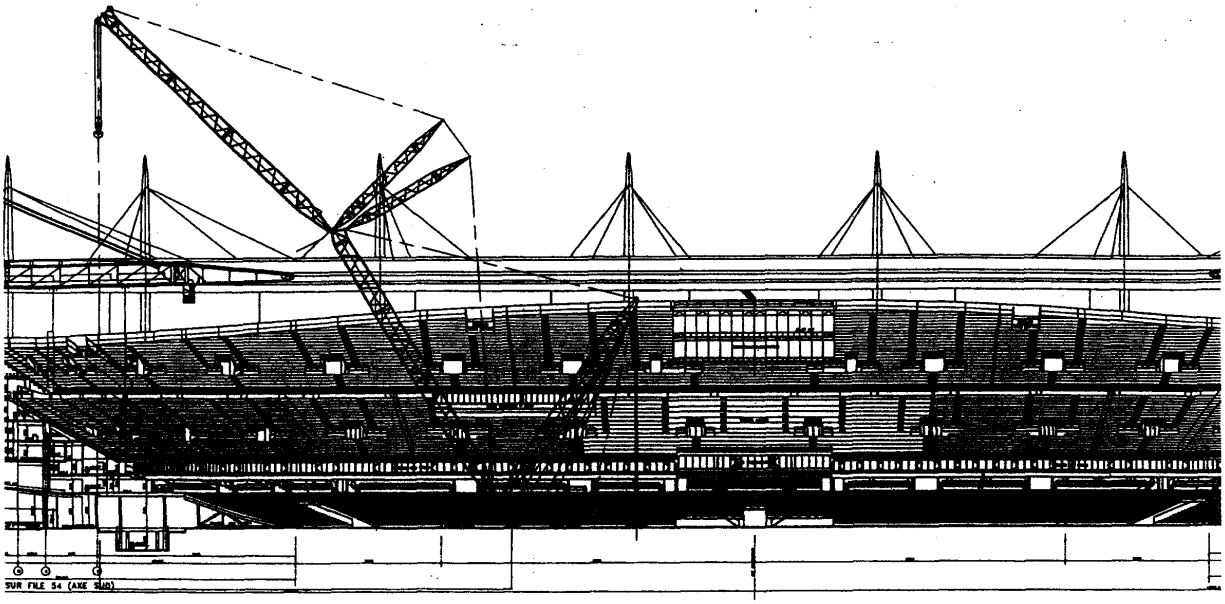
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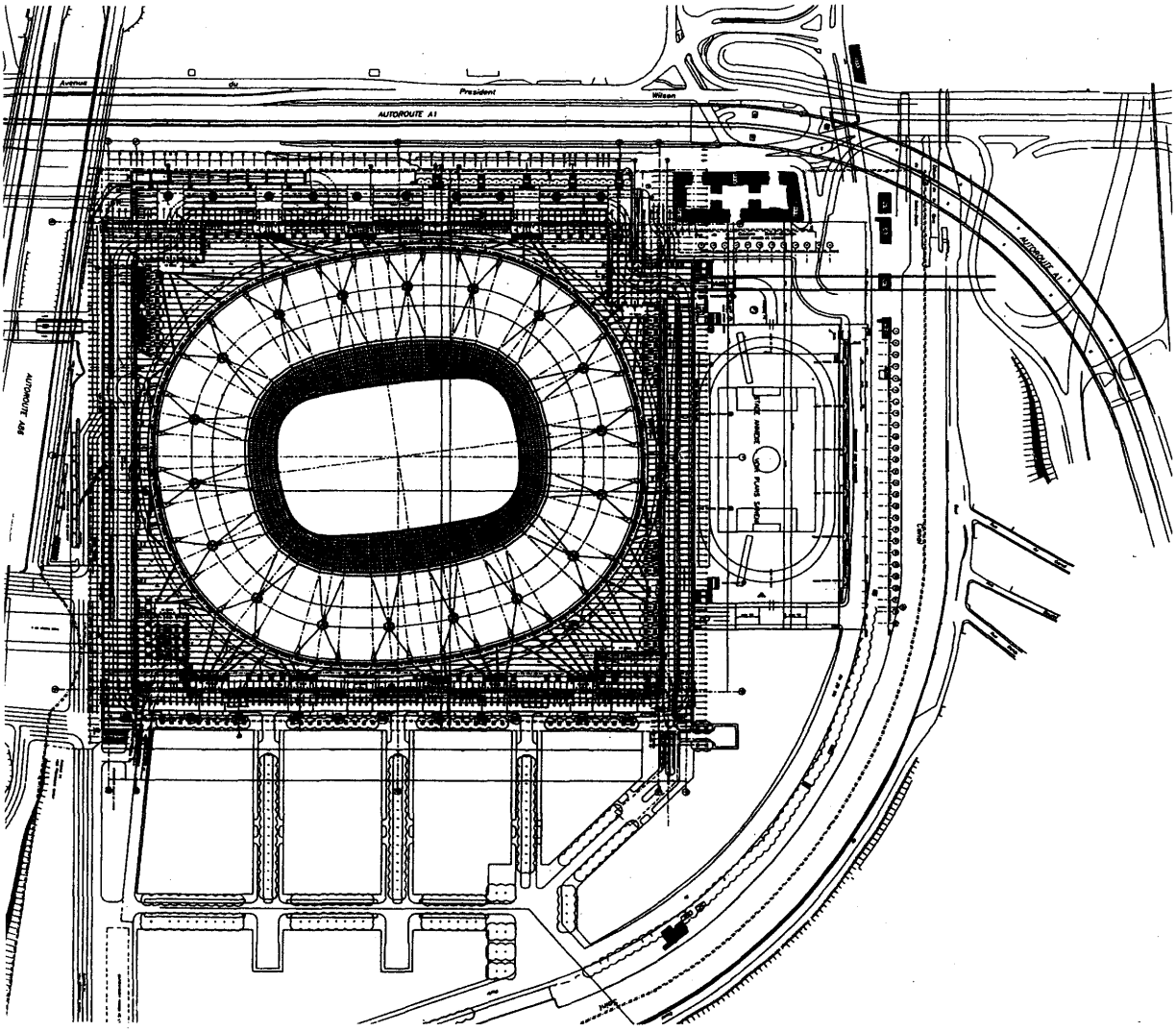
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A **TECHNICAL EXPLOIT**

With its elliptical form, symbolizing sport's universality, a surface area (60,000 square meters, or as big as the Place de la Concorde) and a weight (13,000 tons, or one and a half Eiffel Towers) that have made its construction a technical exploit, the roof is one of the most remarkable features of the Stade de France, the new French stadium designed by architects Michel Macary, Aymeric Zublena, Michel Regembal and Claude Costantini.

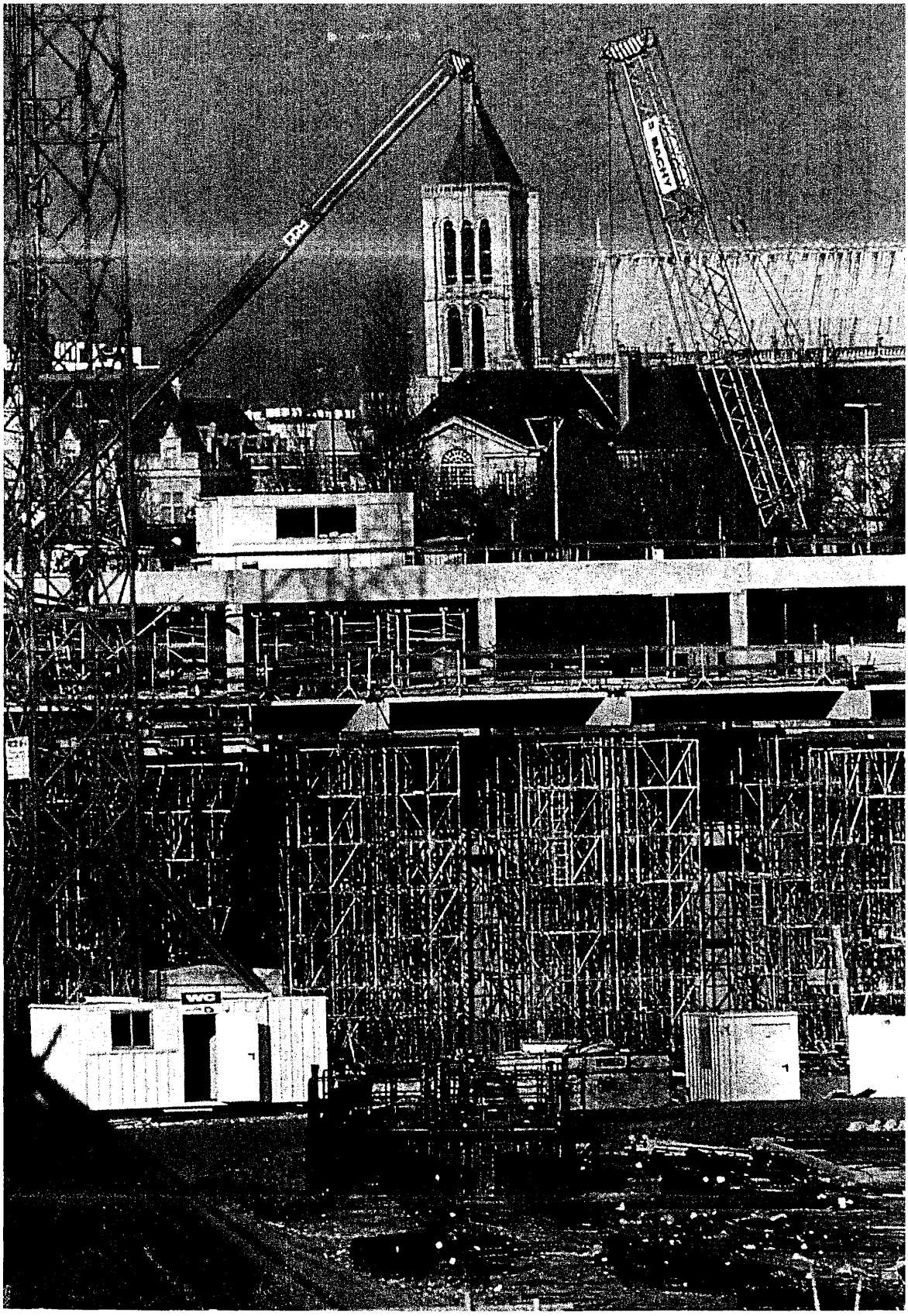
Other projects by the Macary-Zubléna team include the Louvre Carrousel (in association with I. M. Pei), the future head office of TDF (Télévision de France) and the future Georges Pompidou Hospital. The Regembal-Costantini practice has designed the new École de la Légion d'Honneur in Saint-Denis, the Centre musical in the Parisian Goutte d'or district, Dijon's modern lawcourts and the tax office in Aix-en-Provence.

A veritable halo floating forty-two meters above the turf, the roof can protect some 80,000 spectators without covering the playing field. All the sound and lighting equipment (36 loudspeakers, 550 floodlights) is housed inside it, so as not to hinder visibility. In the center, tinted glass softens contrasts and diffuses the natural light. It filters the red and infrared rays harmful to the growth of the turf, but lets the necessary green and blue rays through.

Situated eleven meters below the forecourt, this field covers an area of 9,000 square meters. Sown in July 1996 at a grass nursery, it was transplanted to the stadium in meter-square sods in September 1997. It can resist up to sixteen hours' use a week and, when protected by a special cover, can serve as a venue for mammoth concerts. In a week, the polyvalent Stade de France can be converted into an Olympic stadium seating 75,000: the mobile lower stands are pushed back fifteen meters under the middle tier to reveal the running tracks and jumping areas. The façades are clad in a stainless steel mesh "visual filter", which unifies the image of the stadium and its immediate surroundings. In their desire to revive the tradition of antique stadiums, the architects opted for a project that respected the existing urban fabric and established close links with the neighboring district. The fact that it is so deeply anchored (eleven meters below the forecourt) attenuates its monumentality; its height was similarly limited to thirty-five meters. The stadium is fully integrated into the city of Saint-Denis, offering its inhabitants a vast public area and, from its belvedere, a panoramic view of the town, the Basilica of Saint-Denis and, in the distance, the Sacré Cœur and the Eiffel Tower.

Completed in a very short period of time (thirty-one months), its construction called upon the expertise of both public works departments (for the stands, roof guys and anchors) and building contractors (interior premises, inhabitable areas under the stands, glazed façades). Some 15,000 plans were needed in the research phase (40,000 by the end of the project).

