

ヒトラーの戦勝記念塔 Flakturm ウィーンの高射砲塔 さざなみ壊変		
Please use the Google Lens application to translate the charts.		
PP.	Japanese	English
6-7	ヒトラーが築いた	Anti-aircraft turret built by Hitler
	航空技術が飛躍的	The "Flak" in "Flakturm" stands for "FlugabwehrKanone" and means anti-aircraft gun. The "turm" stands for "tower. The anti-aircraft turmoil tower, which had both the function of a fortress with heavy anti-aircraft positions for air defense and an air-raid shelter to protect civilians in the event of air strikes, was constructed of reinforced concrete in the shape of a square castle or cylindrical tower on the ground, with separate sections and stairs for civilian and military use.
	高射砲塔は、高射	The anti-aircraft turret consisted of two units: the G tower (Gefechsturm / battle tower), which was equipped with an anti-aircraft gun, and the L tower (Leitturm / command tower), which had a fire control system.
	1940年8月に	When Hitler approved the construction of anti-aircraft turrets in August 1940, three sets were built in the German capital Berlin, two in the port city of Hamburg, and three in the ancient capital of Vienna, for a total of eight sets in three cities between 1941 and 1943.
	ハンブルクに3基	A third set of anti-aircraft turrets was planned for Hamburg and another for Bremen, but only plans were completed.
	オーストリアの首	Tower G, an anti-aircraft turret, was built in Augarten Park in Vienna, the capital of Austria. When entering the park, which is a place for citizens to relax and take their time, a huge concrete tower appeared.
8	高射砲塔の建設意	Intent to construct an anti-aircraft turret
	ポーランド侵攻か	Germany, which had dominated Western Europe from the invasion of Poland to the fall of Paris, bombed British air bases, munitions factories, and London (by mistake) by the Luftwaffe in early August 1940 in order to land on the British mainland. In retaliation, Berlin was bombed by the Royal Air Force on August 25-26, and Germany has been exposed to Allied air raids ever since. Hitler, shocked by the first air raid, decided to construct an anti-aircraft turret. He devised the basic concept and design outline himself, and left behind drawings of what he imagined a medieval fortress would look like.
	ヒトラーは首都に	Hitler's intention was to establish a strong air defense facility in the capital to appeal to the German people inwardly and to serve as a deterrent to the British externally. However, the knowledge of the anti-aircraft turrets strengthened the British intention to bomb Berlin. U.S. and British losses during World War II were 9,950 bombers and 8,420 fighters for the U.S. Army Air Corps and 11,965 bombers and 18,465 fighters for the Royal Air Force. In contrast, only about 120-200 aircraft were intercepted by Nazi anti-aircraft turrets.
	遠目に見える奇抜	The strange tower seen in the distance is the Spittelau incineration plant (designed by Hundertwasser, the same as the Maishima plant in Osaka), and the Augarten anti-aircraft turret was not to be outdone, blending in with the city of art.
9	ヒトラーが194	Sketch of an anti-aircraft turret in Berlin made by Hitler in September 1940.
	更にヒトラーは、	Furthermore, Hitler had an ambition to make the anti-aircraft turrets one of the semi-permanent monuments to the victory, following the example of the ancient Greek and Roman empires. This was a fleeting dream that never came to fruition, but all three sets of six anti-aircraft turrets built in Vienna are still in existence and have been preserved as cultural assets while being used as active military and tourist facilities. One of them was turned into an aquarium and sports facility, a symbol of anti-war and peace.
	ローマ帝国のダキ	The 38 meter high Trajan's Column, a monument of victory in the Dacian (Romanian) War of the Roman Empire. It is erected within the Roman Forum of Trajan, adjacent to the Colosseum and Roman Forum in Rome.
12	高射砲塔3つの世	Three generations of anti-aircraft turrets
	3つの都市に建設	The anti-aircraft turrets built in the three cities were divided into three main generations. Berlin, the first to be built, was all in the first generation and took Hitler's design, Hamburg has one set of the first and one set of the second, and Vienna has two sets of the third and one set of the second, four open-air concrete gun towers were built on the roof of the G towers and one heavy anti-aircraft gun was installed in each, and the structure protruding from the outer wall below them as the gun turrets for the light guns is common in each generation.
	各都市の高射砲塔	Various kinds of anti-aircraft turrets in each city; G towers are more often preserved because they are more robust.
	第一世代となるハ	Tower G of the first generation Heiligegeistfeld in Hamburg, April 1945, showing the installation of a series of 128mm machine guns in the four corner towers.
13	第二世代となるウ	Vienna's Arenberg G tower (left) and L tower (right), the second generation. The heavy anti-aircraft gun tower is more centered than in the first generation.
	第三世代となるウ	Tower G of the Augarten anti-aircraft turret in Vienna, the third generation.
