

WASC 1869

WAI 461

Articles

'After the Battle'

#93

#101

1996 and 1998

'The RCAF
Explosion 1940'

(January)

April (2)]

AFTER THE BATTLE

GERMAN TREASURE TROVE
UK GUNPOWDER FACTORY EXPLOSIONS
US 99th DIVISION 'MIA' SEARCH TEAM



£3.00

Number 93

AFTER THE BATTLE

NUMBER 93

Edited by **Winston G. Ramsey**
 European Editor: **Karel Margry**
 Published by **Battle of Britain Prints International Ltd.**,
 Church House, Church Street,
 London E15 3JA, England
 Telephone: 0181-534 8833
 Fax: 0181-555 7567

Printed in Great Britain by
Plaiستow Press Ltd., London E15 3JA

© Copyright 1996

After the Battle is published quarterly on the 15th of February, May, August and November.

United Kingdom Newsagent Distribution:
 Seymour Press Ltd., Windsor House, 1270 London Road, Norbury, London SW16 4DH.
 Telephone: 0181-679 1899

United States Distribution and Subscriptions:
 RZM Imports, PO Box 995, Southbury, CT, 06488
 Telephone: 1-203-264-0774

Canadian Distribution and Subscriptions:
 Vanwell Publishing Ltd., 1 Northrup Crescent, St. Catharines, Ontario L2M 6P5.
 Telephone: (905) 937 3100 Fax: (905) 937 1760

Australian Subscriptions and Back Issues:
 Technical Book and Magazine Company, Pty. Ltd., 289-299 Swanston Street, Melbourne, Victoria 3000.
 Telephone: 663 3951

New Zealand Distribution:
 South Pacific Books (Imports) Ltd., 6 King Street, Grey Lynn, Auckland 2. Telephone: 762-142

Italian Distribution:
 Tuttostoria, Casella Postale 395, 1-43100 Parma.
 Telephone: 0521 290 387, Telex 532274 EDIALB I

Dutch Language Edition:
 Quo Vadis, Postbus 3121, 3760 DC Soest.
 Telephone: 035 6018641

CONTENTS

THE MERKERS AND BUCHENWALD TREASURE TROVES	1
READERS' INVESTIGATIONS	
Australian Beaufort Crash	28
UNITED KINGDOM	
The Royal Gunpowder Factory Explosions 1940	34
IT HAPPENED HERE	
The 99th Division 'Missing in Action' Search Team	50

Front Cover: The entrance to the Kaiseroda mine at Merkers. Here, in April 1945, Shaft No. 3 below the winding gear led to a veritable treasure cave of German state valuables secreted away almost 1,600 feet below ground, but today the mine has ceased production and most of the above-ground buildings are in the process of demolition. (Karel Margry)

Centre Pages: Fatal crash site on a Victorian hillside yet, thanks to the efforts of David Green, the deaths of four Australian airmen will no longer be forgotten. (David Green)

Back Cover: The last farewell at Fort Sam Houston, San Antonio, Texas, for 2nd Lieutenant L. O. Holloway whose remains were found in Belgium in 1990 by the 99th Division 'Missing in Action' Search Team.

Acknowledgements: The Editor is indebted to Ian Sayer for the loan of photographs from his extensive archive for the feature on German gold. Karel Margry is appreciative of the assistance of Herr Hartmut Ruck of the Merkers/Kaiseroda mine, Frau Regina Rakisch and Herr Friedbert Staar of the Buchenwald Memorial, and Peter Hendrikx.

Photo Credits: AWM - Australian War Memorial, Canberra. BWA - Buchenwaldarchiv. RIOD - Rijksinstituut voor Oologdocumentatie, Amsterdam. USNA - US National Archives, Washington DC.

miles of Bremen. First and Ninth U.S. Armies expanded their Weser bridgeheads and squeezed Ruhr pocket. Third U.S. Army consolidated

Nazi Treasure Astonishes Yanks Probing Salt Mine

By Robert Richards
 United Press War Correspondent

MERKERS, Germany, Apr. 8—Men of the 90th U.S. Inf., Div. probing the depths of a salt mine here, yesterday discovered what is believed to be the entire gold reserve of the Reichsbank, together with priceless art treasures freshly removed from Berlin.

