VOLUME II
PHYSICAL DAMAGE
HIROSHIMA, JAPAN

11

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CLASSIFICATION CANCELLED

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Chief, Declassification Branch



#### ABRIAL VIEW OF ZERO POINT

This view looking directly down on zero point shows the target area completely leveled except for multi-story reinforced concrete buildings.

Roofs and intermediate floors collapsed on five of these buildings leaving exterior walls partially standing.

The dark spots on the roofs of other buildings are depressions formed by the downward distortion of the roof structure.





77-VH-II-2

#### PRE-STRIKE AERIAL VIEW

This pre-strike aerial view of Hiroshima shows the high density of the built up area.

Fire lanes formed by razing frame buildings may be seen in this view. The Japanese were hurriedly extending these lanes in anticipation of incendiary raids.



#### POST STRIKE ABRIAL VIEW

This picture taken on the day of the explosion shows dense smoke obscuring the target area.

This picture was photographed from an elevation of 25,000 feet.







#### MILITARY AREA

(0.6 Mile North of Zero Point)

This aerial view shows almost complete destruction of ordnance, storage and administrative buildings located in the northeast section of the military area.





Castle Ground



HIROSHIMA, JAPAN
POST STRIKE Section 1

'O' POINT



#### AERIAL VIEW

This post-strike view looking from west to east shows devastation from zero point to 0.4 mile south of zero point.

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HIROSHIMA, JAPAN POST STRIKE Section 2

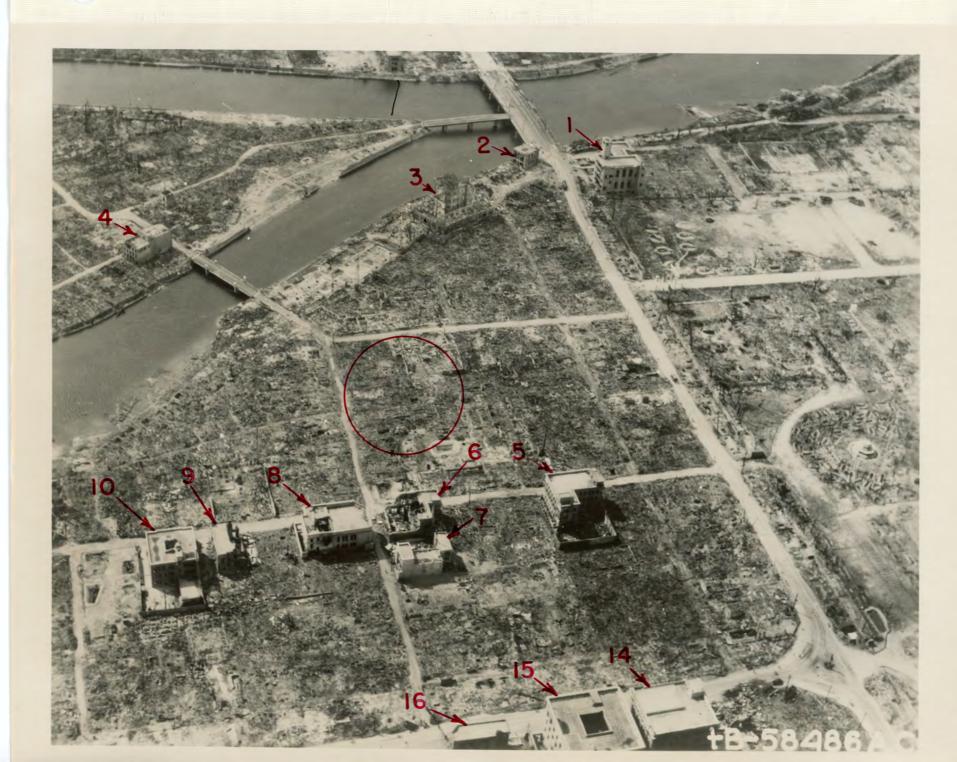


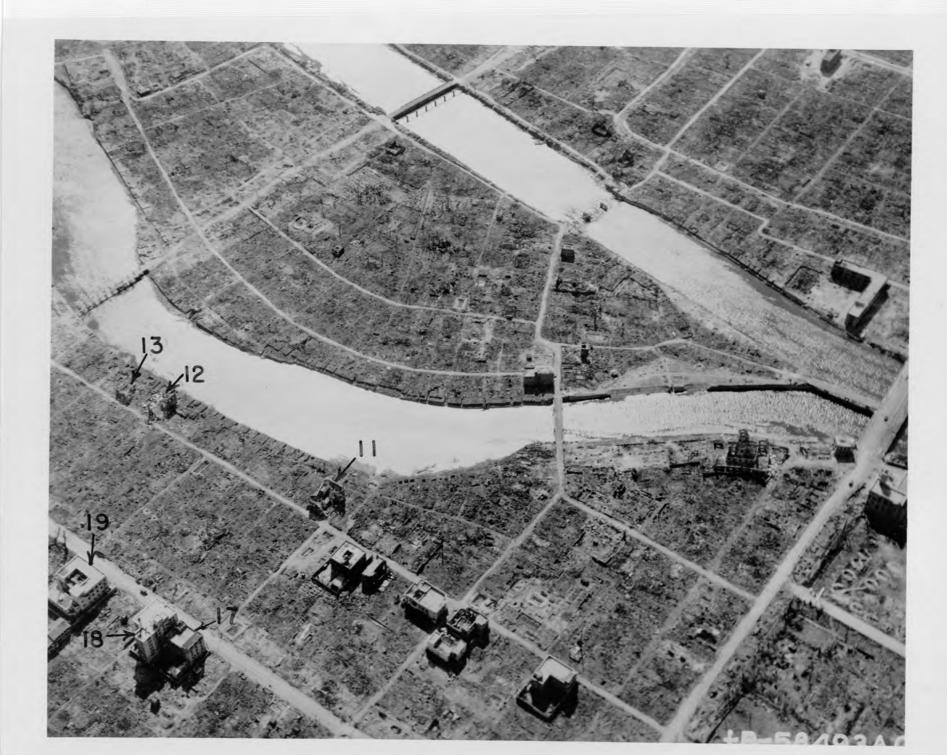


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The following two aerial views show the location of "Zero Point" over which the atom bomb was exploded. The buildings remaining in this vicinity have been numbered for identification in following pictures.

Location of two bridges demolished by the blast may be seen.







## VIEW AT "ZERO POINT"

This is a view from "Zero Point" looking East.

The trunk of a small tree remained standing since the force of the blast was directly down-ward in this area.

Other views of buildings shown here may be identified in preceding and following pictures by referring to building numbers.

Survival of the tree indicates the absence of intense heat at the time of the explosion.