14	高射砲塔の内部と	Interior of anti-aircraft turret and armament
	ベルリンに完成し	Of the first generation of anti-aircraft artillery towers completed in Berlin, Tower G had one basement level and six stories above ground, with a dedicated water supply system, underground power generation facilities, a kitchen, a dining room, a storage area for artifacts from the Berlin Museum, a hospital operating room, a warehouse, a repair shop, living quarters for approximately 300 anti-aircraft artillerymen, and a brig on the top floor. The anti-aircraft artillery unit was manned by the German Air Ministry, which in 1934 drew several Army anti-aircraft artillery battalions to form an anti-aircraft artillery battalion in the Luftwaffe to be assigned to air defense of bases in the interior. 500 men were needed for Tower G and 200 for Tower L. The number of men in Tower G and L was about 1,000 and 2,000 respectively. It could hold 8,000 civilians, but more than 24,000 were evacuated in actual operations.
	G塔の屋上には4	Four open-air concrete gun turrets were built on the roof of Tower G. Initially, 88mm and 105mm machine guns were installed, which were later replaced by four 128mm machine guns with eight guns. The light gun emplacement, located under the uppermost part and protruding from the outer wall, was mainly equipped with four 20mm machine guns, which were mixed with a 37mm machine gun.
	射撃管制塔となる	Tower L, which served as a fire control tower, was equipped with an intercept control system that included radar, optical rangefinder, anti-aircraft calculator (analog computer), searchlight, and listening device. To avoid interference from the G tower's shockwaves, the L tower was placed 150 to 500 meters away from the G tower, and the two towers were connected by a 1.5-meter-high underground tunnel, which was connected to a wired telephone system using communication cables and a wireless telephone system. The two towers were connected by a 1.5-meter-high underground tunnel, and were wirelessly connected to a wired telephone system using communication cables. Interception information was automatically calculated by an anti-aircraft calculator Model 40 in the primary command center in Tower L, and sent to the secondary command center in the center at the top of Tower G for fire control.
	レーダーにはウル	The radar was the Würzburg radar, and the early anti-aircraft turrets used the FuMG62, which had a dish-shaped antenna with a diameter of 3 meters to receive reflected signals, an effective detection and tracking distance of 50 kilometers, and an error of 100 meters. In the L tower, the FuMG64 Mannheim was also used from 1944, with a diameter of 3 meters, but with three times the number of vacuum tubes (150) to increase accuracy.
15	1943年、高射	A single 12.8cm Flak 40 installed in an anti-aircraft turret in 1943.
	高射砲塔の世代ご	Size and main armament of each generation of anti-aircraft turrets. The third generation, the Vienna Stifkaserne G-tower, was 45 m. The actual operation of the light gun turret was a mixture of 20 mm machine guns and 37 mm machine guns.
	デンマークのハン	A four-armored 2cm Flak38 preserved at Fort Hanstholm in Denmark, a gun used by the Navy's U-boats and other vessels, and adopted by the Air Force, which called it the 2cm Flak38/43.
16	ノルウェーのトロ	EM 4m R(H)40, preserved at Fort Trondenes, Norway, the last type of 4m rangefinder used mainly with heavy anti-aircraft guns, with a lens with a magnification of 20x and later with 32x, giving a theoretical range of 100,000m. It was operated in combination with a mechanical computerized anti-aircraft calculator.
	主な高射砲の諸表	Main anti-aircraft artillery artillery table of contents.
	rpmは「発/分	RPM indicates "shots/min.
	砲弾が爆発する高	When using a fuse that sets the altitude at which the shell explodes, the practical projectile height is about 65-70% of the maximum projectile height.
	Flakの後の数	The number after the FlaK basically indicates the number of years that the weapon was in production, but it differs from the actual number of years, such as the period when it was forbidden to produce weapons until the Treaty of Versailles was abrogated, which is misrepresented as "18" during World War I.

	ガス操作式で実用	The 3.7cm FlaK 43, which is gas operated and has a higher practical firing rate, reached a practical firing height of 4200m.
	ベルリンのフンボ	Radar and rangefinder installed on the Humboldt Hein L tower in Berlin.
17	クレーンで吊り上	Armored ammunition magazines weighing 72 tons, lifted by crane, were placed in each of the four anti-aircraft guns, and ammunition was replenished by ammunition elevators from lower-level ammunition magazines.
	ウィーン軍事史博	Type 36 60cm searchlight preserved at the Vienna Military History Museum. The 60cm searchlight was installed beside the anti-aircraft turret, but was removed after 1944 because it could not cope with high-altitude bombers.
	夜間爆撃時に用い	The searchlight used for night bombing was a 150cm or 200cm searchlight installed in the anti-aircraft turret, and a 60cm searchlight was installed on the side of the turret, but was removed after 1944 because it could not handle high-altitude bombers.
	聴音機は風・雲・	The listening instruments were supplemented by a double-circle (trumpet type) as a method of exploration unaffected by wind, clouds, and temperature differences.
	デンマークのハン	A 150cm searchlight, Type 34, preserved at Fort Hanstholm, Denmark. It can illuminate up to 10,000 m vertically and 12,000 m horizontally, and was later improved to Type 37, 40, 40B, and 43.