6. At times there were up to 1,500 people working on the site to meet the extremely tight construction deadline. Visible in the background here is the Basilica of Saint-Denis, the final resting-place of several French kings.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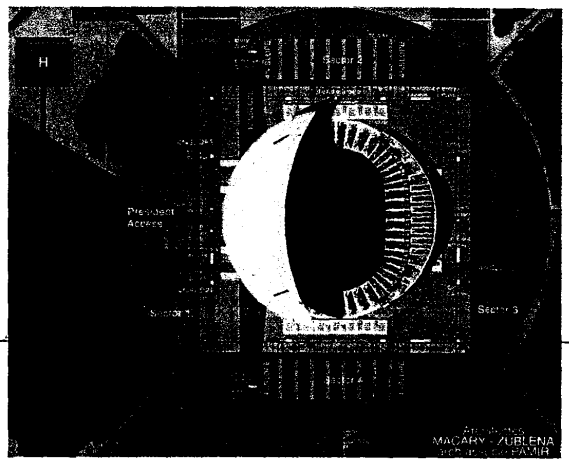
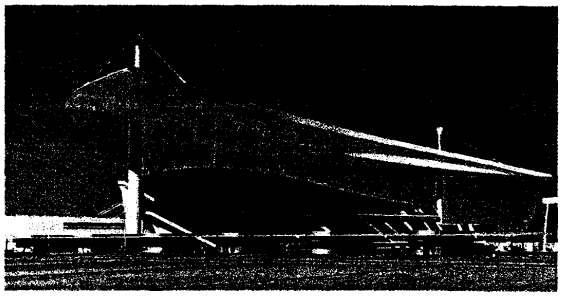
tects appropriating a sketch he thought belonged more specifically to him, for example. The next stages of the project would have been complicated, and so we preferred to opt for a more conceptual approach. The idea of a suspended roof, which has become the stadium's emblem,

ISTANBUL'S OLYMPIC STADIUM

Following their work on the Grand Stade, the architects of the Michel Macary practice have designed Turkey's future Olympic Stadium in Istanbul, which will have a seating capacity of eighty thousand for football matches or athletic events and a hundred thousand for concerts or special venues.

On the western side of the stadium, thirty-two thousand seats are protected by a "monumental, crescent-shaped roof," which is obviously reminiscent of the Muslim symbol, but also endows the whole building with a prestigious feature only the latest technology can provide. Stretching almost two hundred metres, this immense roof will be suspended from two sixty-meter-high masts.





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was the fruit of reflection on the question: "What is an urban stadium?" All of us answered that it was a stadium opening onto the city. It seemed important to us that, from the exterior, one did not have the impression of a nutshell enclosed upon itself. One example of this is the Parc des Princes, which is, nevertheless, a fine building.

The roof thus stemmed from this reflection. We then drew it, made a model of it, studied it and ended up with its present form. We had to find a way of making two teams work together, so that everyone felt at ease, could express his feelings, and so that the whole group could function with a kind of internal coherence. Which was, I think, the case.

CdA: The roof is the stadium's most visible feature. Credit for its creation is also due to its civil engineers. Did they play a more prominent role here than in traditional buildings?

Michel Macary: What makes this roof such a technical feat is its size. It covers an area of sixty thousand square meters, and hangs forty meters above the field. It weighs thirteen thousand tons, in other words one and a half times as much as the Eiffel Tower. The structural schema is in fact quite simple; it's somewhat like the crane principle, but multiplied by eighteen. It was just the scale that was gigantic.

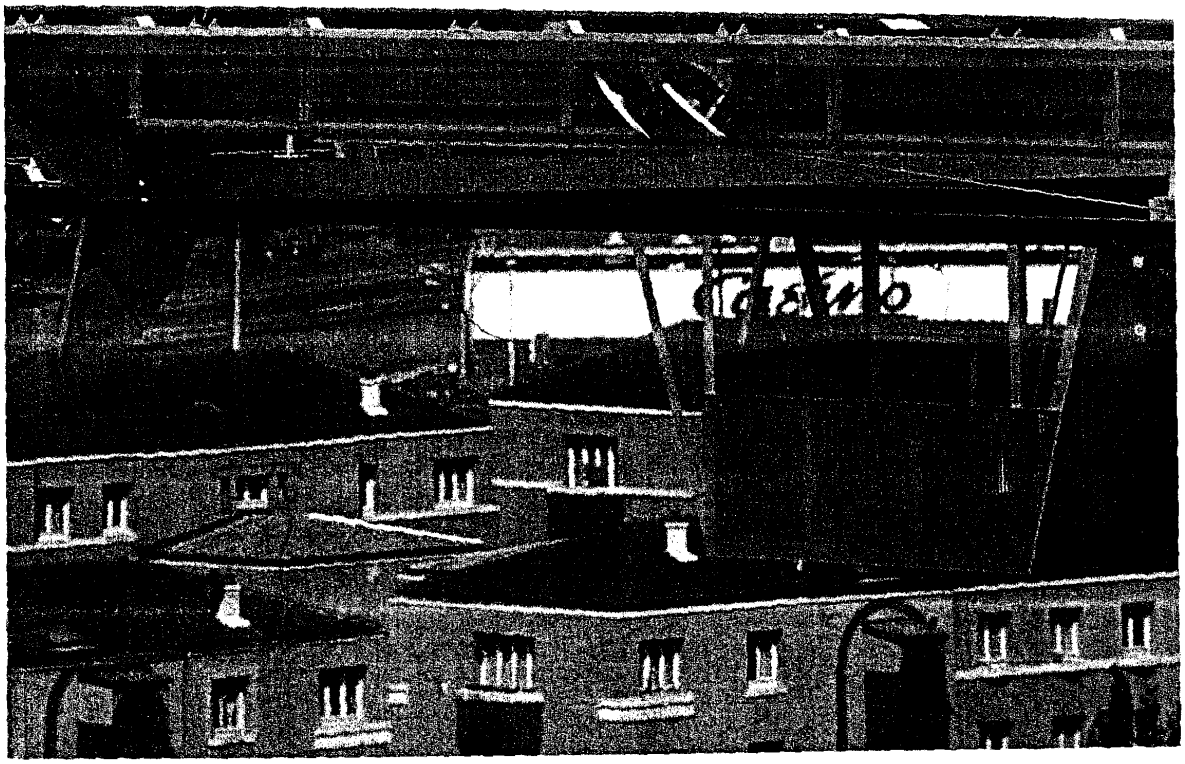
At the time of the competition, when we drew up this schema, we immediately checked with the civil engineers employed by the contractors with whom we were working that such an undertaking was possible with these relatively simple structures. But it was a

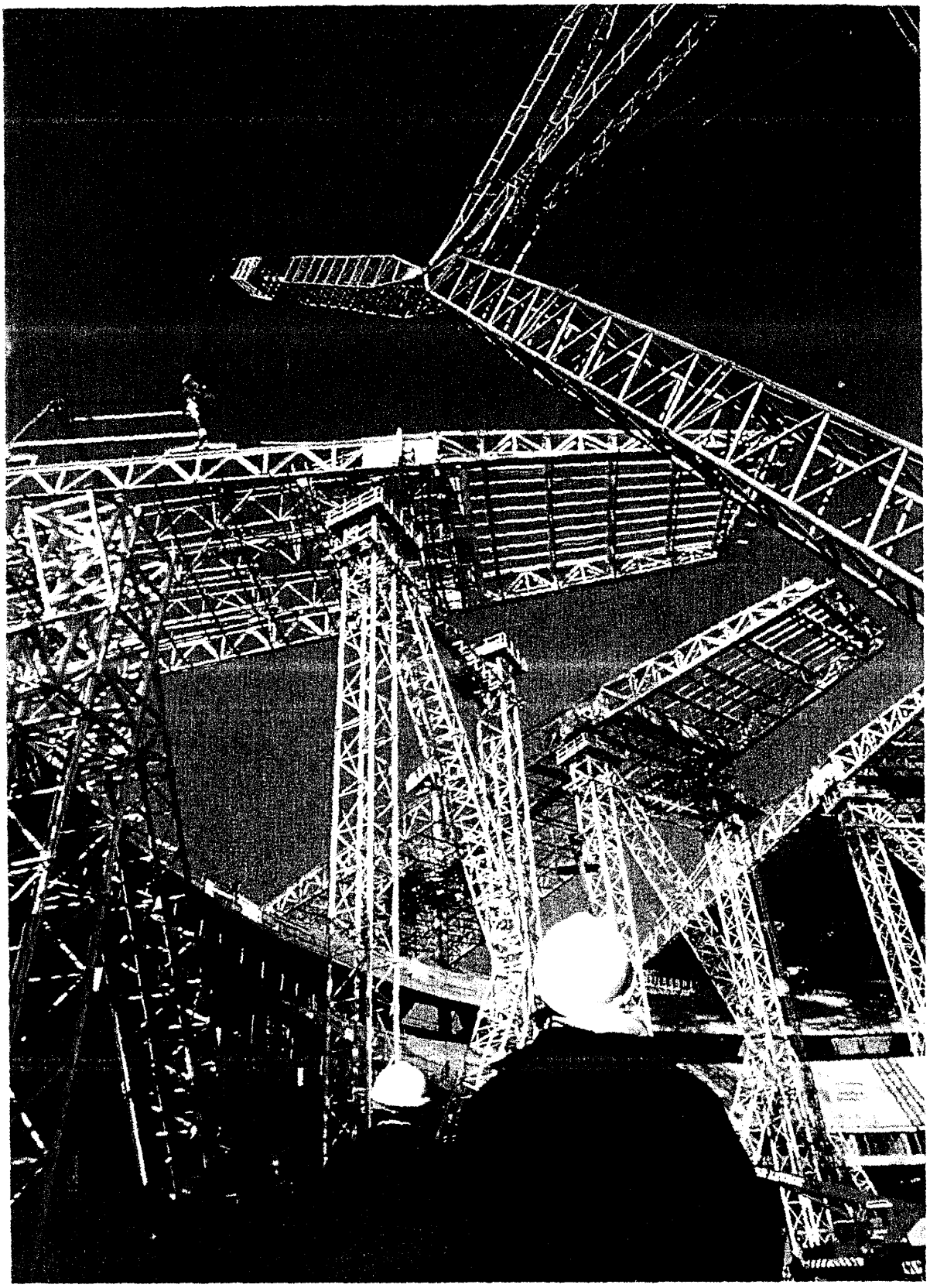
7. With the experience they gained on the Stade de France project, Michel Macary and Aymeric Zublena are now set to build Istanbul's future Olympic Stadium.

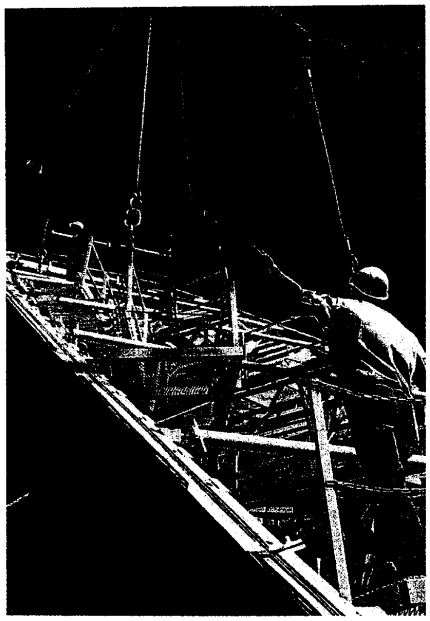
8. A veritable bravura exploit, the roof, seen here during construction, covers an area of 60,000 m² and weighs some 13,000 tons.

Following double page:
9. Eighteen huge staircases, supported by concrete structures shaped like overturned ship's prows, lead the spectators up to the stands (seen in the finishing stages here, October 1997).

10. The roof was the most technically challenging and delicate part of the project. It took ten months to fit its eighteen sections together.







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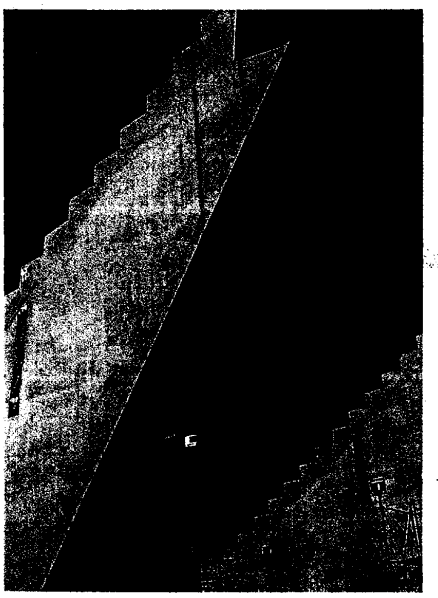

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11. Two of the largest cranes in the world were used to raise each of these 350-ton sections, which now form a massive six-hectare halo 50 meters above the ground.

12. 13. The huge 72-step staircases leading up to the stands are hollow and will protect spectators from outbreaks of rain.

bravura exploit, because of its size, its actual erection and the deadline that had to be met. The erection phase was particularly difficult. We had to lift elements weighing three hundred and fifty tons - in other words about the same as two TGV trains - fifty meters above the ground, and then place them on four twenty-centimeter-wide jacks. We would have been hard put to invent the erection stage and its procedure. For us, it was essential that the roof be as light and as thin as possible.