# AIR BURST OVER HIROSHIMA

This aerial view of the air burst shows smoke billowed 20,000 feet above Hiroshima. The smoke at the base of the column has spread out over 10,000 feet of the target area.

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## VIEW NEAR ZERO POINT

From Building No. 7 (300 ft. East of Zero)

View looking north across the Military Area.

Building No. 5 is on the extreme left.





77- VH-II-24



#### COMMERCIAL MUSEUM

(700 Feet West of Zero Point)

This view is similar to that in the preceding picture.





#### GOKOKU SHRINE

(1/4 Mile NNW of "Zero Point")

This is a "close-up" of one of the statues looking toward "Zero Point".

Light surfaces on the base of the statues are areas roughened by the blast. The original surface was polished granite, but the "sand blast" effect produced by the blast has roughened the exposed surfaces and a portion of the surface on the side away from the blast as shown here.





# RESTRICTED

# VIEW NEAR "ZERO POINT"

Looking north from "Zero Point" at the shattered walls of a brick building.





## VIEW AT "ZERO POINT"

This view is looking northeast across "Zero Point".

The concrete stack approximately 200 feet from "Zero Point" survived the blast since the direction of the blast was almost directly downward in this area.

The corner of a brick building shown in the following picture may be seen on the extreme left.







#### CONCRETE VAULT

(200 ft. north of Zero Point)

Close-up showing damage described with preceding picture.







#### (200 ft. north of Zero Point)

This view looking northeast shows a concrete vault, all that remains of a building of wood construction.

The Russo-Japanese War Memorial may be seen on the extreme left.

The end wall and half the sidewalk nearest the blast failed under the blast pressure.

Vault doors are located on the opposite side of the vault.

The two following pictures show close-up views of the vault and reinforcing steel.

While the walls of the vault failed under the impact of the blast, the walls of a reinforced concrete building nearby are still structurally intact. This is apparently due to the difference in window space. The two small vault windows did not allow pressure to build up in the vault interior as rapidly as the building interior thereby, subjecting the vault walls to greater stresses.



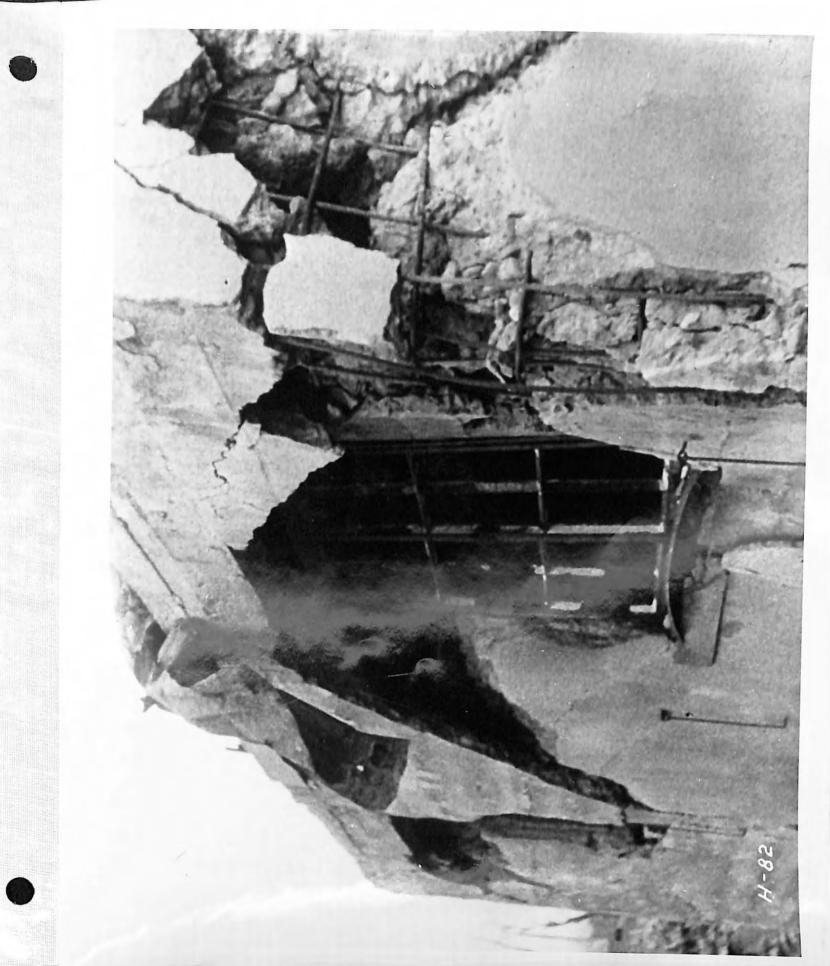




# CONCRETE VAULT

(200 ft. north of Zero Point)
Close-up showing reinforcing steel.







# DESTRUCTION NEAR ZERO POINT

This view looking west from near zero point shows rubble remaining after fires swept through the demolished buildings following the blast.







# DEVASTED AREA SOUTH OF "ZERO POINT"

This view looking south from near "Zero Point" shows complete devastation in the immediate vicinity.

The collapsed Hiroshima Gas Company (Bldg No. 11) may be seen on the extreme left of this picture.

A brick building (No. 12) is completely demolished except for one wall.

The Chugoko Electric Company Building 0.4 mile from "Zero Point" may be seen in the background.







In this picture a soldier is standing at the epicenter or "Zero Point" of the explosion.

The buildings shown are east of "Zero Point", the two on the left, numbers 14 and 15, are approximately 600 feet from "Zero Point".

The two on the right, numbers 6 and 8, are approximately 200 feet from "Zero Point".

The blast pressure was almost directly down on the roofs of these buildings.

The roof and intermediate floors of building No. 6 collapsed to the ground floor, and may be seen more clearly in the preceeding aerial view and the following close-up.