18	ハプスブルク家の	Schönbrunn Palace, the former summer residence of the Habsburgs, was completed in the 18th century by Empress Maria Theresa (Marie Antoinette's mother) and is famous for the episode in which the six-year-old Mozart proposed to Marie.
18-22	もう1つのドイツ	Another German state, "Austria".
	ドイツとオースト	Both Germany and Austria are predominantly ethnic German states.
	西暦800年、フ	In 800 AD, the Frankish king was established by Charlemagne (Karl the Great), who united the main parts of Western Europe, including France, Germany, and central Italy. The East Frankish Kingdom, one of the three divided by civil strife, became the prototype of Germany, and in the Middle Ages, the Holy Roman Empire (the First Empire), a complex of states led by the German king, was established in Central Europe. The Holy Roman Empire was a multi-ethnic state that included present-day Germany, Austria, the Czech Republic, and northern Italy, and maintained its authority by receiving the title of emperor from the Pope.
	15世紀前半以降	From the first half of the 15th century onward, the imperial throne of the Holy Roman Empire came to be dominated by the Habsburgs, archdukes of Austria. The Habsburgs, a noble family originating from what is now Switzerland, developed an aggressive intermarriage policy and gained a vast territory in Europe. In a famous example, Marie Antoinette, famous during the French Revolution, was married to Louis XVI of France for her foreign policy. The Holy Roman Empire of the modern era was a collection of about 300 fiefdoms, including small and medium-sized states, but when the Holy Roman Empire was destroyed by the Napoleonic Wars, the small and medium-sized fiefdoms that had disappeared during the wars could not be restored. The German Confederation was created in 1815, consisting of 35 monarchies and four free cities, including the Austrian Empire (established in 1804 as the successor to the Austrian Grand Duchy) and Prussia, which had emerged from the 18th century onward. In 1871, Prussia was united with Austria by the Iron Chancellor Bismarck to form the German Empire (the Second Reich). Meanwhile, the Austrian Empire was weakened by the Habsburgs' defeat in the war with Prussia, and in order to pocket the independence movement of the Hungarians, who were the second leading ethnic group, the Austro-Hungarian Dual Empire was established in 1867, including the vast It managed to preserve a multi-ethnic state.
	オスマン帝国が衰	With the decline of the Ottoman Empire, countries in the Balkans seeking to recover their territories, and Russia aiming to move south, the Balkans at the beginning of the 20th century had become a powder keg for Europe. The Dual Empire annexed Bosnia and Herzegovina in 1908, which it had obtained through a secret agreement with Russia. A national resistance movement was organized mainly by Serbs, and the Sarajevo Incident occurred on June 28, 1914, in which Austrian Crown Prince Franz Ferdinand and his wife, who were visiting Bosnia, were shot dead by a young man of Serbian origin in the provincial capital Sarajevo, leading to the First World War. In the fall of 1918, the German Empire collapsed after sailors mutinied against the German naval command, which wanted to send out its entire army in spite of the fact that it had lost the war. The Dual Reich collapsed, with the remaining parts becoming the (First) Republic of Austria, after independent countries such as Hungary, Czechoslovakia, Poland, and Slovenia were forced to cede their territories.
	民主的なワイマー	In Germany, which became the democratic Weimar Republic, the economy was in turmoil due to hyperinflation caused by printing money to pay reparations for the war defeat. The Great Depression, which had its epicenter in New York City, led to the rise of the Nazis in the 1930s. The period of Hitler's dictatorship from 1933 to 1945 was known as the Third Reich.
	チェコが工業、ハ	However, after the war, Austria was reduced to a small country with a population of 7 million and a small territory with many mountainous areas, and was ridiculed as "a nation that could not survive" or "a country that no one wanted". After the Great Depression, nationalism increased in Austria, and support for the Austrian Nazis grew, leading to the assassination of the Austrian prime minister in an attempted coup d'état in March 1938, when Hitler moved into Austria and declared the country annexed, making Austria an Ostmark (eastern frontier) state. The Treaty of Versailles, which resulted in Austria's defeat in World War I, prohibited Germany and Austria from merging, but Austria's desire to unite with Germany based on Greater Germanism was inherently desirable, and expectations of economic recovery led to a referendum on April 10, 1938, in which Hitler overwhelmingly supported the merger (Hitler also supported the merger). The referendum was overwhelmingly supported by the Austrians (Hitler was also from Austria).