CdA: During the design phase, did you take a close look at other stadiums? Can we cite any examples that may have influenced your project?

Aymeric Zublena: Of course we visited other stadiums. But none of them influenced us, for we had to follow the guidelines of our own programme to the letter. This stadium was to be the first stage in the reorganization of an entire district and, at the same time, had to represent the image of sport at the end of the 20th century. Its location, bordered by freeways on two sides, means that a large number of people, even those who will never set foot inside, drive past it everyday. I cannot say that this is typical of most other urban stadiums, which have often become urban by accident, or of buildings we admired from an aesthetic point of view. On the other hand, visiting other stadiums enabled us to grasp just what an arena with a seating capacity of ninety or a hundred thousand can represent.

CdA: Controversy over this competition was rife. Apart from the inevitable unpleasantness, did it in any way influence the work you had to do?

Michel Macary: No, it had no impact upon the project insofar as the polemic chiefly developed after the competition stage. It was a rather difficult period.

CdA: What were your reactions after the first matches? As regards the relationship between the sporting event and the public, between the way the stadium functioned and the large number of spectators, did what you actually saw correspond to all that you had imagined? Did everything fulfill your expectations?

Aymeric Zublena: This may sound a little pretentious, but I think that everything went better than according to plan.

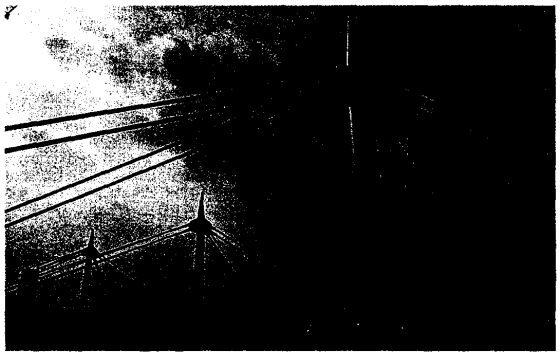
CdA: Several critics have targeted the overall cost, which some consider exorbitant. On the architectural side, did you respect your estimated budget?

Michel Macary: Absolutely. We accepted the challenge and the construction of the stadium complied with the competition project from an architectural point of view, which did not seem obvious, since the lead time was extremely short and the roof seemed such a difficult undertaking because of its size. I think that this deadline was a gauntlet to be taken up - we had to work like crazy - but, at the same time, we avoided the repeated questioning that inevitably arises when there is a lot of time. It's better to work quickly and intensely to complete the project as it was initially planned,

than to take one's time, saying: "if we considered this variation," or "if we did it like this or like that," and so on... Under such circumstances, a project gradually becomes distorted and loses its authenticity.

CdA: There were also numerous compulsory specifications, if only on account of security. From a creative point of view, was the Stade de France an interesting architectural project mainly because of its immense roof?

Aymeric Zublena: No, what is peculiar to these projects and



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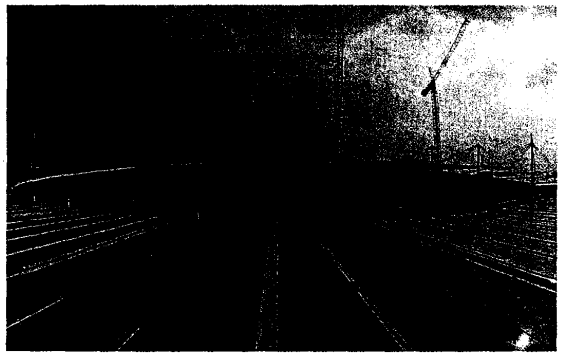

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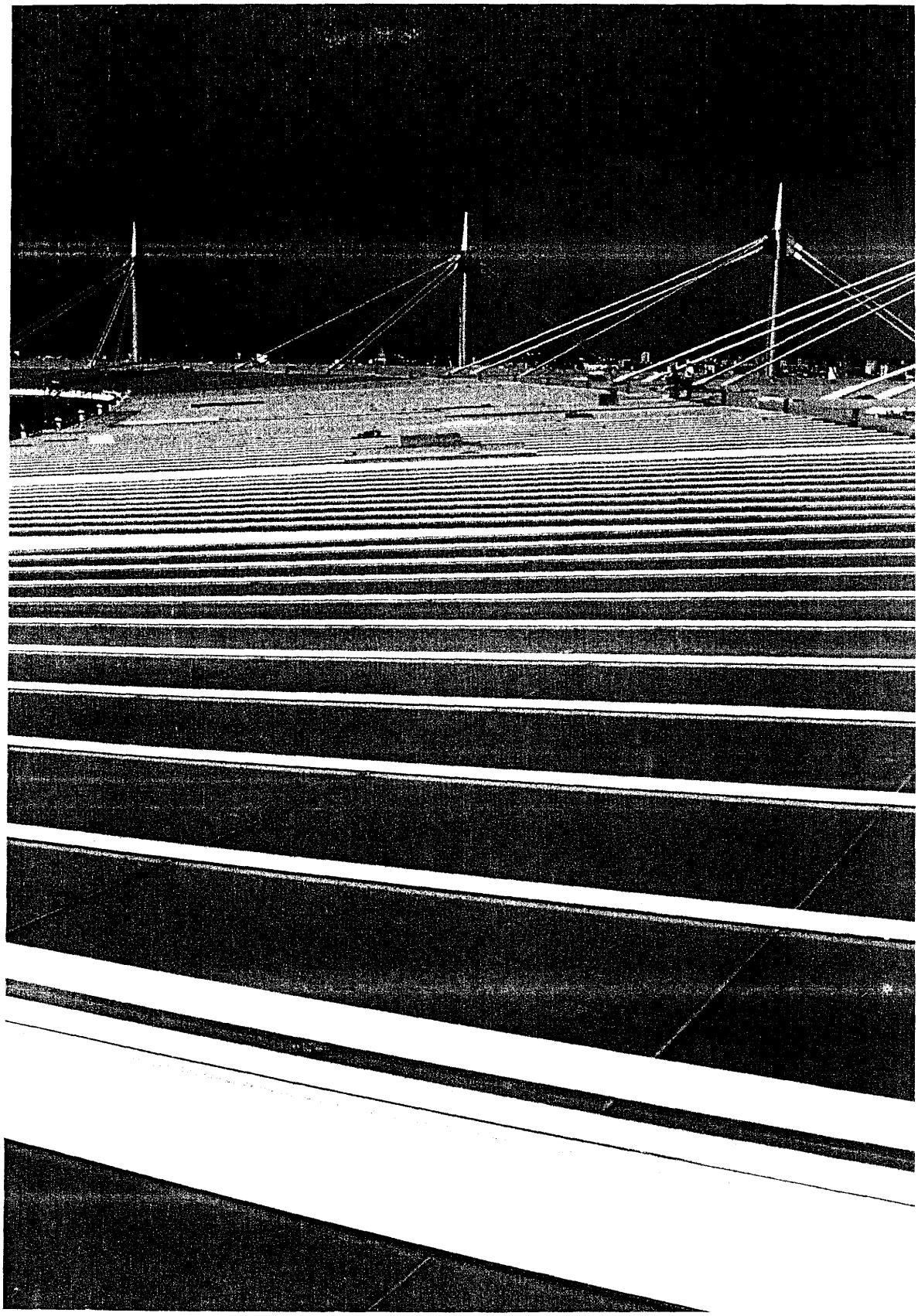
what is very exciting, I think, is the almost mathematical precision involved in the distribution of the stands, in their size, in the security measures, the position of the staircases, etc. It's the very bedrock of our work. And then creativity comes and takes all this technical data into account. During the competition we realized that none of the eighteen projects were alike.

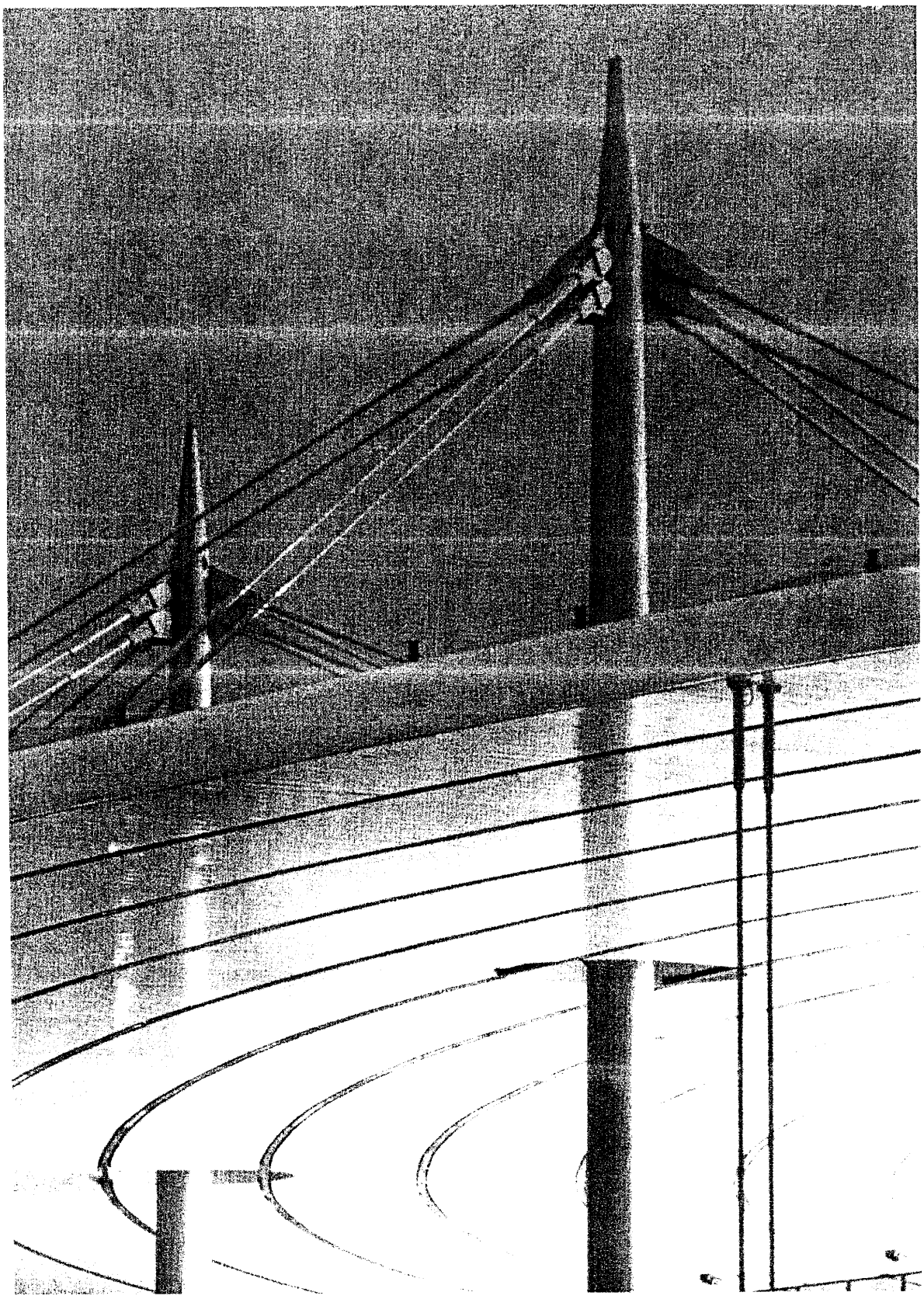
CdA: Why did you opt for an elliptical form? Couldn't the roof have been rectangular?

Michel Macary: We believe that architecture is born out of concrete data which we use to stimulate our imagination. This data is the site, the understanding of the site, the understanding of a functional programme and the use of modern-day techniques. I still think that architecture is fundamentally creative, aesthetic work

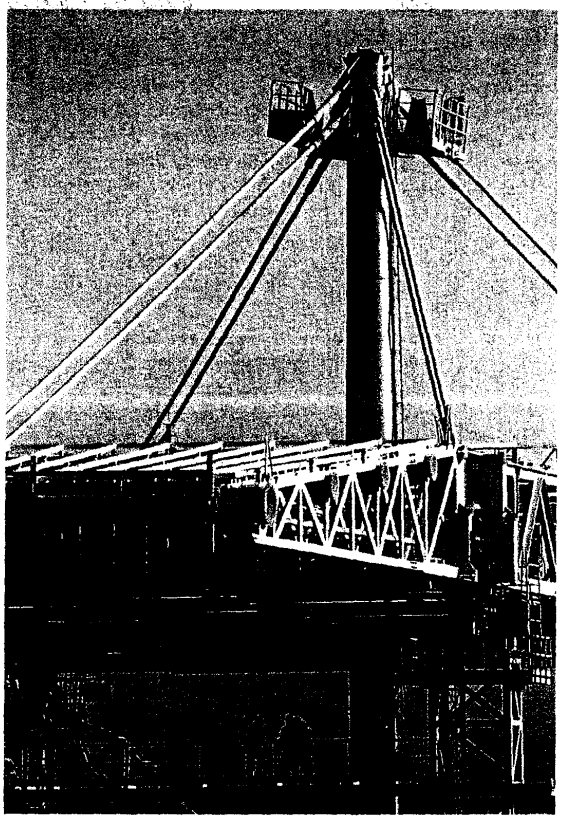
14. A system of guys and stays suspends the immense elliptical roof from eighteen 60-meter masts. The latter ensure the structure's balance and all have replicas ready in case they need to be changed or repaired.

