

# Dubrovnik's Old City:

## The Destruction of a World Heritage Cultural Site

*UNESCO, the Institute for the Protection of the Cultural Monuments and Natural Environment of Dubrovnik, and the Institute for the Rehabilitation of Dubrovnik*

The Croatian city of Dubrovnik, situated on the eastern coastline of the Adriatic Sea (Figure 1), has been a center of the region's history and culture for many centuries. The section of town known as the Old City dates back to the 13th century, was largely built during the 15th and 16th centuries, and rebuilt following a devastating earthquake in 1667. It occupies an area of about 1 sq km on a coastal promontory.

Dubrovnik has been celebrated and sung again and again as a city of stone, sun, and sea; a city of art; a city of famous seafarers and traders; a city of political wisdom and pacifism. The Old City was named a World Heritage Site in 1979, and was nominally protected under the provisions of the 1954 Convention for the Protection of Cultural Property in the Event of Armed Conflict (the Hague Convention).

Until civil war broke out in the former republics of Yugoslavia, no army had ever attacked the Old City. In October 1991 it fell victim. Between then and June 1992, it was hit by over 2,000 shells of various types (Figure 2). Some 68% of the 824 buildings in the Old City sustained damage. Four hundred thirty-eight roofs took direct hits and 262 more were struck by fragments of projectiles. Some 314 direct hits were recorded on the fronts of buildings and on the paving of streets and squares. Fire gutted nine buildings and partly destroyed the roofs of four others

(Figure 3). Over 50 cultural monuments outside the Old City were damaged, as well as many modern buildings.

The worst of the shelling took place on 6 December 1991. Officials of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) were in the city that day, and the next began a detailed survey of the damage. That same month Dubrovnik was added to the list of World Heritage in Danger. Preparations for a plan to repair the damage in the Old City were begun immediately. Just as the plan was about to commence in earnest, shelling started again in May 1992. A new survey had to be done after the shelling finally ended on 20 June 1992. At this point, an Expert Advisory Commission for the Rehabilitation of Dubrovnik was set up. Peace finally returned to Dubrovnik in October 1992—though, as we have seen, fighting elsewhere in the former Yugoslavia continues to this day.