	第二次世界大戦末	In March 1945, at the end of World War II, Allied forces launched a counter-offensive from the Normandy landings and crossed the Rhine River on the Western Front, while the Soviet Red Army occupied Vienna on the Eastern Front in April. Germany surrendered unconditionally in May as they closed in on Berlin. After the war, Austria was separated from Germany and divided between the United States, Great Britain, France, and the Soviet Union. The setting was "Austria was invaded by Germany and liberated by the Allied Forces." In 1955, Austria was granted independence and became the Second Republic, subject to a ban on mergers with Germany, permanent neutrality, and other conditions. While West Germany was incorporated into the North Atlantic Treaty Organization (NATO), a military alliance of Western nations, in 1955, Austria was able to avoid an East-West split like Germany by becoming a permanent neutral country, but has not joined NATO even though it is a member of the European Union to this day. Although the Soviet Union was intent on creating a buffer zone between its bordering countries and Germany by allowing neo-Soviet-like communist regimes to be established, it is believed that becoming a permanent neutral country was more beneficial from a security perspective since it did not share a border with Austria.
	2022年、ロシ	In 2022, with Russia's invasion of Ukraine, Austria finds itself in the difficult position of maintaining its neutrality while Switzerland, another permanent neutral country, has joined economic sanctions against Russia and become more pro-NATO. Today Austria is accessible by direct flights from Tokyo to Vienna by ANA and Austrian Airlines, and hotels are not as expensive as in London or Paris, allowing visitors to enjoy the heritage of the Habsburg Empire, including its magnificent palaces and gardens, and its old city, the capital of music.
19	19世紀後半に建	The Vienna State Opera House, a temple of music built in the late 19th century. It was severely damaged in an air raid during World War II. The interior can be visited in the form of a tour.
20	ウィーンの中心に	St. Stephen's Cathedral is located in the center of Vienna. One of the places where the guts of successive emperors were divided and buried.
21	ウィーン軍事史博	The Vienna Museum of Military History preserves the passenger car in which Austrian Crown Prince Franz Ferdinand and his wife were riding during the Sarajevo Incident, as well as the Crown Prince's clothes, which have bullet holes and bloodstains at the neck.
	1914年のオー	Territory of the Austro-Hungarian Double Empire in 1914.
	1789年のオー	Territory of the Austrian Grand Duchy in 1789.
22	二重帝国崩壊まで	The Hofburg Palace was the royal palace until the fall of the Double Reich.
23	シュテファン大聖	Interior of St. Stephen's Cathedral.
	シュテファン大聖	Adjacent to St. Stephen's Cathedral, Grabenstraße is the central street of Vienna's Old City. The Plague Monument, which celebrates the end of the plague epidemic, stands on the street.
25	ウィーンの高射砲	Vienna anti-aircraft turret map.
	1:アーレンベル	1:Arenberg
	2:シュティフト	2: Stiftkaserne
	3:アウガルテン	3:Augarten
	中央はシュテファ	In the center is St. Stephen's Cathedral.
	ウィーンに設置さ	Anti-aircraft turret installed in Vienna

	ドイツ併合後、オ	After the annexation of Germany, it was important for Hitler to defend Vienna, the capital of Austria, and in September 1942 he ordered the construction of three sets of anti-aircraft turrets, arranged in a triangular shape to defend the inner areas, in Stifkaserne, Augartenpark and Arenbergpark. They were to defend the cultural and educational district, including the Royal Palace and the Old City, which is now a UNESCO World Heritage Site as the Historic Center of Vienna.
	建設は軍需省建設	Construction was handled by the Construction Department of the Ministry of Munitions, and the bulk of the work was done by 300 to 500 semi-compulsory foreign laborers, Jewish forced laborers, and RAD (the National Labor Service to combat unemployment, which provided military support during the Great War). Construction materials were transported by rail and the city's tram network. The third generation of two sets of exterior walls, 16-sided and nearly cylindrical, were planned to be decorated after the war with medieval tiles and French marble. After the victory, the building was to be decorated with medieval-style tiles and French marble. The decorative stones were collected in Lyons, Paris, Orleans, and other parts of France, but were never transported to Vienna due to the liberation of France by the Allied Forces.
	ウィーンの高射砲	The anti-aircraft turrets in Vienna were manned and operated by the 2nd and 3rd anti-aircraft artillery battalions of the 184th anti-aircraft artillery regiment, each pair of which had an intercept range of 20 to 22 kilometers, and three of which could defend a 60 kilometer perimeter.
	ロンドンから13	Vienna, 1,300 km from London, was a safe city until 1943, but from 1944, the city was bombed from Foggia in southern Italy, and after the liberation of France, it became possible to bomb all of Germany, with more than 52 major air raids on Vienna. The city of Vienna and its many refineries and related facilities in the suburbs, as well as 90,000 houses, were lost; after the fall of 1944, Germany was unable to launch interceptors due to fuel shortages, and only anti-aircraft artillery positions were relied on for anti-aircraft combat, with anti-aircraft turrets providing air defense and receiving civilians. The Stifkaserne anti-aircraft turret was hit by 107 direct hits in the air raid but did not collapse.
	1945年4月2	When the Soviet invasion of Vienna began on April 2, 1945, the anti-aircraft turrets began firing boldly at tank units on the ground on the 4th, temporarily halting their advance. The Augarten L tower still bears the marks of the bombardment it received in the battle, and on April 7-8, after firing shells, the anti-aircraft turret was evacuated by order of the commanding officer, with weapons and equipment blown up, thus ending the battle of the anti-aircraft turret.