15. 16. The guys fixed to the mast support the roof, using the same techniques as suspension bridges. Every other mast is equipped with a lightning conductor.





based on these materials. We were asked to design a stadium that could also be used for athletics in the Olympic Games. Since the running tracks would inevitably have to encircle the football ground, we found ourselves with a configuration defined by a rounded form. We thus preferred to highlight the advantages of this form, being both the logical choice for athletics and more convivial than the rectangle, which has the drawback of isolating



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17. Some 550 floodlights and 36 loudspeakers are housed inside the roof so as not to hinder visibility.

18. Optoelectronic devices have been installed to monitor wind effects on the roof, which is said to be capable of resisting tornadoes.

the spectators in different sections: north, south, etc.

CdA : The fact that one can see the field from outside the stadium is unexpected.

Aymeric Zublena : Visitor psychology and architectural aesthetics both played a role in this feature. When people see the field from the outside, the sense of anguish that exists when one is behind a concrete wall is no longer there. When one sees the field, one says to oneself: "I've made it. I'm here." The idea of opening the stadium onto the city is also present.

I'll always remember Michel Platini saying: "Your stadium is very beautiful. I voted for it, but now don't forget, nothing is more important than the field. That's where it all happens." □

A **FEW DATES**

19 December 1993
The commune of Saint-Denis, north of Paris, is chosen as the site for the new Stade de France.

26 December 1994
Creation of the Stade de France Consortium. The joint concessionary company of the Stade de France is made up of the Bouygues, GTM-Entrepose and SGE groups, who each hold 33% of the 150 MF capital. It is entrusted not only with designing (with the architects), constructing and funding the Stade de France, but also with running it for thirty years beginning 29 April 1995, the date the concession is signed by the State.

2 May 1995
Work commences on the building site.

30 November 1997
Thirty-one months later, the construction of the stadium is completed.

28 January 1998
Official inauguration of the Stade de France (France v. Spain football match) attended by French President Jacques Chirac.

A **FEW FIGURES**

Cost:
The overall cost of the Stade de France is estimated at 2,600 million francs, 53% of which was funded by private companies and 47% by the State.

Capacity:
The Stade de France can seat 80,000 in its rugby/football configuration, 75,000 in its athletics/Olympic Games configuration and can also welcome up to 100,000 concertgoers.

Annual estimates:
1,750,000 spectators.
Between 20 and 40 large-scale sporting and musical events.

Dimensions:
The arena covers an area of 170,000 m² (including the forecourt of 45,000 m²).

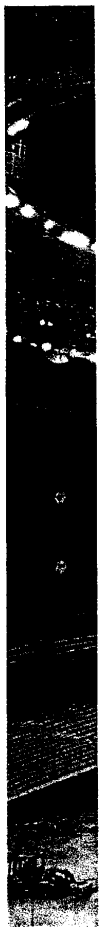
Length:
270 m; width: 230 m; broadest diameter: 274 m; height: 35 m.
The roof has a surface area of 60,000 m² (including 10,000 m² of glass) and is supported by eighteen steel masts each 1.6 m wide.

Area of the field:
9,000 m² (119 x 75 m).
The stadium has 45 km of stands with 18 immense staircases; 45,000 seats are situated less than 60 m from the touchlines.

Facilities:
The Stade de France has four public parking lots (including 5,000 parking spaces for cars) and 120 gates.
There are 148 private boxes (or "Terrasses") seating 12, 16 or 28; 6,000 "Premier" seats with refreshment service; 1,100 seats reserved for disabled visitors; 890 seats in the press box (2,450 during the World Cup); two restaurants, one of which has a panoramic view and seats 320; 16 shops, 28 kiosks, 43 refreshment bars.
An area of 8,000 m² is reserved for exhibitions, congresses and seminars, including a 250-seat lecture hall (the Auditorium) and a polyvalent 2,000 m² room (the Chorum). There are 4,000 m² of shops and 2,000 m² of offices.
Two giant 120 m² screens are installed on the bends.

19. Sown in a nursery near Fontainebleau, the turf was transferred to the stadium in one-meter-square sods a year later.

20. The installation of the athletic tracks encircling the field. They will be completed after the World Cup tournament.



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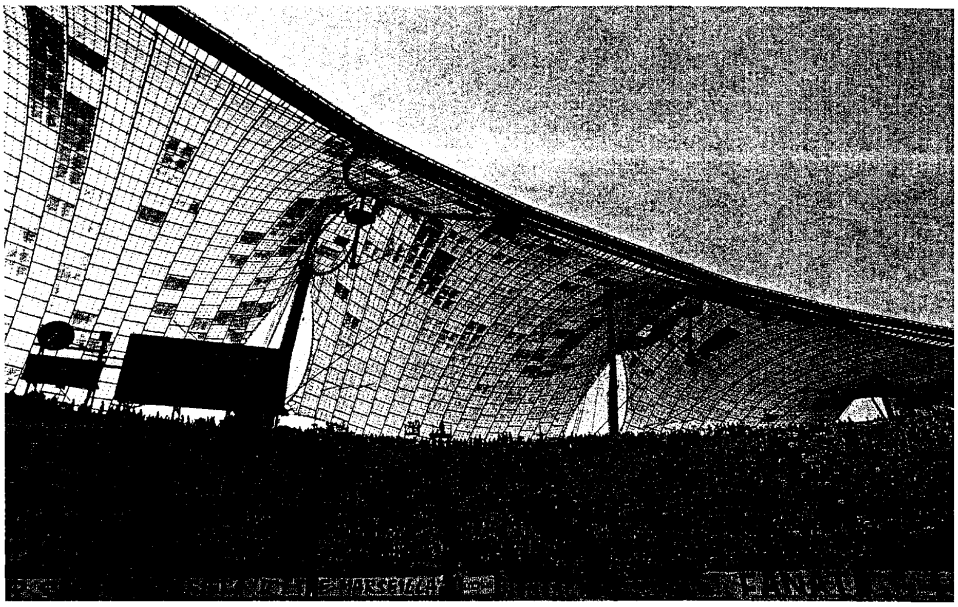

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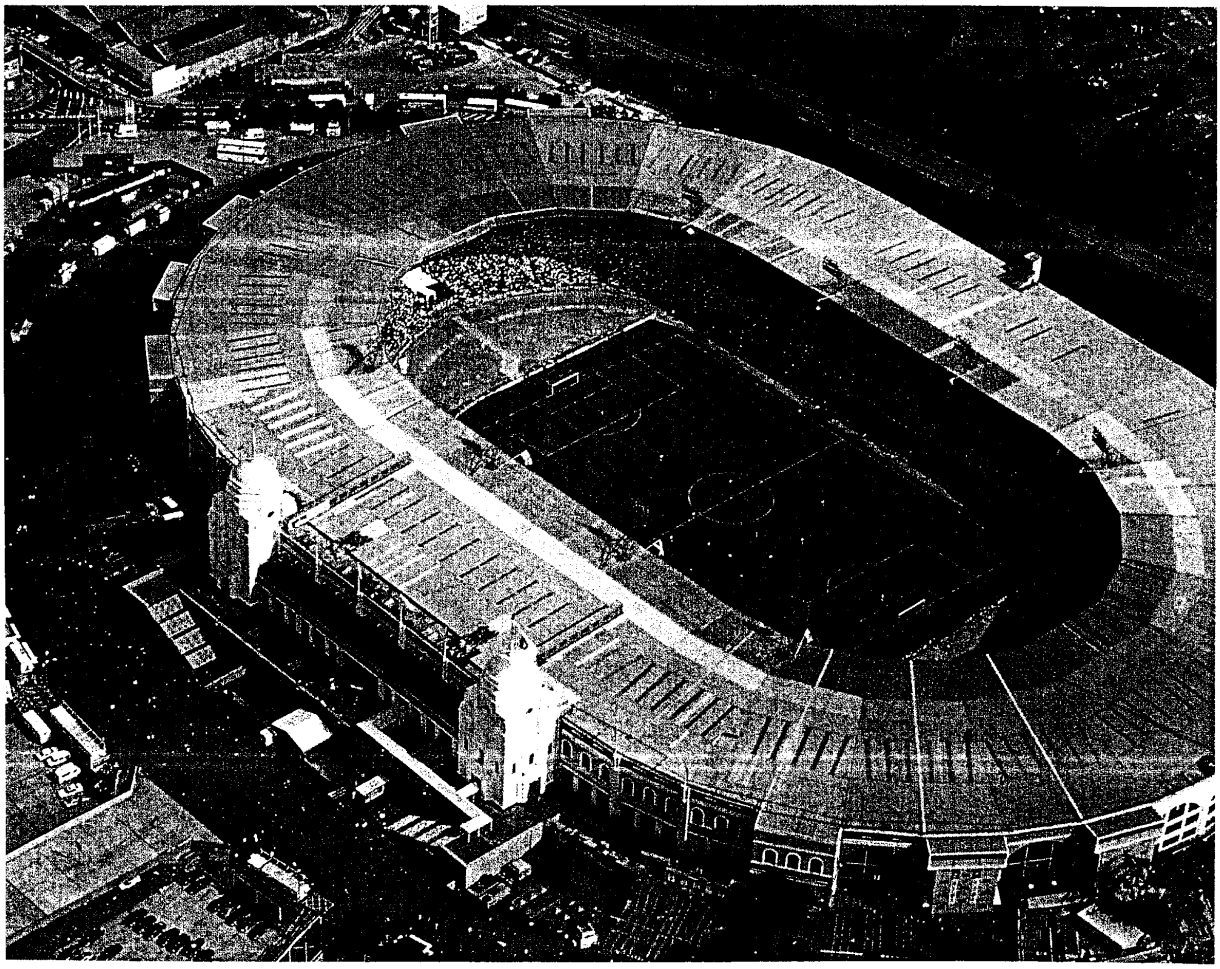

Preceeding double page:
21. The official inauguration of the Stade de France, on 28 January 1998, finally put an end to over a century of hesitation. It will henceforth be the venue for some of the greatest moments in French sport.

22. Munich's Olympic Stadium, built for the 1972 Games, also hosted the final of the 1974 World Cup. The photo shows Olympique Marseilles playing AC Milan in the final of the European Champions Cup, 1993.

23. London's Wembley Stadium was inaugurated on 22 April 1922. Its original seating capacity of 120,000 was gradually reduced for security reasons and it now accommodates about 80,000 spectators.

a brief history

Football saw the day in England, rapidly conquered Europe and spread across the globe from the late 19th century onward. The planet's most popular sport soon called out for stadiums large enough to host such mammoth events as the World Cup. By Benoît Hopquin.

On 26 October 1863, a few well-dressed young men were seated around a table in the Freemasons Tavern, London. These gentlemen, educated in the nation's finest schools, had gathered together for a very serious reason. When they were at school, they had played a team game that had fired them with enthusiasm: it involved running around a field behind a ball and kicking it into a net. They were determined not to give up this amusing activity simply because they had to take up a career and found a family.

Scorning conventions, the fellow-conspirators thus decided to continue their sport outside of school. To organize these licentious meetings, they created an association that very day. Their chosen discipline, the avatar of immemorial recreational activities, included numerous variants, one of which, invented in Rugby in 1823, allowed players to pick up the ball with their hands. To unify the sport, the men in the Freemasons Tavern drew up seventeen fundamental rules. Modern football was ready to conquer the world.

It didn't take long to do so. Its simplicity and the fact that the British Empire was at its height facilitated the propagation of this pastime. The colonies of Her Gracious Majesty, scattered across the globe, became veritable breeding grounds for the sport. The indigenous inhabitants soon fell under soccer's spell. France was no exception: the first club, made up of twelve members, was founded in Le Havre in 1872. Football pitches mushroomed all over the country.

In the British Isles, enthusiasm reached such a peak that the Football League was formed in 1888. Originally regarded as a means of physical training, football had already evolved into the realms of entertainment, attracting large crowds. Growth now switched from horizontal to vertical. Bigger and bigger mounds of earth had to be placed around the field so that the public could get a better view. Fixed stands were then erected and the first stadiums were built. On 19 April 1902, the FA Cup final between Southampton and Sheffield Wednesday was played at Crystal Palace watched by an estimated one hundred thousand spectators.

In France, major venues were still a rarity. On these occasions, the clubs had to borrow other sports' facilities. The goalposts were put up and taken down before and after each match. The first international game between a selected Parisian team and Folkestone was held at the velodrome in Levallois, in February 1895, and attracted fifteen hundred people. On 12 February 1905, five thousand spectators watched the fledgling French team play Switzerland at another velodrome - the Parc des Princes.