#### HIROSHIMA GAS COMPANY BUILDING

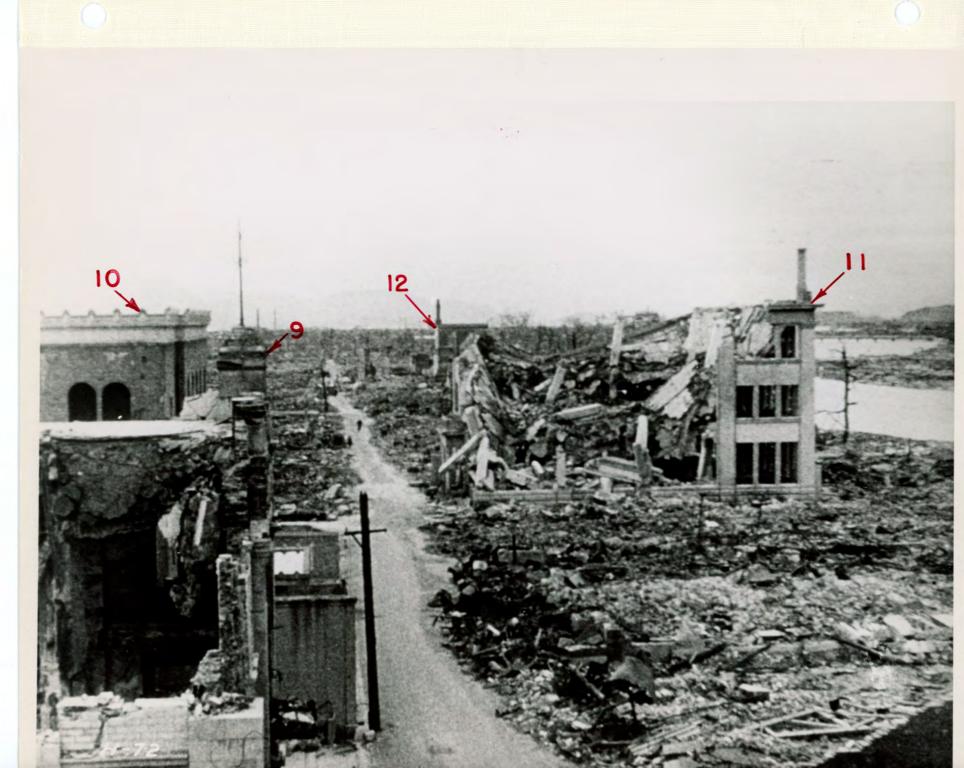
(O.1 Mile South of Zero Point)

This view looking south from the roof of the Sanwa Bank Building (Bldg. No. 8) shows the collapsed three-story Hiroshima Gas Cempany Building O.l mile from "Zero Point".

The roof and intermediate floors of the building in the left foreground were collapsed by the blast.

The street shown here had not been entirely cleared of debris two months after the explosion.







#### HIROSHIMA GAS COMPANY BUILDING

(0.1 Mile South of Zero Point)

This close-up shows an unusual effect
of blast pressure acting almost vertically
downward on the roof of a reinforced concrete
frame building. Three interior columns that
supported roof beams are still standing, the
beams having sheared off allowing the roof to collapse.

The concrete stack on the corner did not fail under the compression loading caused by downward pressure.



Picture by W. G. Penney





# HIROSHIMA GAS COMPANY BUILDING

(0.1 Mile South of Zero Point)

This is a close-up of building No. 12
shown in the preceding picture.

The concrete frame and roof collapsed on the side facing the blast. A thin tile veneering was used on the exterior of the building.







# BRICK RUBBLE

(300 Ft. southwest of zero point)

This view shows total demolition of brick
building near "zero point".







# INTERIOR OF BUILDING NO. 6 (200 feet east of Zero Point)

This view shows complete failure of roof and intermediate floor of two-story building by blast pressure striking downward.







# BUILDING NO. 6

(200 Ft. East of Zero Point)

This view looking west from building No. 7 shows the collapsed portion of the building.

The dome of building No. 3 can be seen in the right background.







#### VIEW NEAR "ZERO POINT"

View looking southwest from Sanwa Bank
Building (No. 8) at brick rubble and foundation
walls 300 feet from "Zero Point". The concrete
stack survived the blast and is whitened on the
side nearest the blast.

The brick building outlined by the foundation walls was completely demolished.





#### COMMERCIAL MUSEUM

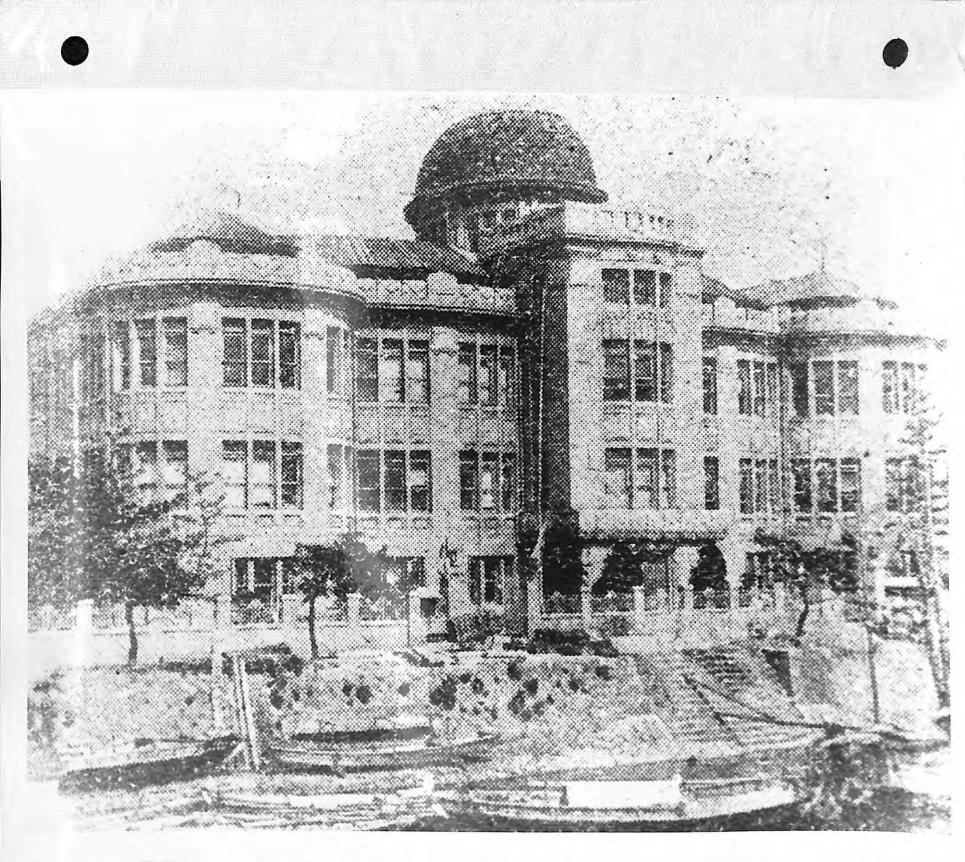
(700 Ft. West of Zero Point)

This building was also called the "Prefectural Display Hall".

This pre-strike picture taken from the river - the side opposite zero point may be compared with the following poststrike views.

Picture furnished by W. G. Penney







#### COMMERCIAL MUSEUM

(700 ft. West of "Zero Point")

This view from near "Zero Point" shows the remaining walls of the Commercial Museum in the background. The steel tower in the foreground collapsed in the direction of the blast.

The monuments in the cemetery shown here were not overturned since the blast pressure was downward in this area.