26	アウガルテンG塔	Augarten G Tower
	ウィーンの北側に	The third generation anti-aircraft turrets, towers G and L, are preserved in the Augartenpark, north of Vienna.
	アウガルテンのG	The Augarten's G-tower, which had nine stories when planned, became 12 stories high and was the tallest of Vienna's anti-aircraft turrets at 54 meters at its apex. The Soviet Union attempted to blow it up after the war without success, and the light gun emplacement under the top from north to northeast was removed in 2007 due to the risk of collapse, and the top was reinforced with steel wire. It is now used for storage and other purposes, and a cell phone communication tower has been installed on the west wall. Pigeons have entered the cracks in the concrete, and the area is said to be a paradise for thousands of birds.
27	4箇所に設けられ	The four entrances and exits are sealed off and only graffiti asserts itself.
29	アウガルテン高射	Augarten anti-aircraft turret G tower was partially collapsed with the remains of a postwar attempt to blow it up. The cracked concrete gaps had become pigeon nests, nurturing new life.
31	外壁から張り出し	The "A"-like structure installed under the light gun emplacement protruding from the outer wall is a concrete defense rack that prevents the light gun emplacement from falling in the event of a blast.
36	アウガルテンL塔	Augarten L Tower
	アウガルテンのL	Augarten's L tower was hit by dozens of direct hits from 203 mm heavy howitzers by the Soviet Red Army, destroying part of its outer wall, the location of which can still be seen today. The concrete thickness of anti-aircraft turrets is basically 2.5 meters for the outer wall and 3.5 meters for the ceiling, although there are various theories, but the top of Tower L was less than one meter thick, and it is believed that the shelling caused the hole. The interior, like Tower G, is not open to the public and is being considered for use as a computer-related warehouse or outdoor movie theater.
	現地の案内板には	A local information board said that the anti-aircraft turret was built by hundreds of forced laborers and that it was a memorial to the enormous exploitation, humiliation, and destruction of human beings that occurred under National Socialism. Surrounded by tree-lined avenues, it was quiet, with only the occasional walker or runner passing by.
37	アウガルテンのL	Tower L of the Augarten had part of its outer wall destroyed by Soviet bombardment, leaving an easily recognizable mark on the south side.
	ハバロフスク赤軍	Soviet B-4 203mm howitzer at the Khabarovsk Red Army Museum.
44	ベルリン包囲戦	Siege of Berlin
	大戦中にドイツ各	During World War II, German cities were repeatedly bombed by the Allied Forces, and many of them were reduced to rubble, but the anti-aircraft turrets with their thick concrete walls were not destroyed. At the end of the war, anti-aircraft turrets in Berlin served as fortifications in urban battles against the Soviet Red Army and as evacuation shelters for civilians. At the end of March 1945, as the fall of Berlin approached, the Berlin Defense Command used the civilian telephone network to communicate with Hitler's Führer bunker by relaying messages from a communications facility in the Tiergarten anti-aircraft turret. When the city battle began, they fought hard, firing heavy artillery at Stalin heavy tanks and T34s that appeared within visual range. The tanks on the ground were much easier to destroy than aircraft. Other uses included the storage of artworks and the establishment of hospitals to house the wounded and the dead. 8,000 people could be accommodated in a single anti-aircraft turret, but in reality 30,000 to 40,000 people could be accommodated, saving many civilian lives in Berlin, including those in other large air raid shelters and in the subway.
45	ハバロフスク赤軍	T-34-85 with 85mm gun at the Khabarovsk Red Army Museum.
	樺太神社跡地に設	Monument of IS-2 Stalin heavy tank installed at the site of the former Karafuto Shrine. In the back is an IS-3.
46-47	アーレンベルクG	Arenberg G tower and L tower
	ウィーンの南東に	In Arenberg Park, southeast of Vienna, a second-generation anti-aircraft turret was installed, similar to the one at Wilhelmsburg in Hamburg.
	G塔の外壁は四角	The outer wall of Tower G is composed of a square, and the large anti-aircraft gun tower on the roof has been changed from the square shape of the first generation to a cylindrical shape, giving it the appearance of a huge medieval castle. The light gun turret of the first generation had a semicircular double overhang, which was eliminated in the second generation and simplified. Initially equipped with a 105 mm machine gun, it was replaced in 1944 by a single 128 mm machine gun, and finally by a series of guns. During the Vienna offensive, the Arenberg anti-aircraft turret fired its first volley against the Soviet Red Army on April 4, 1945, and the battle lasted four days.
	現在のG塔は美術	Tower G is currently used to store art works, but the interior of Tower L does not seem to be used. Compared to the large Augarten Park, Arenberg Park is only about 200 meters square, and the trees make it difficult to see the whole shape of the park. Children playing on the playground equipment and ball games and graffiti on the outer wall seemed to be a symbol of peace.