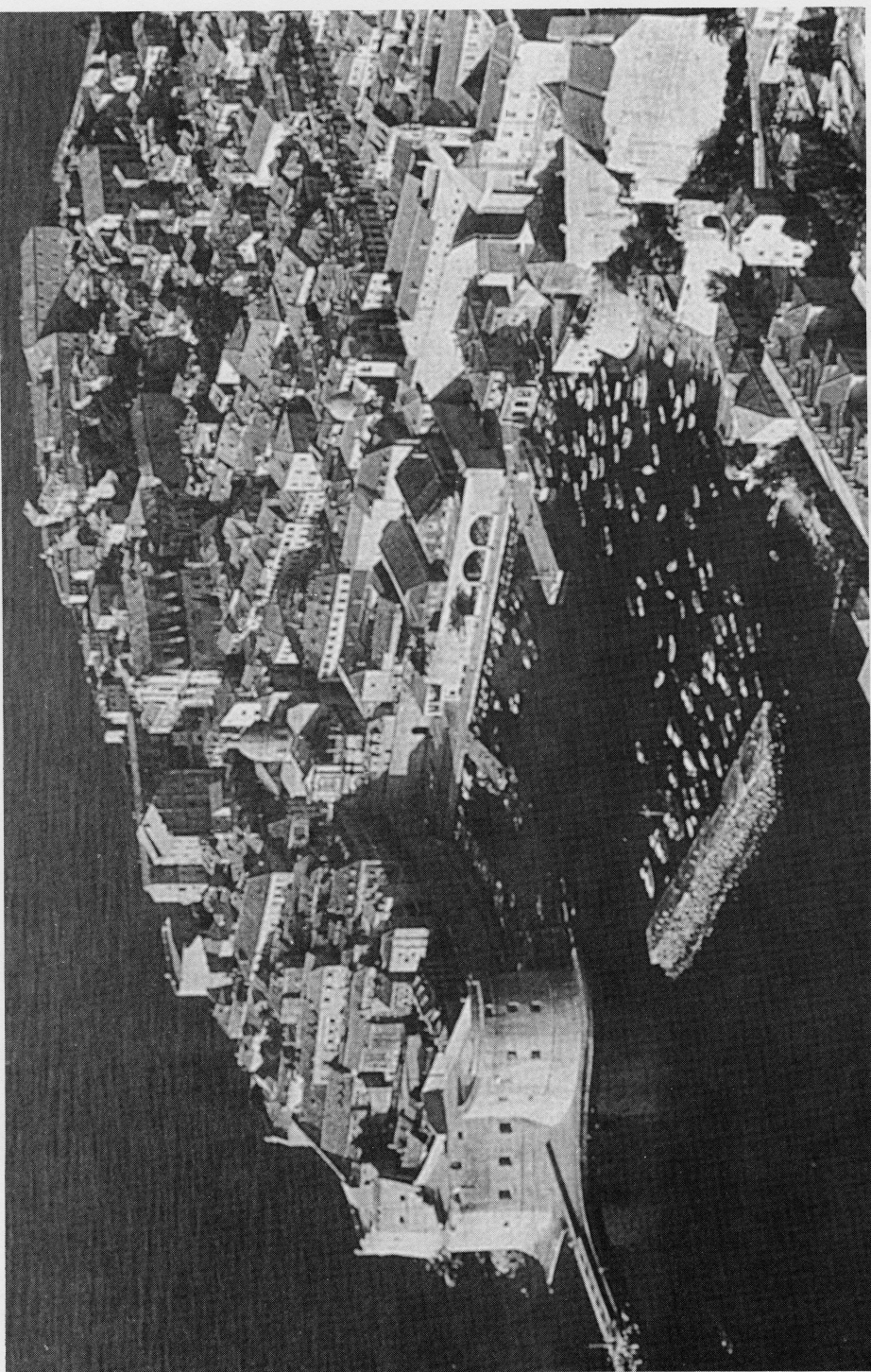


Figure 1. Dubrovnik's Old City. View looking southwest to the Adriatic Sea. Photo by Miljenko Mojas.

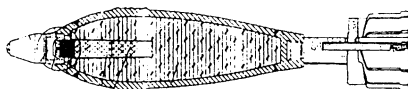
M 62  
60 mm mortar flare shell



O - 832 DB  
82 mm mortar shell



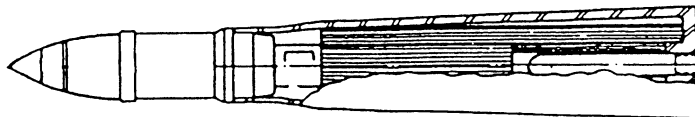
M 56  
120 mm mortar shell



PK 3 M 72  
82 mm self-propelled mortar shell



105, 130, 155 mm  
round with shell



9 M 14 M  
Antitank guided missile

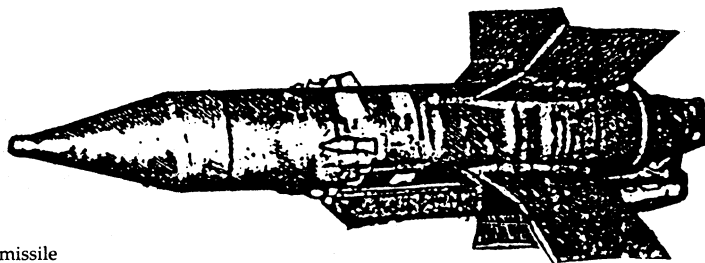


Figure 2. Type of projectiles used on Dubrovnik. Drawings: Matko Vetma and Zvonimir Franic (Institute for the Protection of the Cultural Monuments and Natural Environment of Dubrovnik).