#### COMMERCIAL MUSEUM

(700 Feet West of Zero Point)

Closeup showing load bearing walls of masonry and brick construction.





#### COLLAPSED AIR RAID SHELTER

(Near Commercial Museum 700 ft. West of Zero Point)

This shelter was collapsed by the blast pressure. Brick and concrete debris fell from the Museum.





# JAPANESE GASOLINE DRUM

Near Commercial Museum

(700 ft. West of Zero Point)

Showing partial collapse from blast pressure.







#### STRUCTURAL FAILURE

Reinforced Concrete Building #2

(No. 1 of 2 Views)

(0.2 Mile Northwest of Zero Point)

This two-story concrete building is located .2 mile northwest of "Zero Point". The concrete roof slab was supported by concrete beams with no interior columns. The interior beams failed, causing the roof slab to settle as shown.

The entire parapet wall was demolished, one section resting on the roof, having blown in the direction of the blast.

Rubble may be seen inside the building.





# STRUCTURAL FAILURE

Reinforced Concrete Building #2

(No. 2 of 2 Views)

(0.2 Mile Northwest of Zero Point)

This close-up shows the heavy concrete beams supporting the roof slab. These beams failed in tension allowing the roof slab to sag as shown in the preceding picture. In this view wide crack at the point of failure in two of the beams may be seen.







#### BUSINESS MEN'S CLUB

(No. 1 of 2 Views)

(0.2 Mile Northwest of Zero Point)

This building is also called the Chamber of Commerce.

Structural damage was chiefly to the roof which was
distorted downward and badly cracked.

Eaves were also distorted downward.

This building is of heavy concrete frame construction. The exterior walls are of reinforced concrete construction faced with a thin tile veneer.

The concrete floor at the entrance was distorted down-ward by the blast.

Interior partitions were collapsed by the blast pressure and fires of secondary origin gutted the building.

At the time this picture was made Korean laborers were living in the building.

Picture by W. G. Penney







#### VIEW NEAR ZERO POINT

This view looking east from the roof of building No. 7, 250 feet east of zero point, shows a small 3-story commercial building in the center foreground, No. 16, 600 feet from zero point. Interior partitions were blown out by the blast and the interior was burned out by fires of secondary origin.

The building in the left foreground is a bank (No. 15).

The first building in the right background is 1000 feet from zero point. The roof of this building was collapsed by the blast as shown in the aerial view of zero point.







Looking north along the main north-south street. The nearest building in this picture is one-fourth mile from "Zero Point", and the farthest is one-tenth mile from "Zero Point", The large uprooted tree to the right of the street was blown over by the blast.

Some combustible debris still remains. The streets were undamaged. Street cars were placed back in operation after the streets were cleared of debris and overhead wiring was replaced.

Note air raid shelters in the foreground.







#### VIEW NEAR ZERO POINT

This view is looking north at buildings No. 16 and No. 15 shown in the preceding picture. (600 ft. from zero point).

The concrete stack in the foreground was toppled in the direction of the blast.







#### BUILDINGS NEAR ZERO POINT

(All Buildings are 200 Ft. to 300 Ft. East of Zero Point)

This view looking northwest shows the Sanwa Bank Building (No. 8) on the left. The parapet wall nearest the camera is leaning out. A break in the wall may be seen at the corner just to the left of the power pole.

The demolished section of building No. 6 may be seen to the right of the bank building.

Building No. 7 is structurally intact except for downward distortion of the roof.

Building No. 5 may be seen at the right.







#### BUILDINGS NEAR ZERO POINT

This view looking west shows buildings
No. 8 and No. 7 approximately as seen in the
preceding picture and also building No. 1
(Business Men's Club or Chamber of Commerce
Building) which is 2 miles north of zero point.

The concrete stack in the foreground was broken off by the blast, the shaft falling in the direction of the blast as shown in a preceding picture.







# SANWA BANK BUILDING (NO. 8)

(200 feet southeast of Zero Point.)

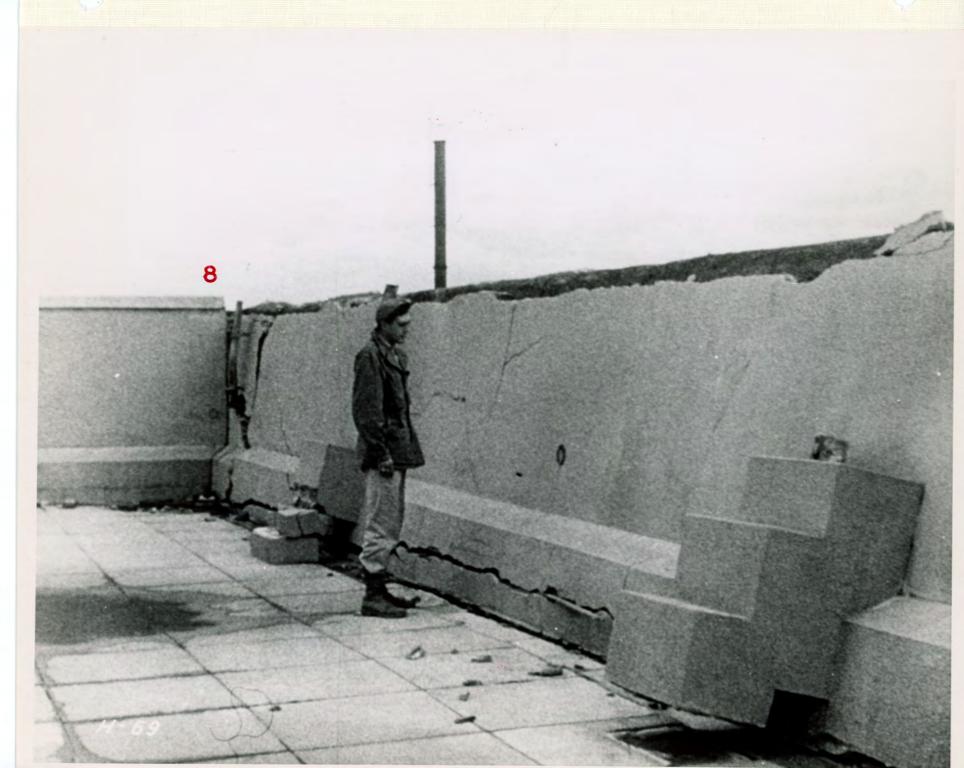
This view shows a section of the parapet wall of the building forced out by the force of the blast.

The direction of the blast was downward on the roof. Depressions were formed in the roof, one of which may be seen directly behind the soldier.

A portion of the roof failed entirely as shown in the following picture.

Window space in this building was sufficient for an equalizing pressure to build up inside the building before the roof failed entirely.