	1991年のウィ	The conceptual artwork "SMASHED TOPIECES(IN THE STILL OF THE NIGHT)" was painted on the Stifkaserne anti-aircraft turret L tower by American artist Lawrence Weiner during the 1991 Vienna Art Week (Wiener Festwochen). It appears to be an English text painted on the Arenberg L tower. The year 1991 was also the year when the Soviet Union collapsed and the Cold War came together.
	ウィーン出身のイ	A work by Marianne Maderna, an installation artist from Vienna, painted in 2005 during a climbing performance. historysteria seems to be a coined word meaning "historical hysteria".
62	各国の戦闘機と爆	Fighter and bomber aircraft of various countries
	写真はロンドンで	Pictured is a scene from Queen Elizabeth's birthday parade in London on June 9, 2018, at the Battle of Britain Memorial Flight, a dynamic preservation of WWII-era aircraft. The Avro Lancaster, a four-engine bomber, has been the core of the Bombardment Corps since its introduction in 1942, bombing U-boat bases, German cities, and the battleship Tirpitz. The Supermarine Spitfire served in the defense of the British mainland from 1940 and became the savior of Britain. The Hawker Hurricane was the mainstay of the early stages of the war. In the defense of the British mainland, the Spitfires, with their superior performance, took charge of enemy fighters, while the Hurricanes attacked enemy bombers, a division of roles that proved to be very successful.
	イギリスの戦闘機	British fighter planes had a short range and were not suitable for escorting bombers. The United States, which entered the war at the end of 1941, used longer-range fighters to escort its bombers and carried out air strikes during the daytime, when precision bombing was possible. The Luftwaffe countered the night bombers by installing radar on their night fighters.
	ハリケーン	hurricane
	ランカスター	Lancaster.

	スピットファイア	spitfire
	Lower left	A U.S. Army Air Corps North American P-51D Mustang from the Chino Air Museum near Los Angeles. It excelled in speed at high altitude and outperformed fighter planes of other countries.
	Middle right	From the Chino Aviation Museum near Los Angeles, a U.S. Army Air Corps Republic P-47G Thunderbolt, powered by a 2500 hp engine that was ideal for escorting bombers due to its long range.
	ハワイの太平洋航	The U.S. Army Air Corps Boeing B-17E Flying Fortress is preserved at the Pacific Aviation Museum in Hawaii. With an exhaust turbine engine, it could reach a practical flight altitude of 11,000 meters, and was used for daylight bombing, where it was capable of precision bombing, along with the B24.
63	upper row	The Messerschmitt Bf109G-6/R3, preserved at the Smithsonian Air and Space Museum in Washington, D.C. It was the Luftwaffe's main fighter, but its short following distance made it insufficient to escort bombers. The Bf110 (Me110), a twin-engine version of the Bf109, was used as a night fighter.
	center of three columns	Focke-Wulf Fw 190F, preserved at the Smithsonian Air and Space Museum in Washington, D.C. The only air-cooled fighter in the Luftwaffe, the F model was capable of ground bombing with bombs attached to its wings, and the D model could reach over 700 km/h at high altitude.
	コスフォードのイ	Junkers Ju88 preserved at the Royal Air Force Museum in Cosford. Originally a bomber, it was also used as a night fighter with a radar attached.
64	シュティフトカゼ	Stiftkaserne G Tower
	ウィーンの南西に	The Stiftkaserne anti-aircraft turret (kaserne means barracks), located southwest of Vienna, is of the third generation like the Augarten; the L tower was installed in Esterhazy Park, about 500 meters from the G tower. The difference from the Augarten is that both G and L towers do not have a defensive rack installed under the light gun emplacement. Also, the height of Tower G was 45 meters, the lowest in Vienna.
	G塔の高射砲は1	The anti-aircraft gun in Tower G was a Type 44 128mm machine gun. It was occupied by the U.S. after the war, used as a nuclear weapons storage facility during the Cold War, and presumably became one of the two special bunkers that the Austrian government had after its return. It is currently used by the Austrian Army.
	商業施設や集合住	The entire inside of the square plot, covered by commercial and residential buildings, appeared to be a military site, so we could not get a full view of the anti-aircraft turret. White radar equipment and what appeared to be prefabricated huts could be seen at the top of the outer wall and on the roof.
	王宮や美術館が多	The Laingrube district, adjacent to Ringstrasse, where the Royal Palace and many museums are located, is one of the oldest suburbs in Vienna and a bustling area with fashionable cafes and fast fashion stores. The scenery of huge, rugged, cylindrical concrete towering over the area created an odd atmosphere.
	シュティフトカゼ	The area around the Neubaugasse station, the closest station to the Stiftkaserne anti-aircraft turret.