Dr. Fritz Vleck, one of the Reichsbank's advisers, who was captured in the mine, estimated at 100 tons the gold bullion stored in a vault 2,100 feet below the ground. Vleck also estimated the paper currency in the vault at 3,000,000,000 dollars' worth of German marks, 2,000,000 American dollars, 100,000,000 French francs, 110,000 English pounds, 4,000,000 Norwegian crowns and smaller amounts of other foreign currencies.

Two other officials in charge of the gold and treasure vaults were also captured. They are Dr. Pave, curator of the

Build Rail Bridge Over Rhine
 21st Army Gp. Hq. Apr. 8—A railway bridge now is under construction over

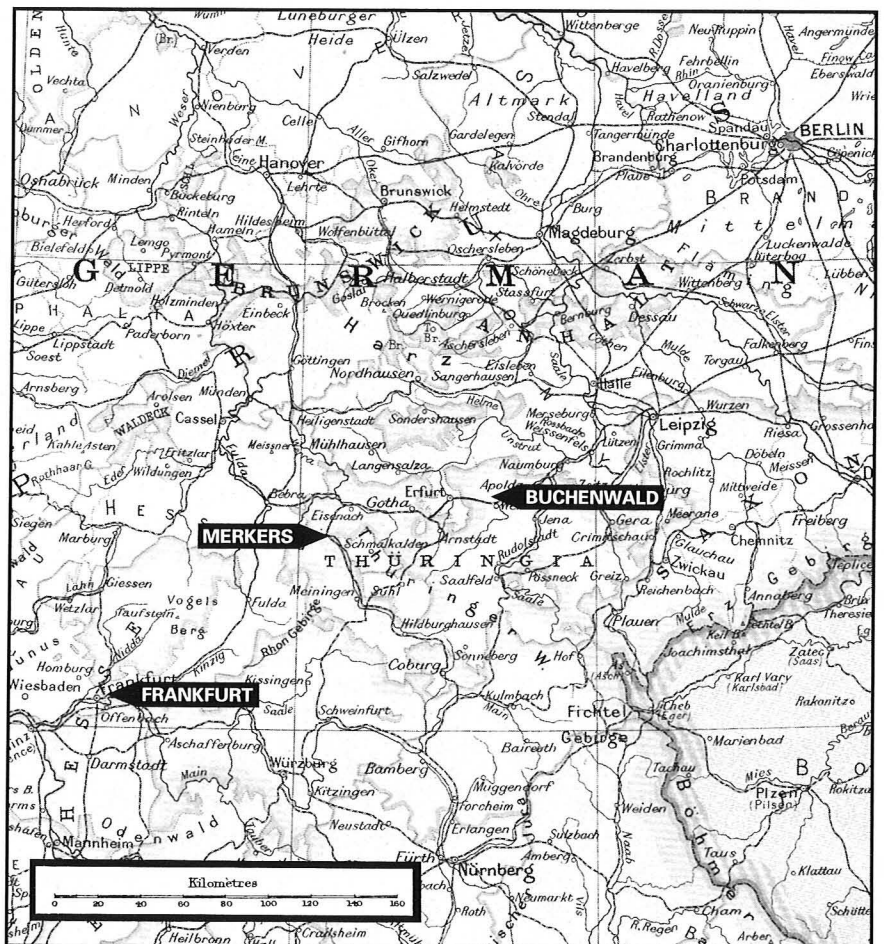
in Clouds, Mist

Charles Lynch
 Special Correspondent

IN HOLLAND, Apr. 8—Allied airborne troops now striking north for a link-up, laced with canals. Aircraft flow through down in a mist which cut the visibility. The craft were roaring over their heads where the drop was being made. To disclose the size of the airborne force, as was the huge force which dropped. All drops were made by parachute—no

More than 51 years after units of the US Third Army found more than \$250,000,000 of assets hidden by the Nazis in the German State of Thuringia, allegations of theft and controversies about the disposition of the treasures continue to spark notoriety. Over the course of time since German state assets and Nazi plunder were recovered from the Kaiseroda mine in Merkers in 1945, concerns about whether some members of the American military pilfered some part of this treasure have still not been laid to rest.