## SANWA BANK BUILDING (NO. 8)

(200 Feet Southwest of Zero Point)

This is a view of a section of the roof, on the side of the building away from the blast center, that failed under the impact of the blast before an equalizing pressure built up inside the building.

The roof consisted of concrete roof slabs supported on steel purlins and trusses.







## VIEW ACROSS ZERO POINT

(From O.1 Mile East)

This view is looking west across "zero point" from O.l mile east of "zero point".

Building No. 7 may be seen in the left foreground and building No. 3 (Commercial Museum) 700 ft. west of "zero point" may be seen in the center background.





#### DEVASTATION NORTH OF "ZERO POINT"

This view shows devastation immediately north of "Zero Point". The streets in this area have been cleared of debris and new power poles set, in order to restore streetcar service.







## PRESTRIKE VIEW OF "T" BRIDGE

(0.2 Mile Northwest of Zero Point)

This view looking northwest shows typical 2-story frame buildings destroyed by the blast.







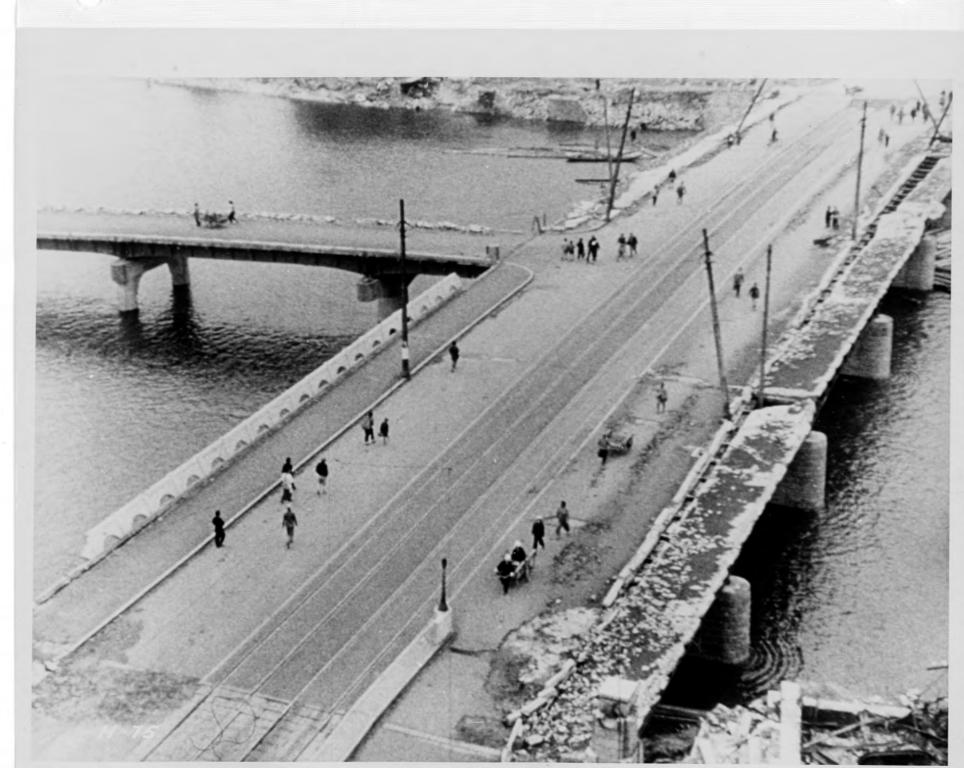
# "T"-BRIDGE 0.2 MILE NORTHWEST OF "ZERO POINT"

This plate girder bridge was not demolished by the blast which struck the bridge at an angle of 30 degrees left of vertical.

Along the center and left side of the bridge, the floor slab is undamaged, however, to the right of the center, the floor slab is distorted downward in several places. One depression can be seen in the right foreground of this picture.

This is apparently due to the slightly longer time interval required for a counteracting pressure to develop beneath the bridge along the side away from the blast.







#### T-BRIDGE

(0.2 Miles Northwest of Zero Point)

This view is looking northeast from the T-bridge across the military area.

The steel post in the foreground shows flash burns on the side facing the blast.

The two small buildings in the background were built after the explosion using salvaged materials.







# VIEW NEAR ZERO POINT

(From O.1 Mile Northeast of Zero)

In this view looking south, building No. 5 is on the right.

Note daylight through the building indicating that interior partitions are down.

The Chugoko Electric Company building (0.4 mile south of zero point) may be seen in the left background.







# EXTERIOR VIEW OF BUILDING NOS. 17 and 18.

(0.2 Mile Southeast of Zero Point)

This view is looking south along the side of the buildings away from the blast.

Structural damage was confined to downward distortion of the roofs.

A low parapet wall along the side of the building in the foreground was collapsed by the blast.

The steel tower in the foreground collapsed in the direction of the blast.

Building interior suffered severe nonstructural damage and were partially burned out by fires of secondary origin.







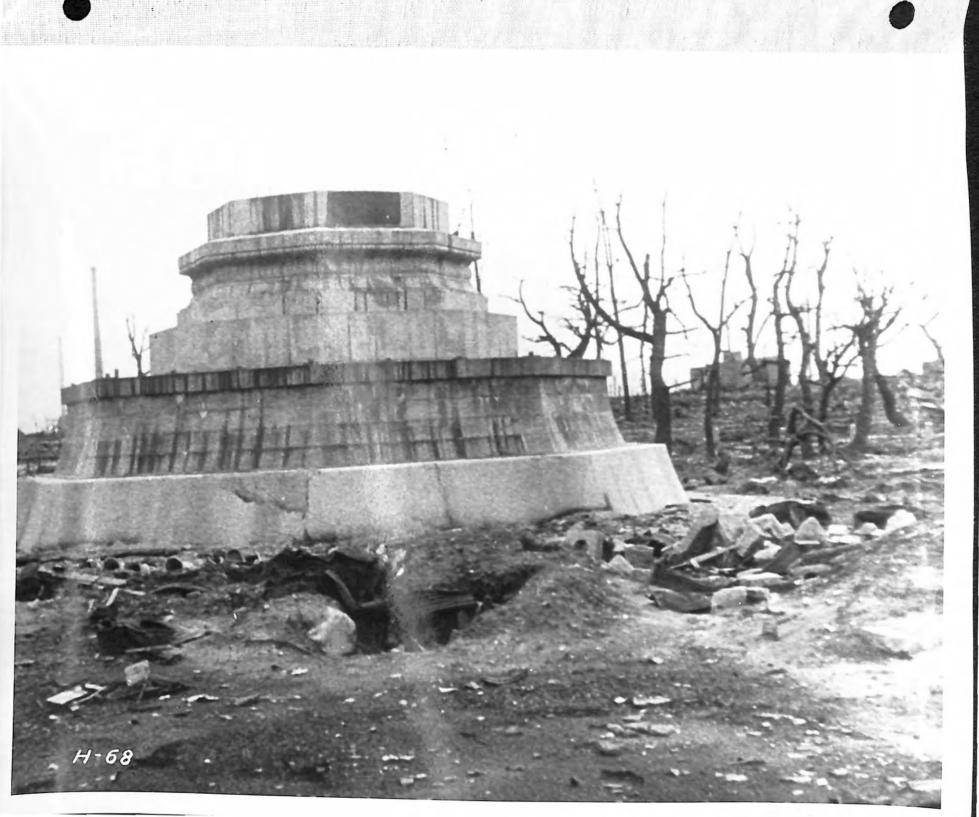
# RUSSO-JAPANESE WAR MEMORIAL (800 ft. North of Zero Point)

This view is looking south-southwest from the monument toward the epicenter of the blast.