Figure 3. Diagram of Dubrovnik's Old City. Each black dot represents a direct hit by artillery. Solid black sections represent totally gutted buildings. Adapted from an illustration by the Institute for the Protection of the Cultural Monuments and Natural Environment of Dubrovnik.

### **The Old City and its Significance**

The Old City of Dubrovnik would seem to give substance to the idea of Jacob Burckhardt, the cultural historian, of "the State as a work of art." Early on Dubrovnik established itself as the starting-point and destination for a vast network of trading routes which linked it with all the major economic centers of the Balkans and the Mediterranean. Its urban structure took shape as the mate-

rial expression of its historical and commercial development.

Dubrovnik established itself little by little on steep rock formations overlooking the sea, separated from the mainland by a shallow bay and a stretch of marshland. A small fortified spot became the seat of the bishopric of Epidaurus, an extinct ancient city. The Old City began to emerge in the 10th-12th centuries, with new districts appearing around the earlier city center. During the 12th



century Dubrovnik began to evince a clearly delineated urban fabric, the main access being formed by a relatively rectilinear street, the *via publica*, linking the eastern and western areas of the promontory. Some sense of Dubrovnik's ecclesiastical lineage can be had by studying the findings of recent archeological research. In 1981 an assortment of vestiges of former buildings were found under the present cathedral and in its immediate vicinity, including two major churches, a quadrilobed memoria, some fortified walls, a baptistry tower, and several houses and tombs. They were constructed on the same locations, one on top of another.

Towards the mid-13th century, there is evidence of a major architectural innovation which had a determining effect on the size and layout of the city. New ramparts were built to take in not only the "outlying areas" of the city, but also the slopes of the mountain rising far above the far side of the marshland. The major initiatives undertaken during this period (which were incorporated into a set of statutes, published in 1272, that served as an early form of town planning regulations) reflected a powerful pulse of innovation on the part of the architects. They deliberately included in their plans the "model" of a city which, by all its features, was to dismantle the established limits of medieval conurbations. The architects who determined the layout and the width of the streets, the surface area of building land, and even

the dimensions of future houses and the space between them, were major pioneers.

Some of the Old City's preserved buildings date back to the 15th and 16th centuries. The architecture mixes Gothic and Renaissance elements. It finds particular expression in the Divona, or customs house, built in 1516 from designs by the Ragusian architect Paskoje Milicevic. The façade of the Divona achieved one of the highest standards for architecture along the whole Dalmatian coast. Milicevic was also responsible for renovating the city's harbor and the fortress of Saint John. Other impressive public buildings dating from this period include the cathedral, the Church of Saint Blaise (patron saint of Dubrovnik), three convents, and the municipal palace.

Dubrovnik is frequently subject to violent earthquakes. Nearly 100 serious earthquakes have been recorded over the past 300 years, the most recent coming in 1979. The earthquake of 1667 was the most catastrophic on record; nearly half the population perished. Dubrovnik at that time was governed as a city-state, and in the wake of the disaster the republic's Senate encouraged many changes in the urban fabric. Wholesale architectural changes took place, with many features of the Baroque incorporated into Old City buildings. Architects from Rome and Venice came to oversee the reconstruction.

Early in the 19th century, during the Napoleonic Wars, Dubrovnik

lost its independence and was subsumed into the Austrian Empire, where it became a provincial center. The Old City sunk into a sort of lethargy which spared its architecture major changes. So it was that the Old City, still largely intact, became a World Heritage Site in 1979.