Another Nazi treasure trove, the Buchenwald quarry discovery which became 'Shipment 16', was fully documented at the time, not only by affidavits sworn by the two US First Army Judge Advocate General officers responsible for the find, but also by a documentary record consisting of film and photographs, excavation and movement orders, and receipts and custody paperwork from the American Frankfurt am Main depository where Shipment 16 was sent less than a week after it was found.





THE MERKERS AND BUCHENWALD TREASURE TROVES

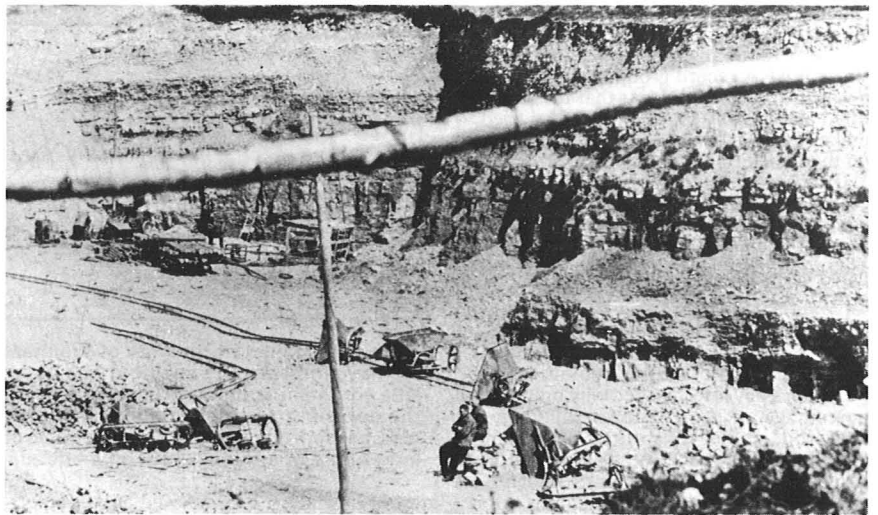
By Carolsue Holland and Thomas Rothbart

Ironically, unlike the major find at Merkers (a portion of which became Shipment 1), information about Shipment 16 was not concealed by an extraordinary security classification. Therefore, when the American National Archives and Record Agency (NARA) opened the documents under the 30-year rule, information about the find hidden in the Buchenwald quarry was available to anyone with the qualifications to do archival research. Since the beginning of 1979 (31 years after the Buchenwald trials), the declassification of pertinent documents occurred according to ordinary procedure: a researcher who wished to use material deposited in the file boxes of a particular record group, brought it to the readers' room desk where an archival technician crossed out the security classification and stamped on a declassification number and date.