	円形張り出しを支	Structure supporting circular overhang
	防御架あり	with defensive bridges
	軽砲座の直下は	The area directly below the light gun emplacement is flat
	防御架なし	without a defensive bridges
	アウガルテンとシ	Difference between Augarten and Stiftkaserne
	アウガルテンG塔	A defensive rack is built on the underside of the light gun turret of the Augarten G tower, and the area directly below the turret is flattened. The Stiftkaserne G gun has a slightly rounded support structure directly below the gun turret instead of a defensive trestle. The Augarten L tower has a defensive rack, and there is also a structure that supports a circular overhang. In contrast, the Stiftkaserne L tower has neither a protective rack nor a structure to support the circular overhang.
	後述のシュティフ	The top of Tower G could be seen from Tower L of the Stiftkaserne anti-aircraft turret, described below, at approximately the same height. Further back, towers G and L of the Augarten anti-aircraft turret can be seen.
	軽砲座の下に防	There is no defensive bridges under the light artillery gun emplacement.
	軽砲座の直下に	Round support structure directly under the light gun turret
	シュティフトカゼ	Stiftkaserne L Tower
	シュティフトカゼ	Tower L of the Stiftkaserne anti-aircraft turret is the only one of the anti-aircraft turrets in Vienna that is open to the public inside the building. The concrete tower was forcibly transformed into an urban aquarium by adding new structures to the base, resulting in a bizarre architecture. From the roof of the anti-aircraft turret to the east side, it looks as if L-shaped blocks were turned upside down and attached to each other, and on the west side, a triangular-shaped greenhouse was added. In addition, the walls were a climbing gym with numerous colorful holds (protrusions) on which to hang arms and legs. The top of the addition is a restaurant where visitors can enjoy the sunset and night views of Vienna while eating. The interior of the aquarium was also boldly remodeled with concrete hollowed out here and there.
	同じ型の高射砲塔	Although another anti-aircraft turret of the same type has been preserved, I could not imagine that it had been so extensively remodeled until I actually visited the site, and was stunned when I first saw it. I was stunned when I first saw it. In Japan, I have seen buildings of the former Japanese Navy used as public facilities and tourist attractions in Maizuru and Sasebo, but this was an example that made me think about the preservation and utilization of cultural assets once again.
	ガラス張りのビル	The east side of the building, which is glass-walled and building-like. It serves as the entrance to the aquarium.
70	2フロアをブチ抜	The 300,000-liter Puppi aquarium tank was built out of two floors. A 6-meter-high, 1-meter-wide cutout in the 2.5-meter-thick exterior wall allows outside light to penetrate.
	コンクリート壁を	A tunnel water tank hollowed out of a concrete wall in a circular shape and blasted through from the first floor to the basement.
	魔改造され魚の楽	Remodeled into a fish paradise.
	戦後、シュティフ	After the war, the Stiftkaserne anti-aircraft turret was not blown up to avoid damaging nearby buildings. Various uses were considered for Tower L, including apartments, student dormitories, a hotel, and a high-rise building, but from 1954 to 1962, the observatory was relocated there and used from 1957 to 1958, when marine biologists used part of the building to hold their first animal exhibition, which later became the HausdesMeeres (Sea House), an urban aquarium where sharks swim. The building has since become the "HausdesMeeres" (House of the Sea), an urban aquarium where sharks swim.
71	「防空(部屋)へ	The concrete wall, still intact from the war, is marked "Zu den Luftschutz," which means "To the air defense (room)."
	厚さ約2.5メー	A hollowed-out section of the wall about 2.5 meters thick. For size comparison, a guide lies down and makes a peace sign.
	1943年、計画	Cross section of L tower at the time of planning in 1943. The number of floors added is calculated with the ground floor as the first floor.
	1943年、計画	First floor plan of Tower L at the time of planning in 1943. The staircase in the center of the floor is probably for civilian use, and the two staircases on either side of it are for military use.
	軍用入口？	Military entrance?
	軍用階段？	Military stairs?
	民用階段と吹き抜	Folk stairs and stairwell?
	民用入口？	Folk entrance?
72	高射砲塔最上階の	A 150,000-liter hammerhead shark tank was placed on the 11th floor, the top floor of the anti-aircraft turret. The top floor had been collapsing due to rainwater accumulation, so an additional floor was added to cover the top floor of the anti-aircraft turret.

	シュティフトカゼ	The aquarium in Stifkaserne L tower had exhibits about anti-aircraft turrets throughout.
	戦時中は2〜4階	During the war, the second to fourth floors (with the ground floor as the first floor) could accommodate 3,000 civilians, and the fire control tower required 240 military personnel. Forty of these were women, who were in charge of the searchlight power supply area and the telephone and radio switchboard. After the front against the Soviet Union became bogged down, boys between the ages of 14 and 17 became air force auxiliaries to fill the shortage of anti-aircraft artillery personnel to be sent to the front lines, and 16,000 were collected throughout Austria. Many of the auxiliaries assigned to anti-aircraft turrets became anti-aircraft artillery personnel, and those who could do mathematics were assigned to the measuring corps, those who were strong in physics to the artillery corps, and so on. There were also cases where captured Russians, mostly prisoners of war, volunteered to serve as gunners.
	軍用と思われる当	The staircase, believed to have been used by the military at the time, had a new white paint job and new handrails.