### **Key Architectural Elements Damaged by Shelling**

The two architectural elements that give the Old City a characteristic flavor are its rooftops and its stonework. The importance of the rooftops in the architectural perception of the Old City is widely recognized; in fact, professionals refer to them as the “fifth front” of the buildings. Rooftops are by tradition covered with locally made, half-round brick tiles (called *kupa* tiles) in shades of pink, orange, and yellow. As seen from the surrounding mountains or the top of old fortifications, the entanglement of the rooftops, the wedging of the tiles and the way they were laid, the supple contours of the roof crests and corner rafters, the texture of the tiles (which the passage of time has mellowed to varying degrees), and their varied colors contribute strongly to the architectural harmony of the Old City. (See figure 4.)

Around 69% of the rooftops were damaged by direct hits or shell fragments, most of which exploded on impact, causing, in addition to the explosion itself, the violent projection of a multitude of fragments. More often than not this resulted in a gaping hole,

usually about a meter square, in the roof, with many tiles broken and roof-strips destroyed. In some instances, structural components of the roof timbers were destroyed, stone eaves ruptured, and ceilings collapsed.

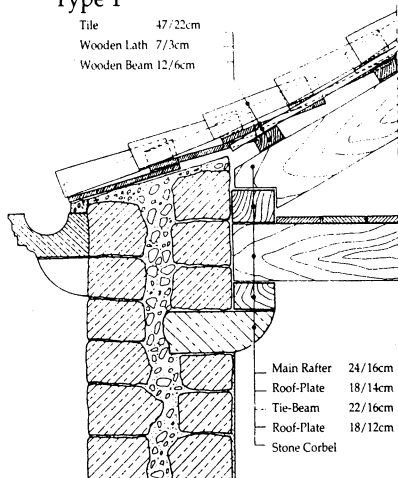
After each episode of shelling, local inhabitants, with help from the Institute for the Protection of Cultural Monuments and the Institute for the Rehabilitation of Dubrovnik, set to work making repairs. Bituminous roofing was laid on a provisional structure of thin planks where roof-strips had been destroyed. Where possible, tiles were replaced temporarily.

Permanent repairs will take much longer. UNESCO estimates that some 490,000 tiles will need to be replaced. The quarries that supplied the traditional *kupa* tiles are now worked out, so similar tile will be imported from France until a Croatian tile-works can be re-established.

Dubrovnik itself is erected on a stone foundation, and the city is notable for its harmonious historic stonework. The vestiges of the earliest monuments dating back to Emperor Augustus, or the Christian basilicas from the days of Justinian, were carved of stone. There is evidence of uninterrupted activity by local stone masons from the 9th century onwards. Several workshops established before the 11th century produced the magnificent ornamentation of the medieval churches. The stonework is all limestone quarried from islands up the Adriatic Coast.

### Type 1

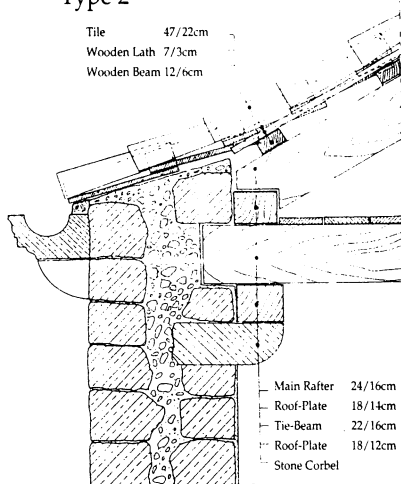
Tile 47/22cm  
Wooden Lath 7/3cm  
Wooden Beam 12/6cm



Main Rafter 24/16cm  
Roof-Plate 18/14cm  
Tie-Beam 22/16cm  
Roof-Plate 18/12cm  
Stone Corbel

### Type 2

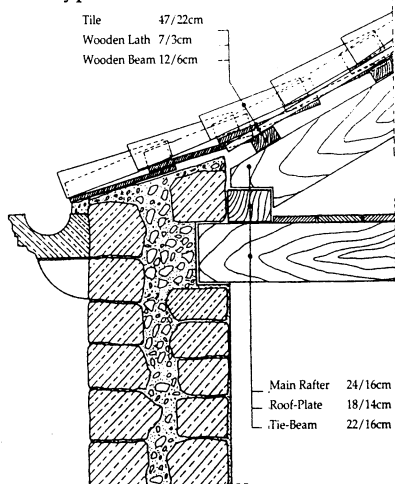
Tile 47/22cm  
Wooden Lath 7/3cm  
Wooden Beam 12/6cm