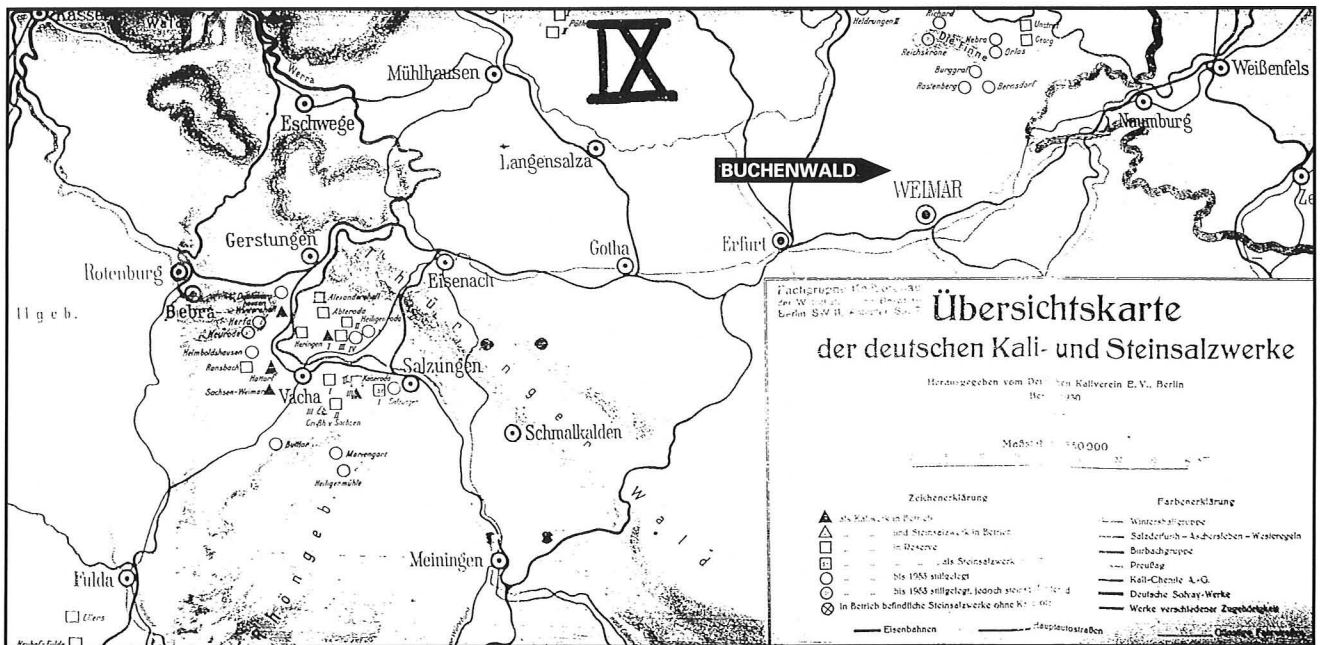
The practice of crossing-out, not deleting, the security classification has much to do with a myth that the Americans were hiding information about Shipment 16 in a 'secret archive'. On March 30, 1984, a researcher working in NARA located parts of an incomplete record about the American military and a treasure trove found in Buchenwald concentration camp's quarry. From 1984 until the unification of Germany in 1990, it appears that attributing the former US security classification to a conspiracy to withhold information generated a concerted effort on the part of local German treasure hunters. After October 1990, the quest devolved to a small group of Thuringians who, periodically, still pester State authorities and the directorate of the Buchenwald Memorial to underwrite a hunt to look for the buried assets of Shipment 16 by excavating Buchenwald quarry.

Also, one United States corporation seeking to attract investors for support, continues to pressure the Buchenwald Directorate and the Thuringian State government to dig up

the Buchenwald quarry to find assets that the entire documentary record proves were removed by US First Army before the end of World War II, more than 51 years ago.



As the Allied armies closed in on Germany in 1945, the Germans went to extensive lengths to secrete their movable state assets — bullion, cash, art and sculpture, etc — as well as hiding valuables looted from the occupied territories. *Top:* Salt mines, with their stable temperature and humidity were ideal: here a soldier of the US Third Army examines art treasures discovered in the Kaiseroda mine at Merkers, more than 250 kilometres north-east of Frankfurt, in April 1945. (USNA) *Above:* Another cache in the quarry at Buchenwald concentration camp, almost 100 kilometres to the east, was found three weeks later. (BWA)