The building seen in the background is located beyond "zero point."

Exposed stone surfaces were roughened by the blast.







#### MILITARY AREA

(0.2 Mile to 0.8 Mile North of "Zero Point")

The following three pictures present a panoramic view of the 358 acre military area in the heart of Hiroshima.

Since military installations were mostly of wood construction, little debris is left to indicate their location.

The first picture, No. H-66, is a view looking north from the Russo-Japanese War Memorial located 800 feet north of "Zero Point". The demolished Hiroshima Castle is in the center background.

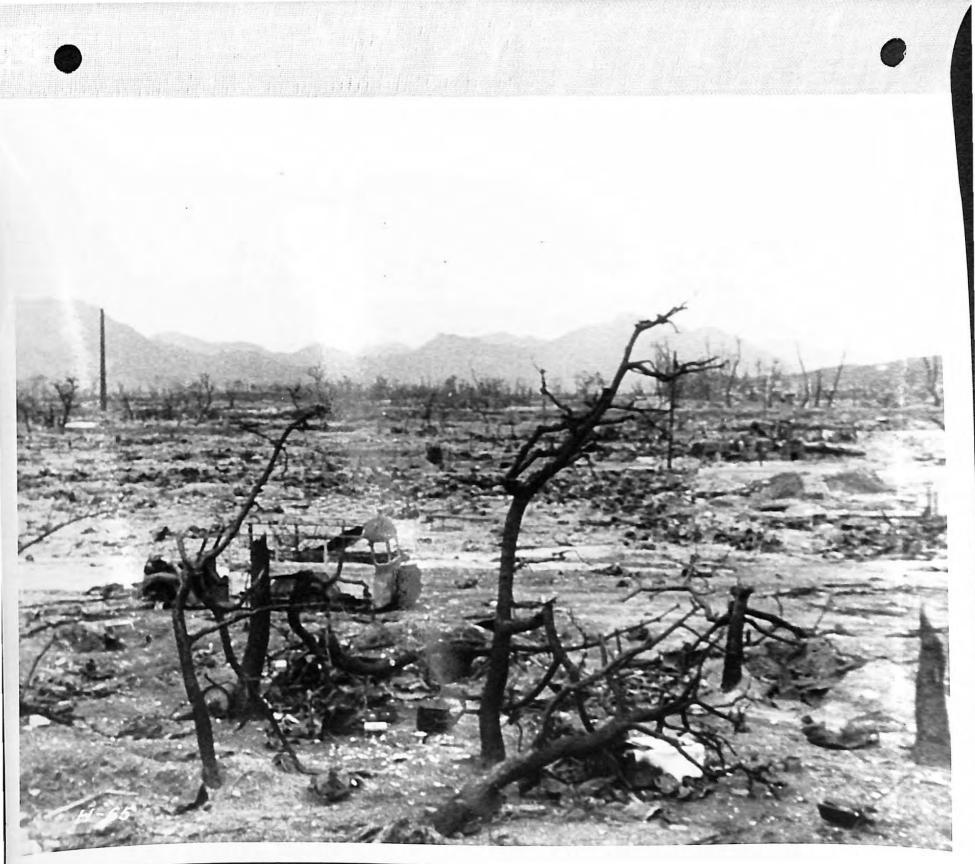
The second view, No. H-65, is looking northeast from the same location. A demolished station wagon may be seen in the foreground.

The third view, No. H-67, is looking east from the same location. The foundations are all that remain of Japanese barracks that were located in this area.

The nearest buildings in the right background are .4 mile from "Zero Point".









# **《多雄诗**

#### GOKOKU SHRINE

(1/4 Mile NNW of "Zero Point")

This Gokoku Shrine is located in the southwest corner of the Military Area. Trees were not uprooted since the direction of the blast was downward. The tops of the larger trees, however, were broken out by the downward pressure.

Many of the small monuments were overturned by the blast.





## GOKOKU SHRINE

(1/4 Mile NNW of "Zero Point")

In this close-up, a soldier is pointing toward "zero point". The stone surfaces on the right were roughened by the blast while the darker surfaces on the left retained a polished surface.