Main Rafter 24/16cm  
Roof-Plate 18/14cm  
Tie-Beam 22/16cm  
Roof-Plate 18/12cm  
Stone Corbel

### Type 3

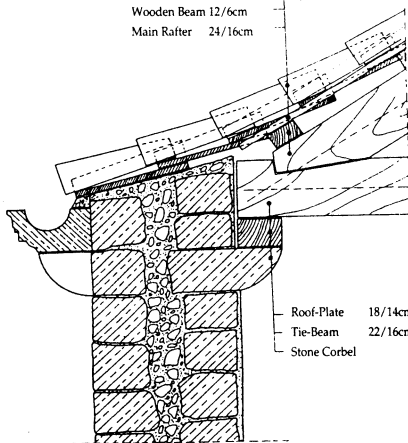
Tile 47/22cm  
Wooden Lath 7/3cm  
Wooden Beam 12/6cm



Main Rafter 24/16cm  
Roof-Plate 18/14cm  
Tie-Beam 22/16cm

### Type 4

Tile 47/22cm  
Wooden Lath 7/3cm  
Wooden Beam 12/6cm  
Main Rafter 24/16cm



Roof-Plate 18/14cm  
Tie-Beam 22/16cm  
Stone Corbel

Figure 4. Example of artitechural detail in four approaches to the guttering sections, showing stonework and roof support methods. Drawings: Matko Vetma and Zvonimir Franic (*Institute for the Protection of the Cultural Monuments and Natural Environment of Dubrovnik*).

Table 1 shows how extensively some of the principal historic buildings of the Old City were damaged by the shelling of 1991-92.

### The Restoration Plan

The first step in the restoration plan was to inventory the damage, which was of two principal types: structural (i.e., involving building systems), and external (i.e., involving materials, architectonic components, and building ornaments). The survey of the damage (Figure 2) revealed that most of the damage was concentrated in the central and northeastern section of the Old City. It soon became apparent that restoring the damage would require an international effort. Several Croatian institutions are collaborating with UNESCO, ICOMOS (the International Council on Monuments and Sites), and ICCROM (the International Centre for the Study of the Preservation and Restoration of Cultural Property).

The restoration plan has these objectives:

- Identify all damaged properties on the World Heritage List.
- Develop professional training programs in stone cutting, paint restoration, etc., to help with the restoration.
- Promote the restoration of the damaged properties.
- Preserve the unity of the urban fabric of the Old City.
- Ensure the participation of national and international entities in the restoration.
- Obtain broad political and public support for the restoration in the form of contributions of money, services, and materials.

Croatian authorities are in charge of the plan, with the Expert Advisory Commission making recommendations concerning individual projects. Priorities have been assigned for the restoration of various structures.

For those wishing to contribute to the restoration plan, UNESCO has set up the following bank account:

*Chase Manhattan Bank, New York  
International Money Transfer Division  
1 New York Plaza  
New York, NY 10015 USA  
UNESCO Acct. No. 949-1-191558  
(with the mention: UNESCO Dubrovnik)*

[Ed. note: This article is a collation and abridgment, by editor David Harmon, of material from two UNESCO publications: *Dubrovnik 1991-1992*, compiled by UNESCO, the Institute for the Protection of the Cultural Monuments and Natural Environment of Dubrovnik, and the Institute for the Rehabilitation of Dubrovnik (Paris: UNESCO, February 1993), with textual contributions by Ferdinand Meder, Etienne Clément, and Nada Grujic; and, by the same compilers, *Dubrovnik 1991-1992: Cultural Properties Damaged by Shelling* (Paris: UNESCO, February 1993).]