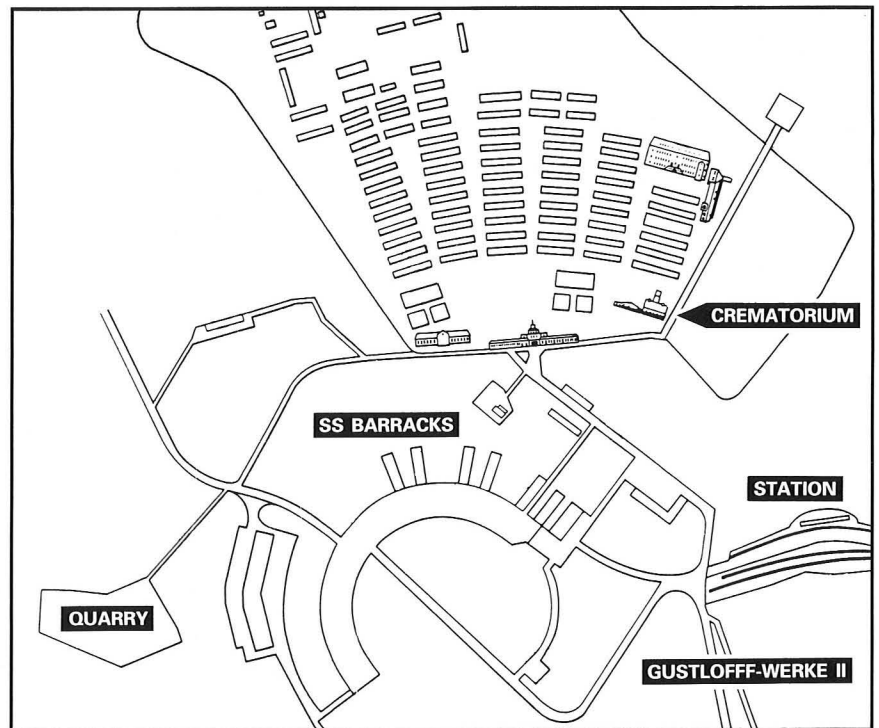


Even as late as February 1994, the US Army Center for Military History stated that they could find no reference in their records to any treasure being removed from Buchenwald and shipped to the United States by the US Army. If information remains deniable, there is nothing for which anyone, living or dead, can be held accountable. Consequently, the 'Catch 22' of any bureaucracy, military or otherwise, is operant here: if there had been a cover-up, what had been covered-up as well as the cover-up itself, would remain unknown to someone interested enough to make inquiries.

This modification of the public record might have gone unchecked except for the fact that by 1992, the treasure hunters were more cautious because even limited access to the former East German Stasi Archives demanded a more thorough-going evaluation of archival findings. We connected the story of Shipment 16 with Shipment 1 when we found corroborating evidence in other NARA record groups after we sought to authenticate some documents in the hands of one of the Thuringian treasure hunters. He claimed that what he had, had come from 'a secret American archive'. In his possession were 16 randomly selected pages from a single NARA record group arranged in such a way as to make it appear that these constituted an on-going sequence. He also tried to make it appear that the declassification date on these materials was 1989, not 1984.

Curiosity about these documents led us to others in the NARA record groups dealing with SHAEF (Supreme Headquarters Allied Expeditionary Forces) G-5 (Finance) affairs. These indicated that the designations of the respective 78 'shipment' numbers and separation of Nazi assets and plunder from SS loot had been made by the chief of SHAEF G-5 (Finance), Colonel Bernard D. Bernstein, almost one month before VE-Day. They also clarified why only a small percentage of the treasures found in the Kaiseroda mine constituted Shipment 1. What was believed to be SS loot had been assigned a shipment number; other assets and plunder had other designations. Going back over the published material on the Merkers find, as well as through the archives at NARA and at the Center for Military History, we discovered that no one, including the American official military historians, had recognised that Colonel Bernstein originally and deliberately had separated Nazi state assets and plunder from SS loot by a system of numbering each shipment according to the

To secrete their treasures, the Germans had a wide choice of hiding places. This map showing the various mines in the vicinity of Meiningen and Vacha in Thuringia, was used to plan and organise the transportation of the Reichsbank reserves and museum treasures which were secreted in February and March 1945. The original 1:350 000 Wehrkreis IX map was found by our authors, Carolsue Holland and Thomas Rothbart in Record Group 242 in the US National Archives.