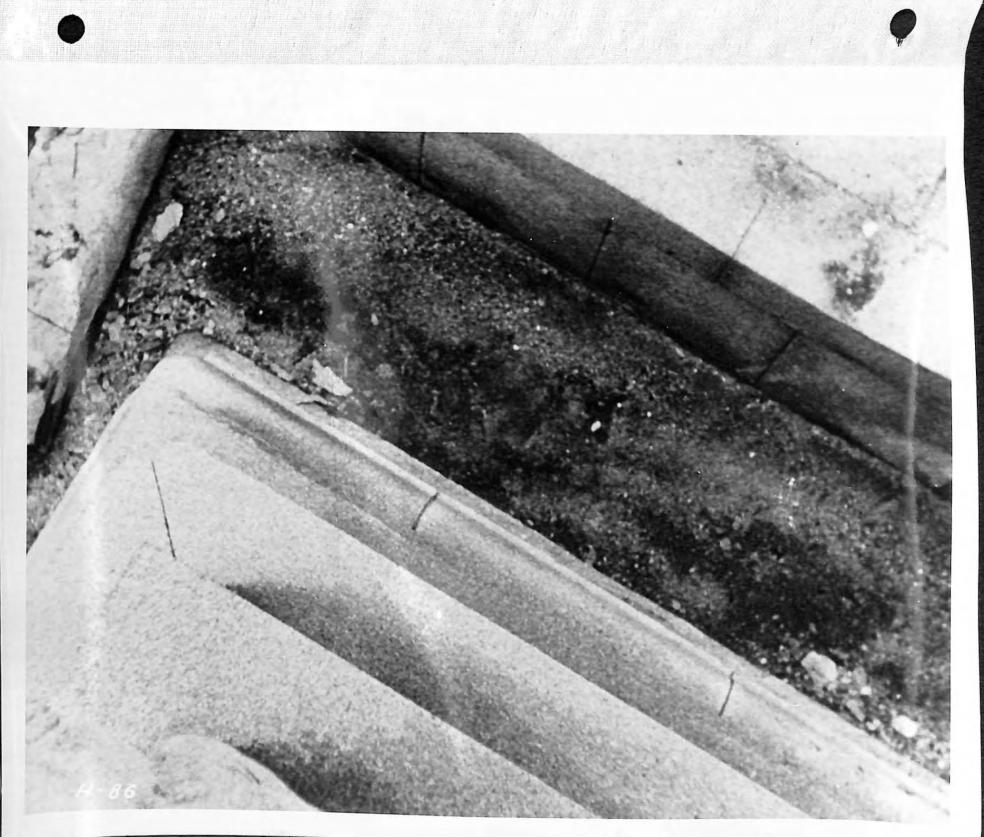


# GOKOKU SHRINE

(1/4 Mile NNW of "Zero Point")

This close-up of the base of the monument shown in the preceding picture shows the roughened surface of the stone at a corner exposed to the blast.





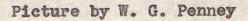
# BUSINESS MEN'S CLUB

(No. 2 of 2 Views)

(0.2 Mile Northwest of Zero Point)

Front face of the building.









#### PRE-STRIKE STREET SCENE

(0.3 Mile East of Zero Point)

This pre-strike view shows a typical narrow street in East Hiro-shima.









## VIEW NEAR ZERO POINT

(0.1 Mile from Zero Point)

This view looking west shows trees and a steel tower still standing to the left of the street near zero point.

The poles without crossarms, along the street, were erected following the blast.

The steel pole in the foreground is leaning in the direction of the blast.







Looking west from a point 1 mile south of "Zero Point".

Some combustible debris may be seen in the foreground.

Portions of the walls of two building of brick and

masonry construction remain standing. These walls are

parallel with the direction of the blast. The top of the

steel tower on the left was deflected in the direction of

the blast.







#### CONCRETE VAULT

(0.2 Mile Southeast of "Zero Point")

The reinforced concrete wall facing the blast was almost entirely demolished by the blast pressure. This vault was entirely enclosed except for doors.

Buildings with exterior walls of reinforced concrete were not subjected to peak hydrostatic pressure, since window openings allowed a compensating pressure to build up inside the building before the peak pressure developed.







#### BUILDINGS NEAR ZERO POINT

From Building No. 7
(300 ft. East of Zero)

Looking southeast, buildings 17, 18 and 19 in the right foreground are 0.2 mile from zero point.

This view is approximately in the direction of the blast.

Note daylight through windows of building No. 18 indicating that all interrior partitions are down.

The Fukoromachi School building,

0.3 mile southeast of zero point, is in
the center of this picture.





# 通道部

# BUILDINGS NEAR ZERO POINT

From Building No. 7 (300 ft. East of Zero)

Looking southeast, the Chugoko Electric Company Building (0.4 mile south of zero point) is the fourth building from the left.

The City Hall Building (0.7 mile south of zero point) is the fifth building along the street from left to right.







(No. 1 of 5 Views)

(0.3 Mile Southeast of Zero Point)

This view looking northeast shows Fukoromachi School in the right background.

Building No. 19 (1/4 mile from zero point) is in the left foreground.

One large tree in the cemetery in the foreground was blown down in the direction of the blast.







(No. 2 of 5 Veiws)

(0.3 Mile Southeast of Zero Point)

This three-Story building was gutted by fire of secondary origin following the blast.

This view of the side facing the blast shows windows blown in.

Windows in the lower right hand corner have been boarded up since the blast.



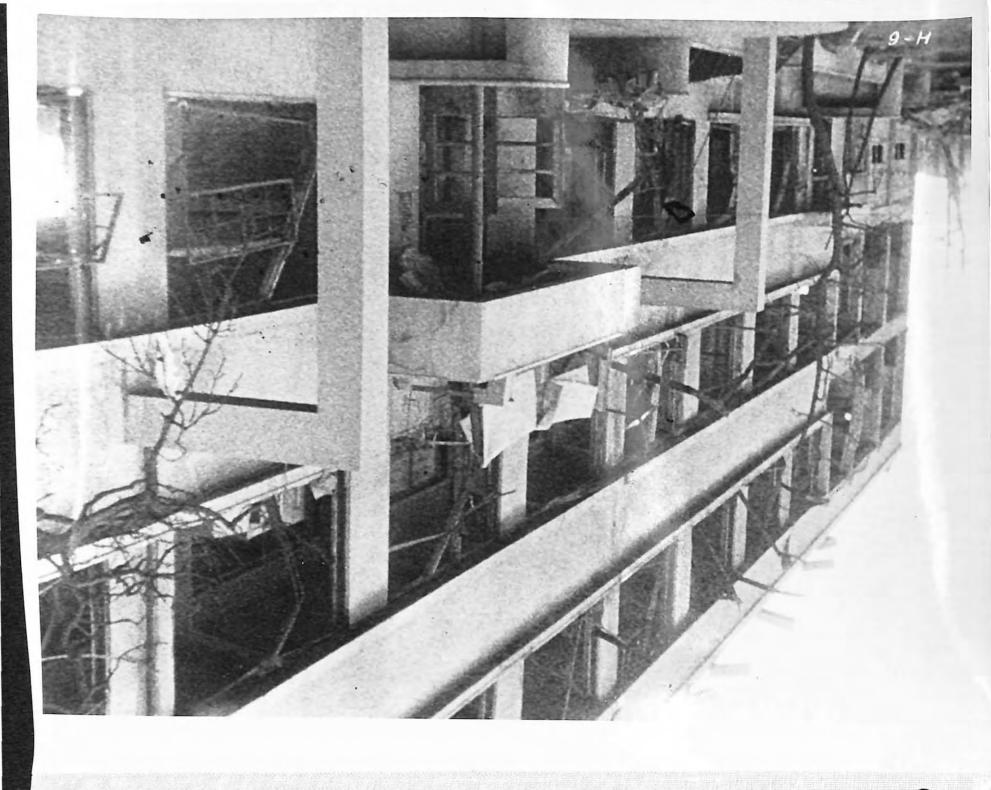




(No. 3 of 5 Views)

(0.3 Mile Southeast of Zero Point)

This view of the side away from the blast center shows windows blown out by the force of the blast driving through the building.





(No. 4 of 5 Views)

(0.3 Mile Southeast of Zero Point)

This view of the entrance shows a failure in the concrete floor slab over a section of the basement. Due to the basement being entirely enclosed, the full pressure of the blast was exerted on this floor.