**Table 1. Catalogue of Damage to Principal Cultural Sites**

Structure <i>Year built</i> Architect/Builder	Description / <i>Damage</i>	Cost of Repair (US\$)
Festival Palace <i>ca. 1667</i> Giulio Cerruti	Classic Baroque palace. Served as residence/shop. <i>Second floor entirely gutted by fire.</i>	\$650,500
Palace, 2 Od Sigurata St. <i>end of 17th C</i> Giulio Cerruti	House typical of Cerruti's work. <i>Mostly gutted. Inside staircase partly survives. Severe damage to moulded surround of inset stone handbasin-fountain.</i>	\$433,700
Martinusic Palace <i>end of 16th C</i>	One of finest examples of Renaissance architecture in Dubrovnik. <i>Gutted.</i>	\$443,100
Palace, 11 Od Puca St. <i>ca. 1667</i>	Tripartite layout; central French window with balustrades. Entry hall at center of palace; treble staircase. <i>Gutted. Two internal walls standing, containing arched doorways with mouldings. Traces of stenciled painting still visible.</i>	\$641,100
Palace, 16 Od Puca St. <i>ca. 1667</i>	Bipartite plan. Second-floor rooms opening onto south face carried balconies with exquisite wrought-iron railings. <i>Some components survive, including cornices and a single doorway moulding.</i>	\$448,500
Sorkocevic Palace <i>end of 17th C</i>	Baroque interior decoration. <i>Mostly gutted, with a few parts surviving.</i>	\$395,900
Palace Dordic-Mayneri-Siroka 5 <i>ca. 1667</i>	Imposing Baroque palace at corner of two main trading streets. Bossing on windows unusual for Dubrovnik. <i>Half destroyed.</i>	\$828,100
Houses, 9 Zlatariceva St. and 5 Izmedu Polaca St. <i>both ca. 1667</i>	Doorway design shows original set-up: trade on lower floor, living areas on two upper floors. <i>Both completely gutted.</i>	\$345,100
Sponza Palace (Divona) 1516 Paskoje Milicevic	Finest example of Gothic-Renaissance style in Dubrovnik. Currently houses one of richest archives in Mediterranean. <i>Shells damaged roof though not archives, which still must be moved.</i>	\$101,800
Rector's Palace 15th C	Important monument of civil architecture. Richly decorated porticos. <i>Some damage from shell-fire.</i>	\$ 4,100
Stay Palace <i>1st half of 16th C</i>	Only example of an undetached house in Old City. Renaissance style. <i>Frame and roofing damaged by direct hits; many stone mouldings spoiled by shrapnel.</i>	\$16,900