Before the First World War, football had a somewhat precarious existence, except in its homeland. It took several years for the sport to become organized. Founded in 1904, the Fédération Internationale de Football Association (FIFA) was initially made up of only eight national associations. There were no real international competitions,

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24. 1954 World Cup. West Germany v. Austria in the semi-final played in Basel, Switzerland. Banned from the international stage since the Second World War, the West German team made a triumphant re-entrance.

25. 26. On 4 July 1954, much to everyone's surprise, West Germany won the World Cup final against Hungary (3-2) at Berne's Wankdorf Stadium. Though unbeaten for the previous four years, Ferenc Puskas and Sandor Kocsis' team (photo 25) failed to win the Cup.

27. Montevideo's Centenario Stadium was built in 1930 for the first World Cup tournament. The Uruguayan team carried off the victory watched by 90,000 spectators. Only thirteen teams took part in the competition.

28. For many years, Rio de Janeiro's Maracana Stadium was the biggest sports' arena in the world. As host to the 1950 World Cup, Brazil constructed a stadium that matched its enthusiasm for football. But time has not been kind to the colossal building and today the authorities hover between renovating or demolishing it.

simply sporadic events arranged by the teams. But when the Olympic Games were revived (in 1896), football also received fresh impetus. In 1908, a football tournament was organized within the framework of the London Olympics.

In France, football began to acquire facilities more in keeping with its new popularity after 1918. Thirty-five thousand spectators filled the Stade Pershing, a gift from the Americans in 1919, to see France beat England for the first time on 5 May 1921. Around Paris, there was the Stade de Paris (Saint-Ouen) and the Stade Bergeyre (Buttes-Chaumont). And yet France can hardly bear comparison with other great football-loving nations. On 22 April 1922, football's temple was inaugurated at Wembley: a hundred and twenty-six thousand people attended the Cup Final between Bolton and West Ham.

a brief history

The Paris Olympics indirectly provided French football with a home in which it could blossom over the next fifty years. A stadium was to be built in Colombes in 1924. The Olympic Committee launched a competition to find its architect. Several sumptuous projects - often inspired by Antiquity - were submitted, but all ran up against the problem of cost. It was a modern, sober - and above all economical - design by architect Louis Faure-Dujarric that was eventually selected. After numerous modifications to reduce costs, its size was also reduced from a hundred thousand to sixty thousand seats. Those

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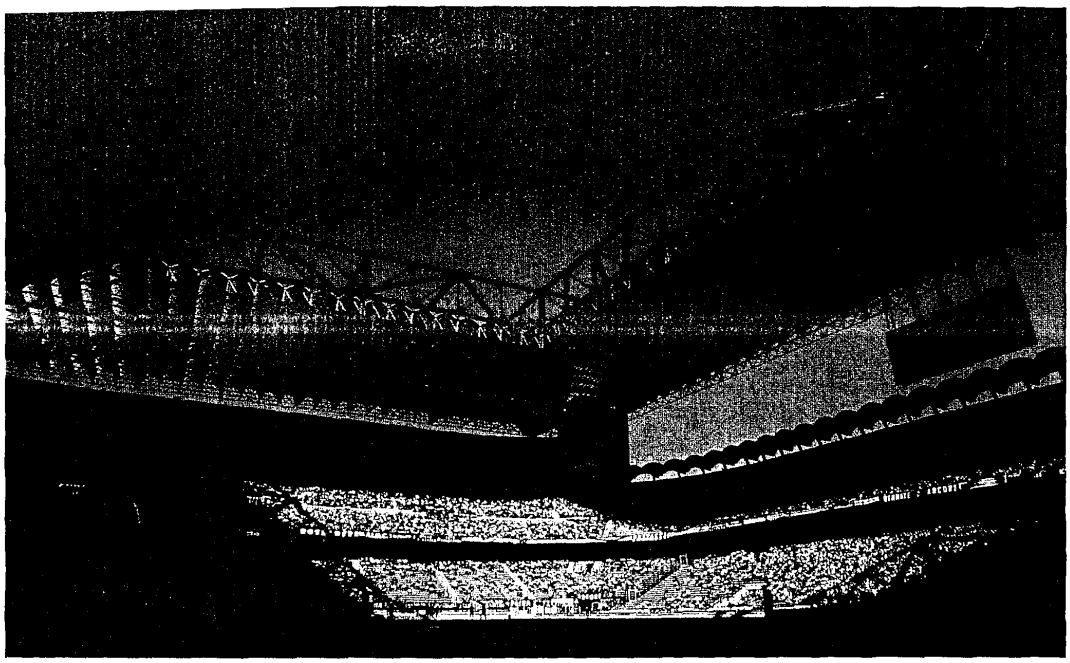
who criticized its lack of ornamentation were supposedly told by the designer, "But there was nothing on the Pyramids either!"

The Paris Olympics hosted an extremely high-level football tournament. Uruguay won the final against Switzerland (3-0) in front of fifty thousand spectators. After this overwhelming victory by the Uruguayan side, South America made a sensational entrance onto the international stage. Among the public there was one man who particularly appreciated their performance - Jules Rimet. The chairman of both French and international associations realized that his sport had become universal and could no longer be satisfied with Olympic encounters. All over the world, the best footballers were remunerated and thus excluded from the Games, which jealously guarded its amateur status.

Together with another Frenchman, Henri Delaunay, Jules Rimet again raised the question of a worldwide tournament, an idea that had been shelved in 1904. Agreed upon in 1928, the first World Cup was organized in Uruguay in 1930. Thirteen nations took part. The host country hoped to use the occasion to promote its image of a modern state. An immense arena, to be called the Centenario Stadium, was commissioned in Montevideo; its construction was only completed during the tournament. A crowd of an estimated ninety thousand people watched the host country beat Argentina in the final. The World Cup never looked back. Outstripping even the Olympic Games in popularity, it was to become an event in which the political stakes were high. Held in Italy in 1934, it served as both a showcase for the Fascist regime and a demonstration of its power. Eight stadiums were built or enlarged to host the event.

30. Chile's National Stadium in Santiago. By organizing the 1962 World Cup (won by Brazil), Chile hoped to prove it was no longer an underdeveloped nation, but nevertheless drained its economy for the event.

31. 32. The existing San Siro Stadium, in Milan, underwent extensive renovation for the 1934 World Cup. Renamed the Giuseppe Meazza Stadium, it also served as a venue in 1990. With a capacity of 85,000, it is alternately used by the city's two great teams, Inter and AC Milan.



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33. The Stade Gerland was designed by architect Tony Garnier in 1920, but construction was not completed until 1926. Its façade is listed as a historical monument, but its seating capacity has been increased to 44,000 for the 1998 World Cup.

34. Noted for the original shape of its roof, Bordeaux's Parc Lescure is one of the many stadiums that mushroomed all over the country in the 1930s, as football fever spread. Initially equipped with cycle tracks, it has been refurbished for the June 1998 event.

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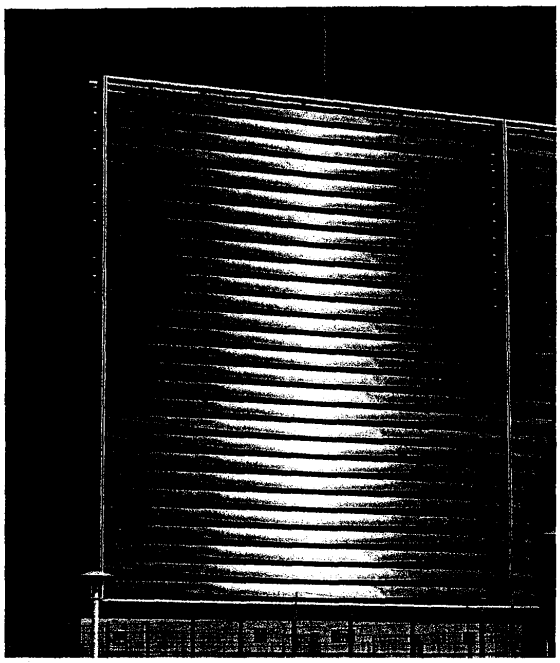
Mussolini, alongside fifty-five thousand of his compatriots, watched spellbound as Italy beat Czechoslovakia at Rome's new stadium.
France hosted the 1938 World Cup, providing the occasion to build the long-awaited large-capacity stadium. The Nazi Party's demonstration during the 1936 Berlin Olympics had stunned the world. The Stade de France Association was founded and dreamt of a stadium that would rival Berlin's Olympic Stadium. Le Corbusier himself submitted a design, but the government was still reluctant to commit itself to funding such a project. It preferred to renovate the existing Yves-du-Manoir Stadium, outside Paris in Colombes, where Italy won for the second time.
Though the country lacked a jewel in the crown, it gradually equipped itself with facilities befitting its position. Designed by Tony Garnier, the Stade Gerland had been constucted in Lyons in 1920. The Parc des Princes was renovated in 1932. Marseilles' Stade-Velodrome, Bordeaux's Parc Lescure, Rheims' Stade Auguste-Delaune, Monaco's Stade Louis II and Toulouse's municipal stadium were among the arenas erected in the 1930s.
At this time, football had to share a place in people's hearts with cycling and athletics. Most football grounds were thus encircled by running or cycle tracks, which gradually disappeared as soccer's popularity grew. But the ghost of these tracks and the reference to Roman arenas still haunted people's memories. Architectural designs were still oval. These soft curves may have been flattering to the eye but they kept the spectator at a distance from the action on the field. In 1972, the renovation programme for the Parc des Princes, which was to become the theater of France's exploits for the next twenty-five years, was no exception to the rule. In England, where stadiums were immediately devoted to football alone, the stands were generally erected at right angles to the field, as near as possible to the touchlines, so that the spectators were brought closer to the action.
After the Second World War, football began its headlong course towards gigantism. The World Cup recommenced in full force. Chosen to host the fourth tournament in 1950, Brazil launched construction of the huge Maracana Stadium on 2 August 1948, but it was still unfinished when the competition began two years later. Two hundred thousand people nevertheless crowded inside to watch the final between Brazil and Uruguay on 16 July. The visiting team won (2-1), thus provoking a national catastrophe.
After such an excessive reaction, the next two competitions were hosted by neutral countries, so that Eastern European nations could take part during the cold-war period. The Swiss (1954) and Swedish (1958) World Cups were on a more human dimension, in moderate-sized stadiums. Berne's Wankdorf Stadium witnessed Germany's unexpected victory over the Hungarian team led by Ferenc Puskas, which remains one of the most popular teams in football history. A young, seventeen-year-old Brazilian player, Edson Arantès do Nascimento, otherwise known as Pelé, made his first



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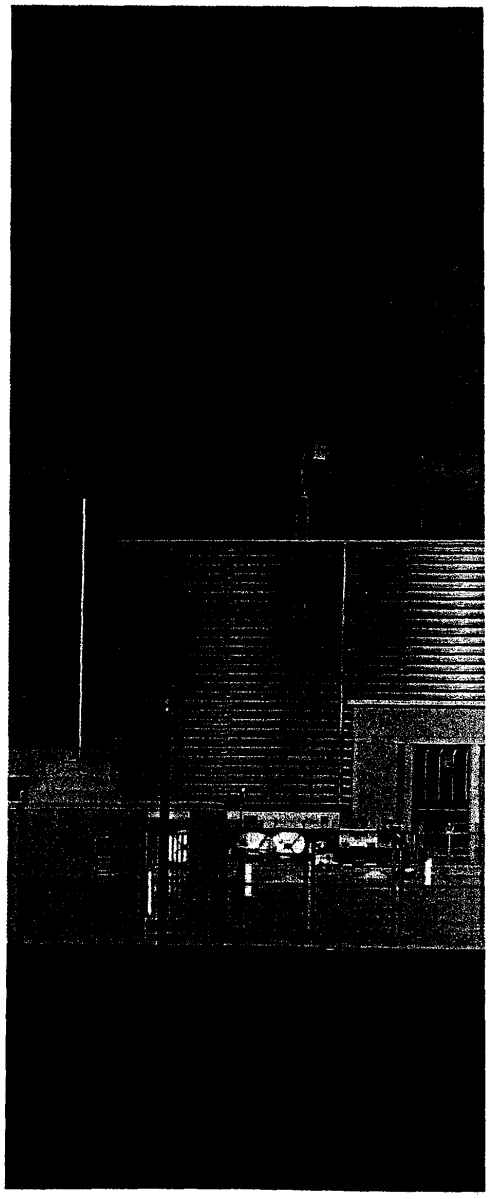
international appearance at Stockholm's Rasunda Stadion. If World Cup megalomania had subsided a little, football's had not. In Europe and across the globe, colossal stadiums were built to keep up with this ever-growing sport. In Barcelona, the Nou Camp Stadium, with a seating capacity of a hundred and twenty thousand, could barely contain the Catalan fervor. Nationalist demands went hand in hand with outsize constructions. Sad-looking concrete cubes with a capacity of a hundred thousand sprang up all over recently liberated colonies. The Eastern block was no different. Huge stadiums of similar capacity were built in Moscow, Kiev and Belgrade.