(No. 5 of 5 Views)

(0.3 Mile Southeast of Zero Point)

This view along the corridor shows the wood flooring entirely burned away. Doors were blown down by the blast and only the charred frames remain. Plaster has fallen from the ceiling as a result of the fire.



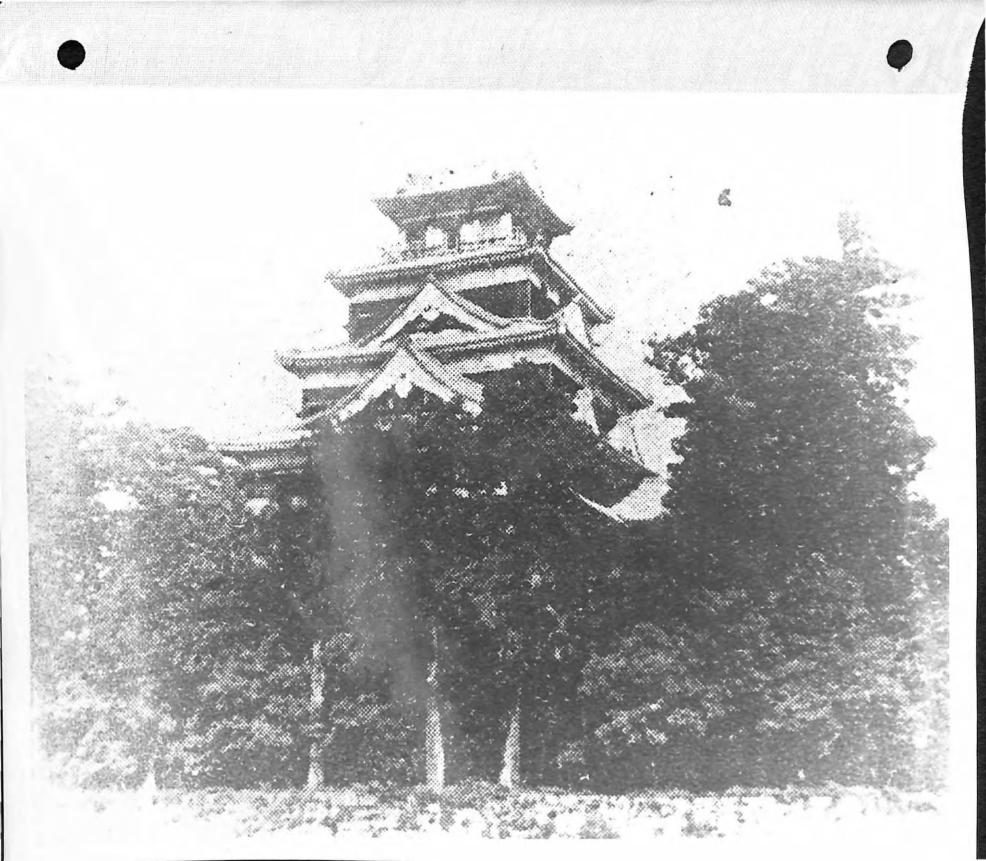
# **伊州西省**

# BUILDINGS ON THE CASTLE GROUNDS

Hiroshima Castle
(0.5 Mile North of Zero Point)

This pre-strike view shows Hiroshima Castle, a frame building that was demolished by the blast.







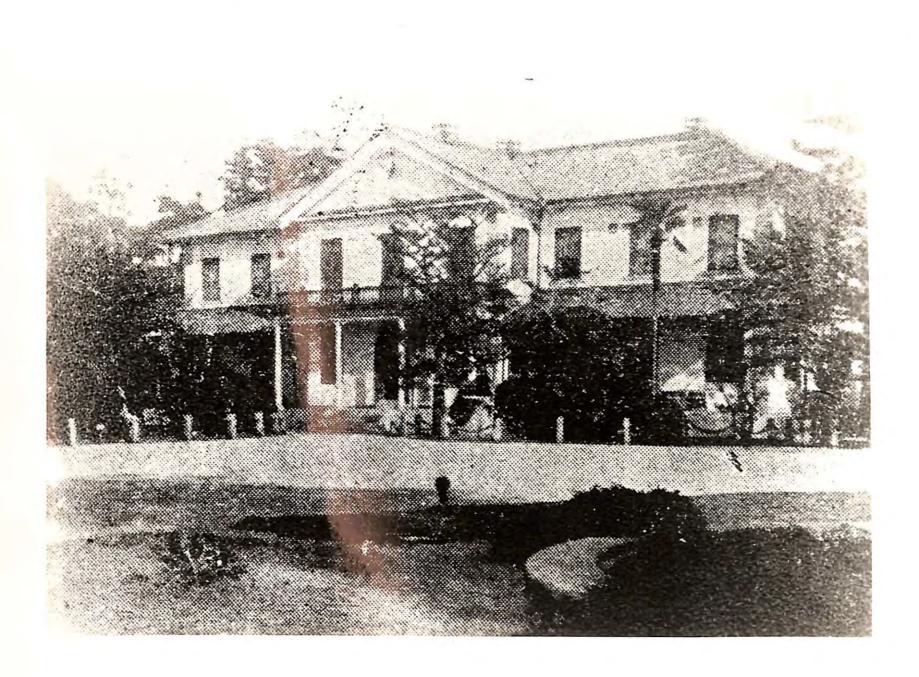
(0.5 Mile North of Zero Point)

This pre-strike view shows the building used as Fifth Division Headquarters (Japanese Army).

An air raid shelter near this building was partially demolished as shown in the following picture.

Picture furnished by W. G. Penney







Air Raid Shelter
(0.5 Mile North of Zero Point)

This air raid shelter was partially demolished by the blast.

Street car rails were used to support the roof. The roof framing was poorly designed since the supporting transverse rails were widely spaced while the non-supporting longitudinal rails were closely placed. This framework was covered with 10 inches of concrete followed by two courses of brickwork.







Wood Frame Building

(No. 1 of 2 Views)

(0.5 Mile North of Zero Point)

This one-story wood frame building was demolished by the blast but was not burned.

The blast was from left to right. The heavy timbers shown here were part of the roof framework.







Wood Frame Building

(No. 2 of 2 Views)

(0.5 Mile North of Zero Point)

This view, looking west, shows debris at the north end of the building. The blast was from left to right. A window frame blown clear of the other debris may be seen in the right foreground.

This is one of the few wood frame buildings found within a half-mile radius that were not burned.





#### COMMERCIAL MUSEUM

(700 ft. West of Zero Point)

The exterior walls of the main building are still standing, but the roof and intermediate floors and walls collapsed. The
circular tower enclosing the stairway is
still standing.

Exterior walls on the left are deflected in the direction of the blast.