Gucetica Palace <i>ca. 1667; remodeled 18th &amp; 20th C</i>	A dual residence and shop. <i>Direct hit seriously damaged front, roofing, and interior.</i>	\$30,500
Palace, 11 Pracata St. <i>ca. 1667</i>	<i>Shells pierced the roof, damaging the interior.</i>	\$15,200
Palace, 3 Pracata St. <i>ca. 1667</i>	Serves as mosque. <i>Direct hits on roof seriously damaged woodwork, roofing, chimney, gutters, stone cornice, and the internal stairway.</i>	\$11,500
Houses, Dropceva, Siroka, Od Rupa Sts. <i>ca. 1667</i>	Dual houses-shops. <i>Roofing, stone mouldings, and fronts damaged.</i>	\$120,600
Clock Tower <i>1446; rebuilt 1928</i>	Gothic-Renaissance style; giant figures in bronze ring out hours. <i>Shell ripped 2-m-wide hole in bell-tower.</i>	\$33,200
Rooftops of Old City	<i>Extensive damage.</i>	\$3,992,000
Façades of houses along the Stradun	<i>Extensive damage.</i>	\$42,500
Franciscan Convent <i>1317-48; rebuilt ca. 1667 and later</i> Mihoje Brajkov	Single nave with Baroque apse; Romanesque-Gothic cloister. Houses highly reputed library. <i>Hit by 37 shells, one of which pierced tower dome. Gothic balustrade partially destroyed.</i>	\$451,400
Dominican Convent <i>14th-15th C</i>	14th-century portion one of largest Gothic structures on eastern Adriatic Coast. Contains precious artworks. <i>Took 25 direct hits which damaged the roofing, the south doorway moulding, and the west-face rose window.</i>	\$135,000
Church of St. Blaise <i>ca. 1715</i> Marino Groppeli	Baroque church in form of inscribed Greek cross. Main front boasts four Corinthian columns, sculptures, and lavish decoration. <i>Five direct hits on front; contemporary stained-glass windows by Ivo Dulcic badly damaged.</i>	\$67,400
Sigurata Church <i>11th-12th C</i>	Pre-Romanesque original with side naves <i>ca. 1667. Single barrel-vaulted nave and rectangular apse. Sustained 4 direct hits. Major damage to supporting structure.</i>	\$80,000
The Cathedral <i>1672-1713</i> Andrea Buffalini d'Urbini	Terraces above side naves show influence of southern Italy. <i>Dome and decorative components damaged.</i>	\$17,600
Convent of St. Claire <i>ca. 1667</i>	Predominantly Romanesque, with certain archaic motifs evocative of Romanesque bestiary. <i>Serious damage to roofing of three wings and to stonework and stone gutters.</i>	\$79,900

St. Mary's Convent & Church <i>ca. 1667</i>	Now used for archives and as housing. <i>Severe damage to roof and timberwork, and to load-bearing wall in Church.</i>	\$40,000
Church of St. Joseph <i>(Baroque period)</i>	Built on foundations of medieval church. <i>Shrapnel damage to roof, cornice, gable, tower, and mouldings.</i>	\$9,500
Synagogue <i>14th C; rebuilt 1655</i>	In house typical of Dubrovnik; sanctuary houses caged gallery. <i>Walls and roof damaged.</i>	\$30,000
Church of St. Saviour <i>1520-38</i> Petar Andrijić	Remarkable for its trefoiled front and sculptures. <i>Main front and east side badly damaged.</i>	\$12,400
Church of St. Roche <i>1540-64</i>	<i>Roof and portal damaged.</i>	\$9,100
Orthodox Church <i>1865-early 20th C</i>	Eclectic school of architecture. <i>Direct hits to roofing and woodwork; front damaged by shrapnel.</i>	\$7,600
Dordic-Mayneri Palace Chapel <i>mid-18th C</i>	<i>Façade severely damaged.</i>	\$3,400
The Stradun (street-square)	A unique urban feature typical of Dubrovnik; broad street with uniform house fronts. <i>Hit in 45 places; flagstones damaged.</i>	\$71,900
Steps to Jesuit Church <i>1765</i> Pietro Passalacqua	Monumental steps; landmark of Old City. <i>Several hits damaged steps and balusters.</i>	\$2,600
Big Onofrio Fountain <i>1438</i> Onofrio di Giordano della Cava	Raised basin with polygonal steps, decorated with masks and small columns. <i>Took 2 direct hits and much shrapnel.</i>	\$27,200
Amerling Fountain <i>1902</i>	Finely decorated shell-shaped bowl on twisted column with masks from which drinking water flows. <i>Bowl half-destroyed.</i>	\$41,000
City-center streets <i>13th C; rebuilt ca. 1667</i>	Paved with stone. <i>Extensive damage.</i>	\$31,500
City squares	<i>Some damage.</i>	\$5,200
The Ramparts	One of best-preserved defense systems in all Europe. 2 km in length. <i>Received 111 direct hits, damaging parapets and battlements.</i>	\$47,200

The total damage comes to nearly \$9,725,000.