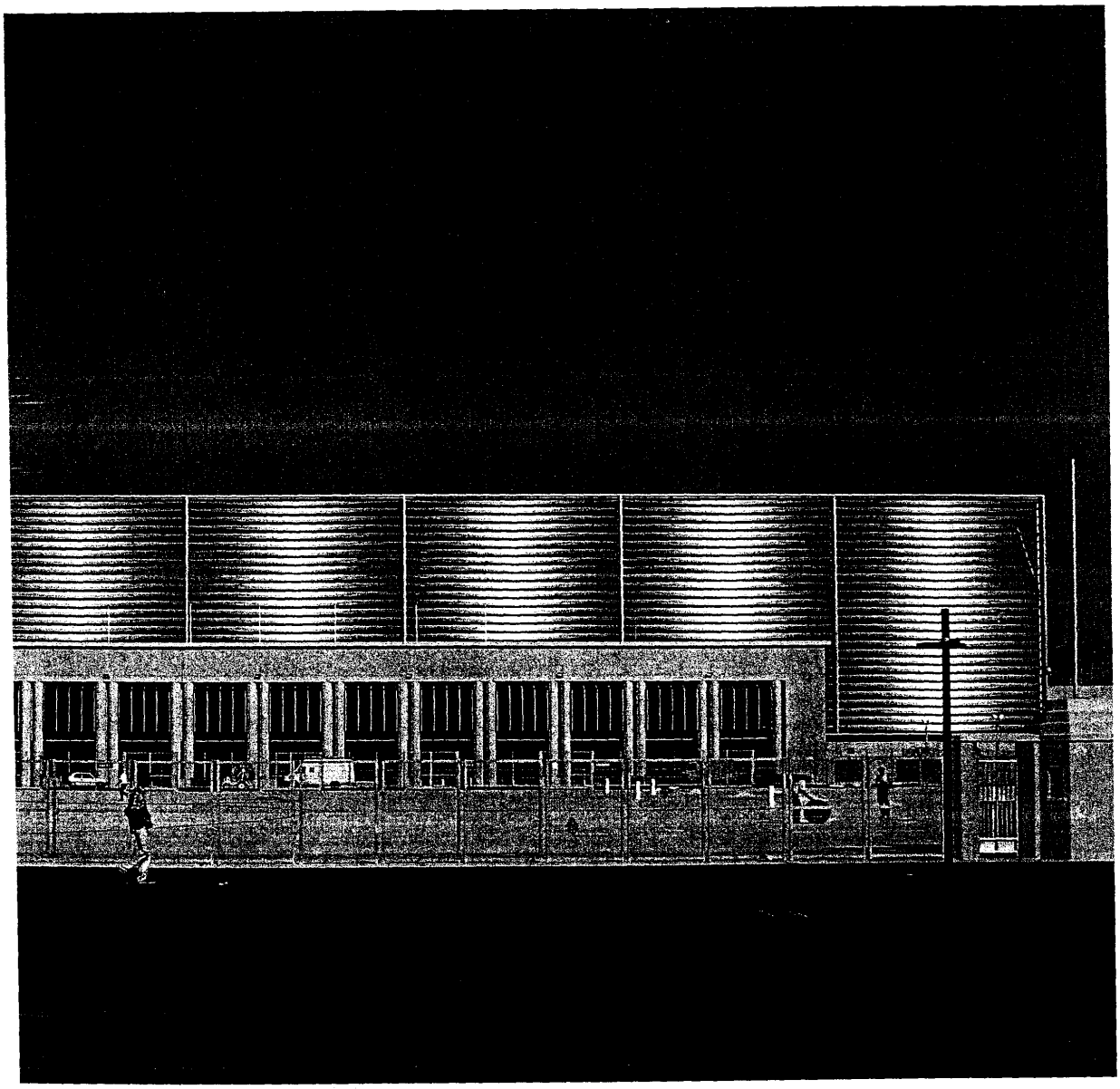
Despite its extreme poverty, Chile succumbed to the same temptation when it was chosen to host the 1962 World Cup. The country drained its economy building the 75,000-seat National Stadium. Football returned to England in 1966. The host country triumphed at Wembley in the final against Germany watched by ninety-seven thousand spectators. A record-breaking number of people attended the tournament, but accommodating so many supporters was an incredible challenge in itself.

Football had taken its crowd-packing logic to the extreme. The number of fatal accidents increased. FIFA began to prescribe security measures. More attention was also paid to aesthetics. Extensive architectural research preceded the construction of Mexico City's Aztec Stadium (105,000 seats) for the 1970 World Cup. It was here that Brazil won the competition for the third time and Pelé was acclaimed king of football. And so the planet's most popular sport came of age. Several nations possessed an armada of these huge arenas. When the Maracana Stadium began to show serious signs of wear and tear, its builders being unable to ensure its upkeep, there was little likelihood of new stadiums with over a hundred thousand seats being constructed. Henceforth, the World Cup above all provided the occasion for modernizing existing infrastructures. Rather than increasing capacity, funding was used to update and improve the ugly, hurriedly-built concrete monsters.

In 1974, Germany displayed the first signs of this new-found wisdom. Traumatized by the drama that had struck the 1972 Olympics, its major preoccupation was security. It was at this same Olympic



35. 36. Inaugurated in 1937, Marseilles' Stadium-Velodrome has been thoroughly updated for the 1998 World Cup. Its façade has been modernized and its seating capacity increased to 60,000. The stands are extremely well-distributed, with only one section covered by a roof.



a brief history

Stadium in Munich that the host country beat Holland in the final and deprived the great Johann Cruyff of this ultimate title. In 1978, Argentina renovated existing stadiums such as the Monumental del Rio de la Plata (80,000 seats) and built the medium-sized Mar del Plata Stadium (45,000 seats). Nationwide, the steep slope of the stands enabled the upper row to throw confetti and streamers onto the field. The pitches were thus strewn with color, giving the 1972 World Cup a festive air, which was, however, purely deceptive in this period of dictatorship.

In 1982, Spain wanted to show the world that it had forgotten the divisions caused by Francoism. As a symbol of national reconciliation, the competition began in the mythical Nou Camp, the hotbed of protest during the dictatorship, and ended at Santiago Bernabeu, the home of Real de Madrid, much favored by the former Fascist regime. Italy won for the third time. In 1986, Mexico refurbished the marvellous facilities built in 1970. Sixteen years after Pelé, another idol made his entrance into the Aztec Stadium, the Argentinian Diego Maradona. Four years later, in 1990, Italy renovated its national stadium at great expense and extended the organization of the tournament to twelve sites. Particular attention was paid to historically under-privileged regions such as Naples, Cagliari and Palermo. Renzo Piano was chosen to design Bari's new San Nicola Stadium. But the national team failed to equal all the effort that had been made and Germany won the final in Rome in one of the saddest World Cups in history.

In 1994, football set out to conquer new territory when the competition was held in the United States. As a form of propaganda, soccer, somewhat ironically, borrowed the vast temples of American football, the sport it hoped to rival. Brazil won the tournament for the fourth time. Four years later, France cannot compete, in terms of infrastructure, with Italy or America's munificence. Though it is the national sport, football is still not as popular as it is with its European neighbors. What the Greens of Saint-Etienne and Michel Platini's French team achieved in 1982 and 1986 nonetheless gave the sport a huge boost. The organizers of France 98 hope to underline football's conviviality. The capacity of the nine existing stadiums has scarcely been increased but their design has been updated. While most matches are today broadcast on television, these venues are the forerunners of tomorrow's stadiums: comfortable, well-equipped theaters in which the audience is part of the performance that is retransmitted on the television screen. After a century of interminable discussion and shelved projects, the nation still lacked a stadium worthy of hosting prestigious sporting events and of flattering national pride: that is the role the Stade de France will now play. B.H.

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37. Brazil v. Czechoslovakia in the 1962 World Cup final. Garrincha (right) swept the Brazilians to victory (3-1).

38. Uruguay v. England in the quarter-final, Basel, 1954. The English had to wait until 1966 for a World Cup victory.

39. The 1954 World Cup holds the record for the highest number of goals scored in the tournament's history.

40. Monaco's Louis II Stadium shows how well sporting facilities can be integrated into a city's architecture.

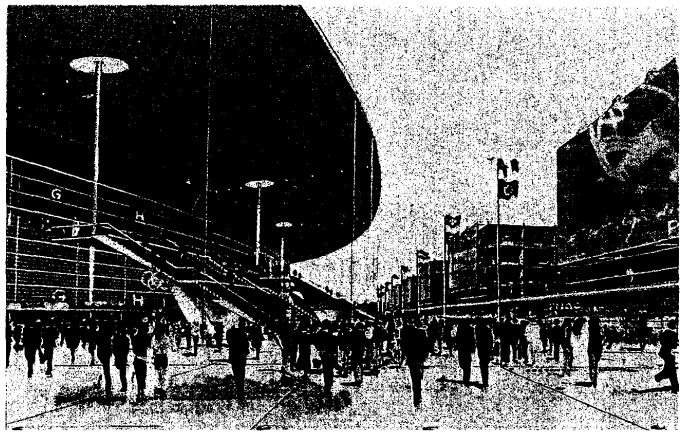
Preceding double page:
41. On 7 March 1998, in the Five Nations Championship match between France and Ireland, the Stade de France also became one of rugby's sacred temples.

42. A 40,000-square-meter esplanade encircles the Stade de France, while 120 gates provide spectators with easy access to their seats.

43. This preliminary drawing shows how faithful the project remained to the original design during the construction stage.

an ABC of football

For those who pride themselves on knowing nothing about football, here is the sport's very own ABC. By Jean-Louis Andral and Frédéric Triail.



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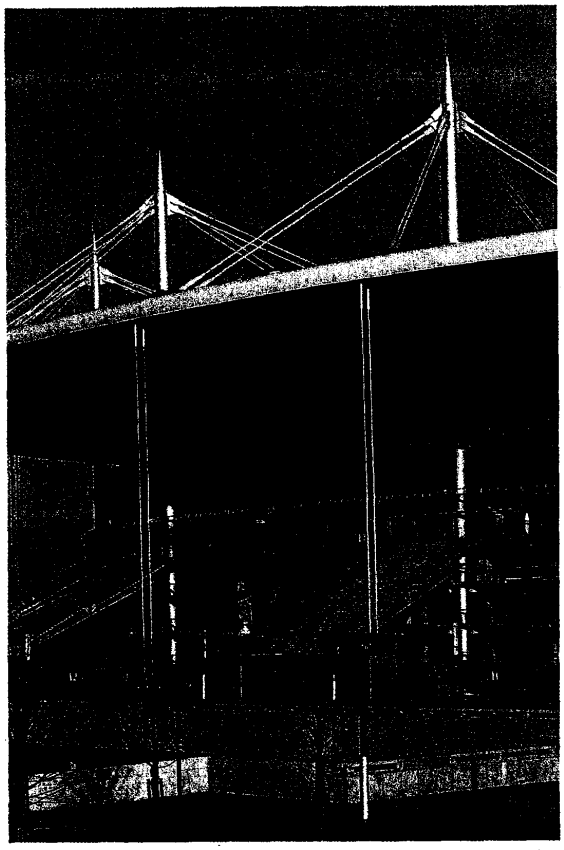
Already the signs of division that will intensify in the months to come can be seen spreading across the globe. A small minority (probably less than one thousand million people) is increasingly showing its contempt for the enthusiastic, oblivious majority who, for four weeks this summer, will forget all sense of its unfortunate condition, all lucid analysis of the savagery of social relationships and who, in one spontaneous and three hundred different languages, will only have one word on their three billion lips: *futebol*!
When one usually avoids following the crowd, yet makes an enormous exception for football, there's no point in trying to explain to the others, to those who don't understand, the richness of this attraction. One is indifferent to the regressive portrait of a fan in which one cannot recognize oneself. There's fun to be had; there's no time for debate. But, just for once, and since the occasion is so immense, let's try and explain what makes football greater than any other sport, and why football has more appeal than any other event.

A for air

The finest play is aerial: during one of the most memorable sequences in the last few years, the Nantes forwards had, in three uncontrolled passes, directed the ball straight into Paris Saint-Germain's net. In moments like these, the millimetric perfection is animated by the kind of inspiration one is tempted to call divine: the master of the game is the master of the air. However, one knows that play is precise, if not entirely certain, only when it is on the ground, when the ball, this bladder inflated with air, is moving around the field.
Heading the ball, for example, remains hypothetical, even for the best footballers. It requires perfect timing, in other words, a control over space-time that only chance can fully grant. By playing outside, in the open air - and on the ground, - man takes up his

an ABC of football

position in football, as his human condition demands, between heaven and earth, and, occasionally, in his instants of grace, he rises skywards.