73	軽砲座の張り出	The overhang of the light gun turret; as of 2021, the interior of this floor was undergoing construction of an exhibit recreating Australian nature. The circular gun emplacement was covered with a new building up to the center area, and the railing at the edge was reinforced or some of the concrete was cut.
74	10階から3.5	From the 10th floor, the 3.5-meter-thick ceiling is climbed to the 11th floor. The left side of the photo is probably cut concrete to avoid hitting the head.
	最上階は一次指揮	The top floor was the primary command center and preparation room, and is now a museum about anti-aircraft turrets and the Vienna air raid. There is also a display of a 500kg U.S. Army bomb near the ceiling.
75	電話・タイプライ	A telephone, typewriter, medicine chest, 1-meter rangefinder, radio receiver, and anti-aircraft calculating machine were on display.
76	トップロープとり	Wall surface for top rope and lead climbing. You can see the addition of a structure that looks like an upside down L on top of the original building.
	水族館の温室の下	A new 4.5 meter bouldering wall has been built under the aquarium's greenhouse.
78	「あっ、危ない！	Oh, look out!
	その瞬間、壁を登	At that moment, the man's body, which was climbing the wall, floated softly.
	「墜落する！」	We're going down!"
	…… そう思ったの	That thought was completely unfounded.
	塔の上部から繋が	He seemed to be playing with his life on a rope connected from the top of the tower, kicking the wall and swinging in the air like a pendulum. Naked and roughly dressed, the man used a harness and carabiners at his waist to climb the 30-meter outer wall with great ease.
79	高射砲塔の外壁か	Colorful holds (protrusions) grow from the outer wall of the anti-aircraft turret. Turning to the back of the aquarium, visitors can use the bouldering and rope climbing facilities, where they can climb the walls using only their hands and feet. While sport climbing has gained recognition in Japan through medal wins at the Tokyo 2020 Olympic Games, it is enviable that a full-scale climbing facility can be enjoyed in the midst of the metropolis, utilizing a World War II-era war site, just like in Europe, the home of sport climbing.
82	元の高射砲塔の上	The restaurant/cafe, which was added on top of the original anti-aircraft turret and also serves as an observation deck, is located further up.
	通常非公開のガチ	You will be given a special guided tour of the top of the gachi, which is normally closed to the public.
	旧市街に隣接する	From the highest point in the area adjacent to the old town, we could see the entire city in the setting sun.
	今はまさにウィー	Now we are standing on the very history of Vienna.
	レストラン「36	View from the restaurant "360°OCEANSKY" of the G-Tower and the nearby Maria Hilf Church. The right side of page 80 shows the old town and the steeple of St. Stephen's Cathedral.
83	東南東方面にはア	The Arenberg anti-aircraft turret could be seen to the east-southeast. Slightly left of center is the Karlskirche. In the distance, the tall chimney of the Donaustadt Power Plant, which stands on the banks of the Danube River, can also be seen.
87	展望レストランの	Enjoy a Viennese dinner show that transforms from evening glow to sparkling night view at the 360° OCEANSKY observation restaurant.
	オーストリアの夏	Aperol, an orange liqueur of Venetian origin, is a common summer drink in Austria.
	ドイツ語圏やハン	Goulash, a beef stew, is a specialty of German-speaking countries and Hungary.
	エスプレッソコー	Amadeus" is a Viennese-style iced café with espresso coffee, ice cream and whipped cream, and chocolate liqueur "Mozart".
89	ベルリンのティア	Tiergarten L tower in Berlin. After the war, the Tiergarten anti-aircraft turret was used as a hospital for infectious diseases and as a winter home for displaced people without shelter, but was blown up by British troops in the summer of 1947; the site of Tower G became the Berlin Zoo's hippo breeding house, and Tower L became the zoo's bird sanctuary.
	1947年10月	On October 17, 1947, at about 11:00 a.m., the interior of the Wilhelmsburg (second generation) G-Tower in Hamburg was blown up and only the outer walls remain today.
	1947年10月	The Wilhelmsburg L tower was blown up on October 10, 1947. Heiligengeistfeld (first generation) G tower was used for radio and TV broadcasting from 1949, and later became a commercial building, used for music schools, audio equipment stores, nightclubs, etc. The L tower was blown up in 1975 and the site became the Deutsche Telekom The L tower was blown up in 1975 and the site became the Deutsche Telekom building.
	1948年3月1	South side of Humboldt Hein G tower in Berlin on March 13, 1948. The Humboldt Hein anti-aircraft turret transitioned between Soviet Red Army quarters and French quarters, and in 1947 the L tower was blown up; in 1948 the G tower was blown up twice, but the north side remained and was used as a mountain climbing training site by the German Alpine Society, and became a memorial in October 1990. The Friedrichshain anti-aircraft turret, also in Berlin, was blown up by the Soviet Union in 1946, and the rubble piled up over the years became a 79-meter-high hillside, and part of the western wall still exists.