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B for Brazil

Football is said to have been imported into Brazil during the second half of the 19th century by British and Dutch sailors who used to play on the beaches of Nordeste where their ships had docked. Since the first official match in São Paulo in 1894, since a Brazilian club made its first European tour in 1927 - the Clube Atlético Paulistano, who won nine of the ten matches played in France, Switzerland and Portugal, - *futebol* has conquered the planet. Brazil, the only country in the world to have qualified for the fifteen World Cup competitions, holds the unique title of *tetracampeão*, world champions four times over, in 1958 against Sweden in Stockholm, in 1962 against Czechoslovakia in Santiago, Chile, in 1970 against Italy in Mexico City, and in 1994 once more against the Squadra Azzurra in the United States.

44. Attention also focused on the area surrounding the stadium, which sought to open onto the city and not, like the Parc des Princes, appear as a closed citadel.

45. The inaugural match between France and Spain, on 28 January 1998. French players in Spanish territory, from left to right: Lilian Thuram, Marcel Desailly and Alain Boghossian.

46. Robert Pirès and the other members of the French team gave an excellent performance on this opening night.

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an ABC of football

Football has really put down roots (see C for *choule*) in the land of the Carnival, where, in order to remain a game, this sport must also be a fiesta.

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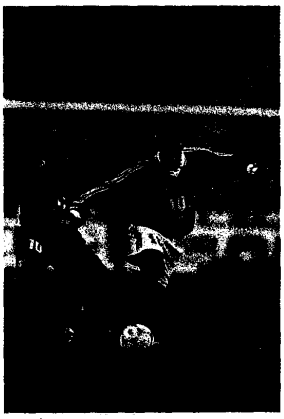

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47. Marcel Desailly and Alain Boghossian during the France v. Spain match (final score 1-0 to France), on 28 January 1998.

48. Zinedine Zidane will go down in history as the man who scored the first goal at the Stade de France.

49. The Spaniards - represented here by Alfonso Munoz-Perez - proved worthy opponents of the French.

50. Monumental staircases lead to a belvedere-walkway and to the 25,000 seats of the upper tiers.

C for *choule*

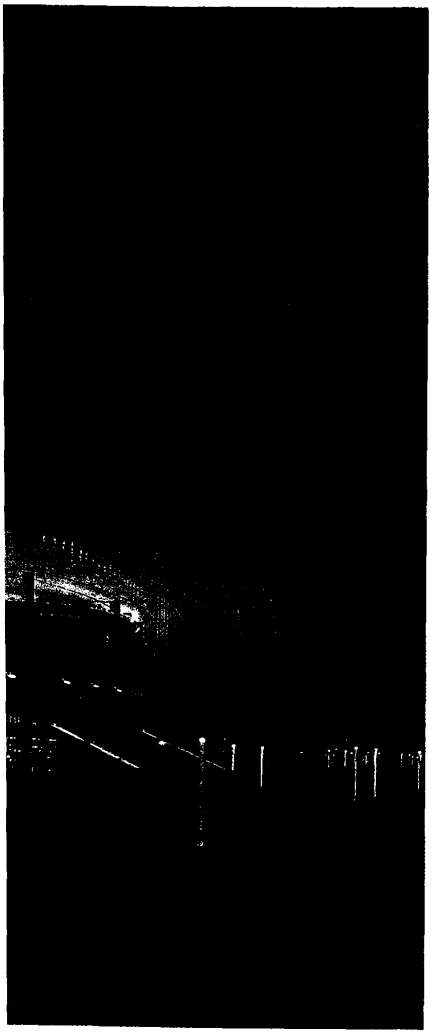
Football and rugby are thought to be descended from a common ancestor: in northern France, the game of *soule* or *choule* (from the Icelandic word *sull,* a mêlée), which involved kicking a ball filled with bran towards an appointed place, was played on Shrove Tuesday. This game was imported into England by William the Conqueror and renamed "hurling at goals."
In the 19th century, hurling saw its rules divide into two separate sports: in 1823, Rugby College became the inventor of rugby football, a game played with an oval ball and using both hands and feet. In 1863, the Football Association created association football, also known as soccer, played with a round ball and forbidding the use of hands (except by the goalkeeper and when sending a ball back from the touchline).

E for (e)motion

In the two-dimensional space of the pitch, the players trace trajectories: passes geometrize the movement of the ball. The game exists only in movement: the movement of the bodies kicking or receiving balls whose aim is to inscribe an ultimate trajectory into the net. In the confrontation between the striker and the goalkeeper, there is kind of modern-day duel, a sort of symbolic equilibrium - the anguish of the goalkeeper during a penalty belongs only on the cinema screen; the real goalkeeper has everything to gain from this confrontation which, in theory, puts him at an absolute disadvantage. He alone knows the price of the *Emotions du solitaire* dear to French writer Henri de Montherlant: "Garde-but, garde-but, ça valait le coup quand tu faisais la culbute (Goalkeeper, goalkeeper, it was worth it when you fell head over heels)."
As in life, the situation is sometimes confused. One no longer knows who is who, actions don't have the effect one expects, nothing works. And then one sublime gesture suddenly unblocks the situation: a free kick by Roberto Carlos, an acrobatic overhead kick by Papin, an aerial leap by Ronaldo. A moment of purity extracting itself from a gangue of confusion. Everything falls into place. In moments like these, beauty is a solution. With the

51. An inaugural show put the arena's sound and light effects to test, before the footballers ran onto the field for the first time in the history of the Stade de France.

52. Powerful lighting gives the stadium a spectacular, almost unreal appearance at night. Underfoot, a special signalling system helps spectators find their way.



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an ABC of football

exactitude of the gesture inscribed in the allotted space-time, the player attains an artist's precision, more specifically that of the sculptor who extracts the desired form out of the raw material. Which could also be football's underlying utopian principle: to give the world access to a controllable precision, to a conscious penetration of reality, to an exact beauty.
Thus, as in music, one must *play in tune.*

G for game

This sport is primarily a game, in the childish sense, for, like children, one must accept a large dose of conventions to admit there's a point in wanting to shoot a ball into a net. This is how a football match should be watched, as a child who decides what is imaginary and what is real, accompanied by that unexpected element which can glorify dreams or shatter certitudes, as a philosopher who is unaware that everything has already been written.

H for hand

It is a real paradox, if one thinks about it: the first rule of this game forbids the use of the hand, the very member which distinguishes man from the animal kingdom. And all the difficulties of the game stem from this rule. It's not the oval-shaped ball or the exorbitant height of the basket which make the game challenging and interesting. It's the player, the man, who accepts to lower himself, or possibly to better himself. Watch how great footballers evolve and you will not see any handicap in the restrictions imposed on them. They have transformed a drawback into an advantage, a veritable triumph, when players like Pelé, Maradona or Cruyff magnetize the leather ball, which should not be anywhere near them, and cross the defense lines, tracing a wild, unpredictable path that ends up in the expected place, somewhere in the net.
Occasionally, even if one watches over and over again, one cannot understand how the laws of physics have been mystified. The flawless skill involved in mastering the ball whatever the circumstances while shaking off one's adversary shows exactly what a human being can do with his physical, mental and moral resources. It's quite different from simply grabbing hold of a ball, oval or otherwise, with all due respect to those ardent supporters of the erratic rebound. This paradox thus amounts to saying that man, for once, abandons any illusion of control over the world, that he is *sapiens, sapiens* through using his brain rather than his hands: his inspired mind replaces his outlawed hand and backs up his feet.

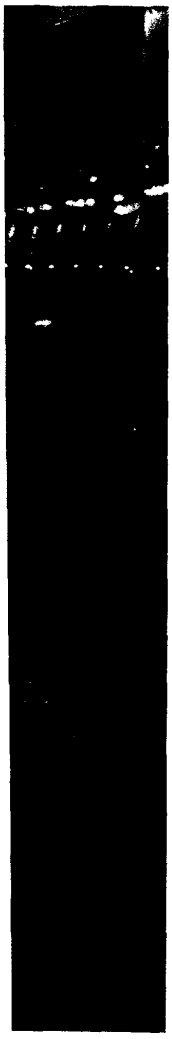
I for injustice

Where is justice? It exists within this enclosure, perhaps more than elsewhere. First of all, because the best man always wins - as long as the game remains a game, this axiom will hold true. One may calmly affirm that there is no world champion who hasn't deserved his title. That another team was better before or at the beginning of the competition is one

53. The mounting excitement of the inaugural show was geared to make the crowd roar, to trigger off, in the words of the organizers, the stadium's "primal scream".

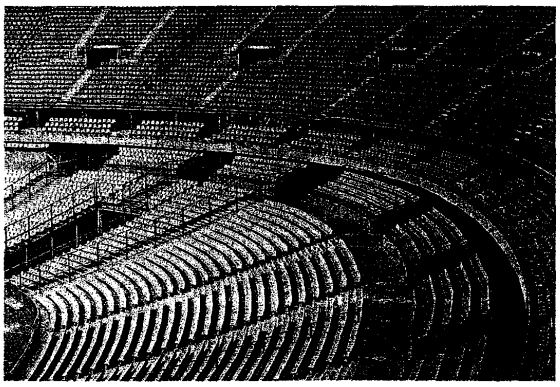
54. Nearly 80,000 people attended the opening. They arrived and departed without mishap, thereby quashing any fears the authorities may have had.

55. The method used to screw down the extremely resistant copolymer seats is said to withstand vandalism. Two different numbers help spectators to find their seats: the row number and the actual seat number.



thing, but each one had the opportunity of being there at the right moment and, when all is said and done, only one team knew how to seize this opportunity when they had the chance. In national championships, money probably plays a more important role, but the wealthiest clubs are far from being invincible, and the champions are not always - far from it - the richest. Cases of injustice, which are not that numerous, do not stop great teams.

Secondly, because injustice is one of the components of the game, insofar as it stems from the referee, who is also said to be part of the game, which mustn't stop when the ball bounces off him. That human error is not always acknowledged may shock the uninitiated -



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former prime minister, Michel Rocard, admitted his unease when Olympique Marseilles lost to Benfica because of a hand being in the wrong place. But the enthusiast remembers past events and, in the big book of human errors, the rules of the game keep things evenly balanced. A mistake is recognized but it isn't unfair. No national or local team can invoke repeated bad luck as the reason for poor results. There was perhaps a time when ethics were much more present in the game, if we believe former players who swear they would never have let themselves fall over in the penalty area. Although the game has got harder, it is amazing how well it has survived. The rules have hardly changed. Red and yellow cards were introduced in Mexico (1970), and subsequently adopted everywhere else. In fact, it is just a way of reminding the players of the rules. The game has thus evolved, but lives on. The microcosm which recreates itself performs for an hour and a half on 5,000 square meters of ground, which is enclosed yet sometimes open to the entire planet. This island with a population of twenty-five has established a sort of legalistic and human balance.

Make no mistake: football is a game of imbalance. This island is neither Cythera nor a lost paradise. If this sport generates such excitement, it is because it has created its own dramatic art; it has opened its stage to human passion. For the spectator, the dramatic entertainment lies in the tension which mounts between these two groups of men who are grappling with an attenuated, yet hardly playful, form of their destiny.

56. The slightly tinted PVC extension of the metallic part of the roof covers an area of 10,000 m².

57. One of football's historic players, Diego Maradona helped Argentina win the 1986 World Cup and ensured his place in the sport's annals.

58. David Trezeguet, France's young forward, has just turned twenty and represents the future hopes of the national team.

59. An action shot of Michel Platini who, like his predecessor Raymond Kopa, was one of the greatest players in French football history.

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59

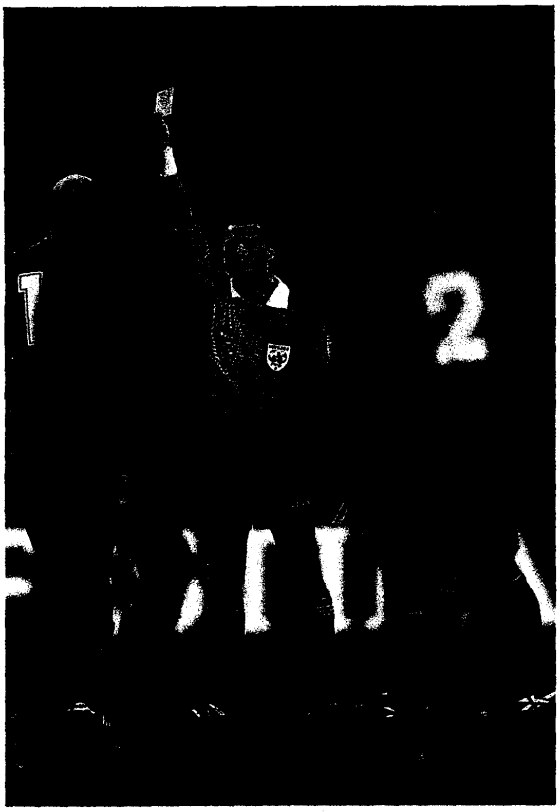
for match

The football ground is a symbol of parity. The initial meaning of the word "match" is "one that equals another." Its conquest is always precarious and has no meaning in itself. (How many matches are played in one half of the pitch, until a ten-second counterattack changes everything?) This is why its division into two equal halves is somewhat symbolic. The halfway line serves only two purposes: it is where the game starts (and restarts after each goal), but it is also, which we tend to forget with modern defense tactics, the offside line. On one side of the line, the counterattack can proceed without worrying about the position of the backs; on the other side, a player may only receive the ball if at

least one member of the other team is in front of him. On the rest of the pitch, attention must be paid to the penalty areas, those sensitive zones in which any foul results in a penalty.

P for Platini

And intelligence? There'll come a time when one will have to give credit to intelligence in the game of football, which also implies intelligence in life in general, as embodied in such players as Michel Platini. Robert Musil sneered at the idea



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of crediting a racehorse with genius. Many people wanted to prohibit the concept of sport being an intellectual activity. And yet, to become a worldwide model sportsman, while initially possessing a solid but not superhuman physique, Platini nevertheless needed exceptional mental capabilities. Always in two places at the same time, dribbling to the right and observing what was happening on the left, he took his and his fellow-footballers' revenge on time by anticipating several moves in the game; he was better than the others because he sought to understand everything, to anticipate everything. He was a role model, a paragon.

60. Foul! Swiss referee Urs Meier issues a warning during the France v. Spain match, on 28 January 1998.

61. Eric Cantona wearing the colors of Manchester United. The famous French player was idolized across the Channel right up to the day he announced his retirement from football in 1997.

62. *The seating capacity of 890 in the press box will be increased to 2,400 for the World Cup.*

63. *The crowd rises to its feet in feverish excitement at the Stade de France.*

64. *Cantona in action during a European Championship match between Manchester United and Juventus (Turin).*

63

R for rules

All games have rules. There was a time when formless and occasionally mortal confrontations existed. Duels were fought on any material pretext: everything was permitted and the contestants had the living daylights beaten out of them, and were, literally, liberated of all aggressive tendencies. Then came the industrial society and, to define work more clearly, it invented sport. One had to contain a potentially social violence and channel impulses into objectives that would soon be found sublime. Football is a recent invention.

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It's no longer a question of confronting each other in an Olympic fashion that has yet to be resuscitated: it's not a question of being the strongest. One has to win. But nor is it a question of making war, even if the confrontations between the two camps end up on a national scale. In which war does everyone stay in their own territory, are fouls penalized? In which war, however ritualized, do the participants exchange their shirts? Confrontation unites, in a fraternity. Only nations at peace with each other take part in football matches; the ex-USSR once gave up the chance of qualifying for the World Cup in order not to have to play at Chile's sinister Estadio Nacional in Santiago. Rules were therefore needed. They were all drawn up in the name of equality. The "rules of the game" merely ensure that the scales are always equally balanced. A foul is simply an attempt to tip the scales with a hand or foot. In a Platonic version of the game, this attempt would always be counterbalanced by a penalty, which would give the offended adversary the chance to win back what the other side had tried to take away. The principle of balance is adhered to by every federation of team sports. The various boards are made up of former stars no longer young enough to play, but whose voices of authority earn them advantages few ever won on the field. But there is also a mystique of equality. In victory on the pitch, nothing really equals anything, but everything

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FRANCE 98,
A GLOBAL EVENT

"Welcome to the world." The posters plastered on walls all over the country sum up the significance of the event programmed for the middle of 1998. From 10 June to 12 July, France is organizing the last World Cup football competition of this century. Thirty-two teams have qualified for the sixty-four matches that will be played at ten stadiums, in Saint-Denis, Paris, Lyons, Marseilles, Nantes, Lens, Toulouse, Bordeaux, Saint-Étienne and Montpellier. Football's popularity is so immense - so out of proportion critics may say - that the eyes of the entire world will be focused on this simple sporting tournament in which national prestige is at stake. Ten thousand journalists, 2.5 million spectators and 36 thousand million television viewers (overall total) of all nationalities are expected to follow the competition. On 2 July 1992, the French Football Association (FFF) was selected by the Fédération Internationale de Football Association (FIFA) to act as host for the sixteenth World Cup, an honor France has not enjoyed since 1938. An organization committee was immediately appointed, with former international football star Michel Platini and legendary manager Fernand Sastre as cochairmen. In addition to the 2,400-million-franc budget, massive amounts of money have been invested by the State (3,100 m), local communities (1,820 m), and the French national railway and public transport companies, SNCF and RATP (528 m) in this operation which combines a festive atmosphere with efficiency and strict security measures. The construction of the Stade de France was financed by public and private funds, and cost a total of 2,600 million francs. The World Cup final, on 12 July 1998, will be played at the new stadium, watched, if estimates prove correct, by nearly half of the globe's population. B.H.

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65. Brazil has won the World Cup on four occasions. Roberto Carlos is one of the most brilliant members of the South-American team.

66. When he first arrived in England, Eric Cantona played for Leeds United.

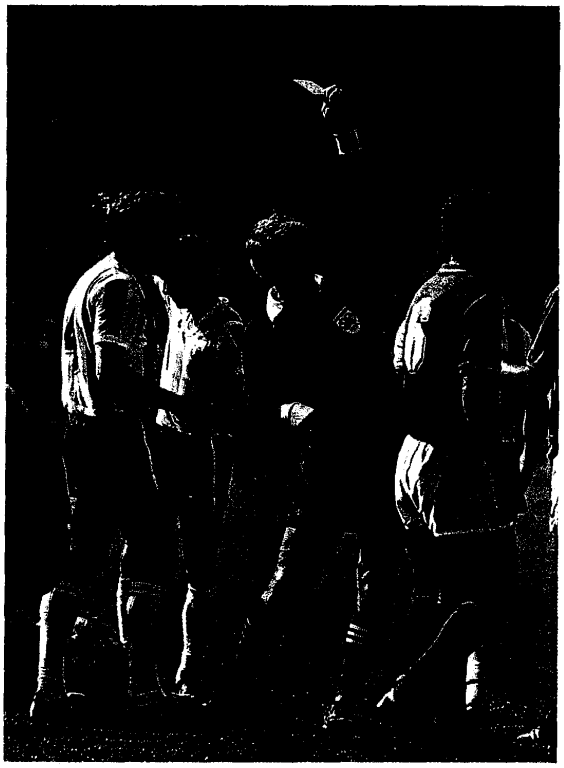
67. The Argentinian Maradona also used his skill on the field for Naples.

68. Making an entrance: the long corridor leading to the pitch from the dressing-rooms.

that is governed by the rules in football obeys this obligation to equality. Reality is forced to partially submit to this measure of faith.

S for spectacle

Talent is nothing in itself. The greatest players, even at the peak of their form, are nothing if fortune doesn't smile on them. A foot is a foot and it doesn't attract the ball all on its own. To create that impression of magnetization, another well-known, unwritten condition is necessary. Footballers have a whole



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language - poor and varied - to describe this good or bad fortune, this extra something which has to be added when all the objective conditions are fulfilled. Football is by no means a game of chance. One could say that it's a sport played by the gods who decide on a result foreign to human logic. At the very least, let's say that, unlike justice, victory is not blind.

Out of all that, as we have already mentioned, out of all that heteroclite assemblage comes the spectacle, the show. If one had to make a comparison, it would be with the theater: the same unity of place, of time; twenty-five actors on a stage, with only one plot and a constant revival of one dramatic art form. What these two worlds have in common is the "unforgettable" element. There are those who

69. France v. USSR at the Parc des Princes, in 1986. One of the last encounters between the two countries before the dissolution of the Soviet Union.

70. Players who break the rules or resort to violence are shown the yellow card; second offenders are sent off the field.

an ABC of football

71. Brazil's star striker Ronaldo, Pelé's long-awaited successor, seen here in a France v. Brazil match, 1997.

72. The seats farthest from the field are 85 meters away; the front rows are a mere 15 meters from the action. In the world of football, such proximity is a rare privilege.

remember Alec Guinness in *Macbeth* and those who will never forget England winning the World Cup in 1966. But are there very many who remember them both?

T for time

Being a winner implies being productive. And there's no other way of earning points than by scoring goals, by kicking the ball off the pitch, just in the right place. Among the infinite number of places where the ball can leave the field,

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skywards is the only limitless direction - something the advertising department of Air France, the World Cup's official airline, has understood perfectly. Only one window opens onto the outside world, yet what a rewarding exit it can be. Football is probably the most miserly sport where points are concerned. In an hour and a half, or more, a goal is always a rare moment. In football, time has a special dimension. It has only one master, the referee, who carries it on his person in the form of a watch which, in the jargon of sports' commentators, has inevitably become a chronometer. There's no rule that says the game has to stop when the ball is no longer moving. Time doesn't stop. The referee counts the pauses in the game, but he does so on a watch that keeps moving, as he does, and the pauses are credited at the end of the first or second half, when the referee uses all the discretion his function allows. The symbolics of parity come into play, but one feels that, in actual fact, the notion of equality is pushed to the limit. Everything revolves around the role of the referee, whom one could easily believe invested with a quasi-pontifical infallibility. His decision is sovereign, unaided by video but helped by his two assistants, the linesmen, whose advice he is not obliged to follow. There is much debate about whether the referee should be helped to avoid unfairness. Television coverage of the big matches is so good that many fans prefer to watch them at home. The minutest foul is spotted by the omniscient eye of the camera, which automatically highlights any errors made by the unique referee, the victim of his own unique

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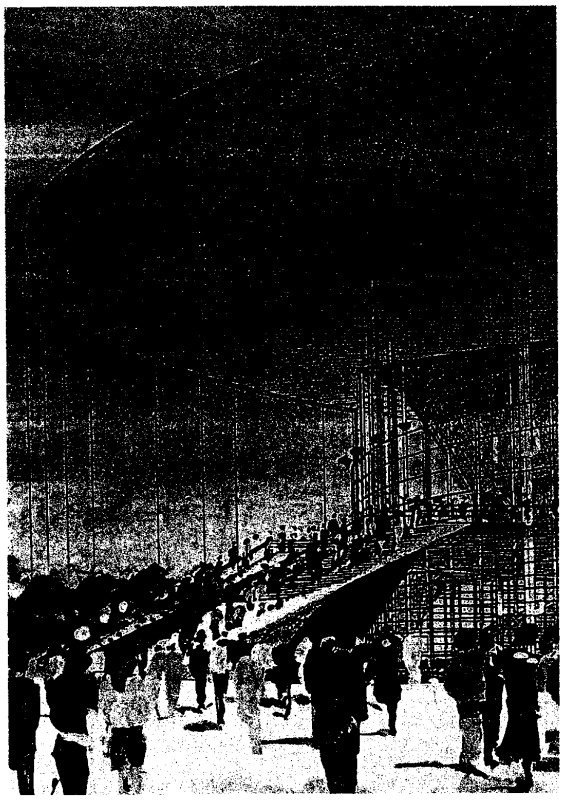

73. The spectacular roof of the Stade de France that covers the staircases, as illustrated in this watercolor, has now become its emblem.

74. Two restaurants and no less than 43 snack-bars provide refreshments for supporters.

75. The dazzling visual lightness of the roof enhances the arena and epitomizes its conviviality.

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point of view. The authorities refuse to allow any changes, fearing, no doubt rightly, that the game will lose its fluidity if the opponents can resort to procedure at any time. They certainly don't want anyone to come back and question a referee's decision after a match. One can also "stall for time" in most unsportsmanlike fashion and thus make fun of the referee's omnipotent chronometer. This manner of adapting to what is beyond our control, this refusal to use the most commonplace human means - the procedure - to govern and rectify strokes of destiny, this active fatalism, all things considered, leads us to think that football is played with all the elements we are familiar with, but also, and above all, with time "which devours everything" (Ovid, *Metamorphoses,* XV, 234), incarnated by the man in black, a demigod and bearer of human weakness, and, when all is said and done, with a barely tamed form of destiny.

V for victory

Victory is what one desires the most, is what engulfs, like a black hole, all energy. And, whether it is attained or not, at the end there lies a void that must be savored like everything that has preceded. Yes, all that has no purpose, is nothing, as we know. Real life exists elsewhere; one just has to look for it.

Z for Zico

Arthur Antunes Coimbra, alias *Zico*, Edson Arantes do Nascimento, alias *Pelé*, Manuel dos Santos, alias *Garrincha*, Valdir Pereira, alias *Didi*, Edvaldo Izidio Neto, alias *Vavá*, José Macia, alias *Pepe*... The Brazlian public loves to give its idols of the stadium affectionate nicknames, imaginative, sonorous pet names which, for an entire nation, will go down in history. One must not forget that football is a game full of mischievous complicity and a source of pure joy. J.-L.A./F.T.