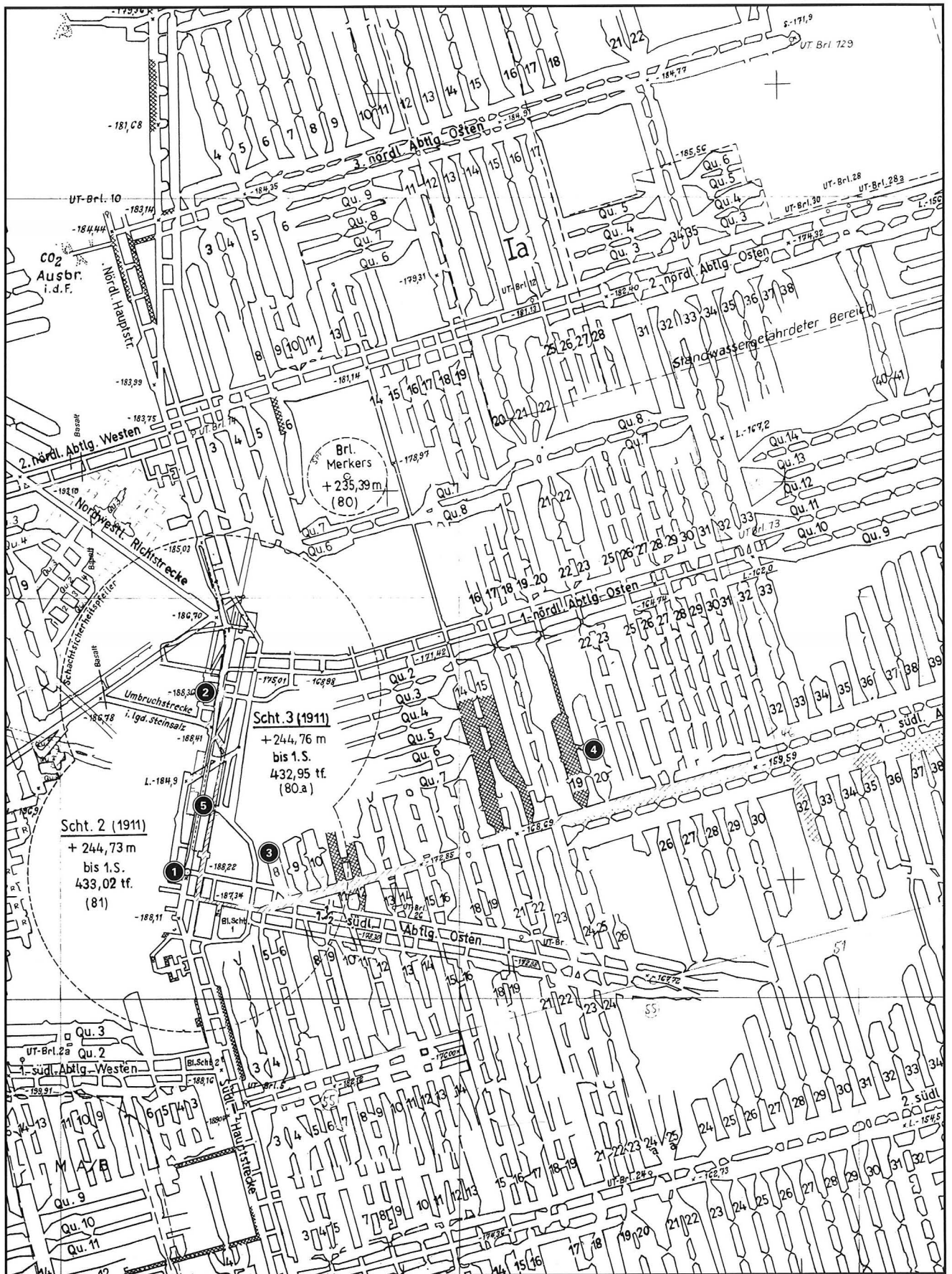


Buchenwald, just north-west of Weimar, was not marked on the Wehrkreis map but we have indicated its position. The quarry lay south-west of the camp itself and outside the main compound. Tunnels — so called 'air raid shelters' — were driven into the north-eastern wall of the quarry with brick entrances to seal the shafts. The work was carried out using forced labour from the camp, many inmates dying from the long hours of arduous work on inadequate rations. (BWA)

order in which it was received at the American Frankfurt depository. Only SS loot, not the state assets nor the plundered gold, found in Merkers was designated as Shipment 1. The entire cache secreted in the Kaiseroda mine was the first of many other 'Nazi treasures' to be delivered to the custody of the newly-organised American Exchange Depository, a hastily converted, but nevertheless secure, building that had

formerly housed the Frankfurt office of the German Reichsbank.

What led to the creation of Shipment 1 and Shipment 16, as well as what happened during and after the SS loot comprising it was in American custody, begins with the unexpected discovery on April 4, 1945, by the 90th Division's 358th Infantry Regiment of the treasure cache at the Kaiseroda mine in Merkers.



However, but for German prisoners revealing the whereabouts of the secreted treasure, searching all the mines would have been like looking for the proverbial needle. This plan shows just a small part of the mine complex at Merkers, begun in the 1870s but which extended to some 500 kilometres of tunnels and chambers by 1945. More correctly, it was referred to as the

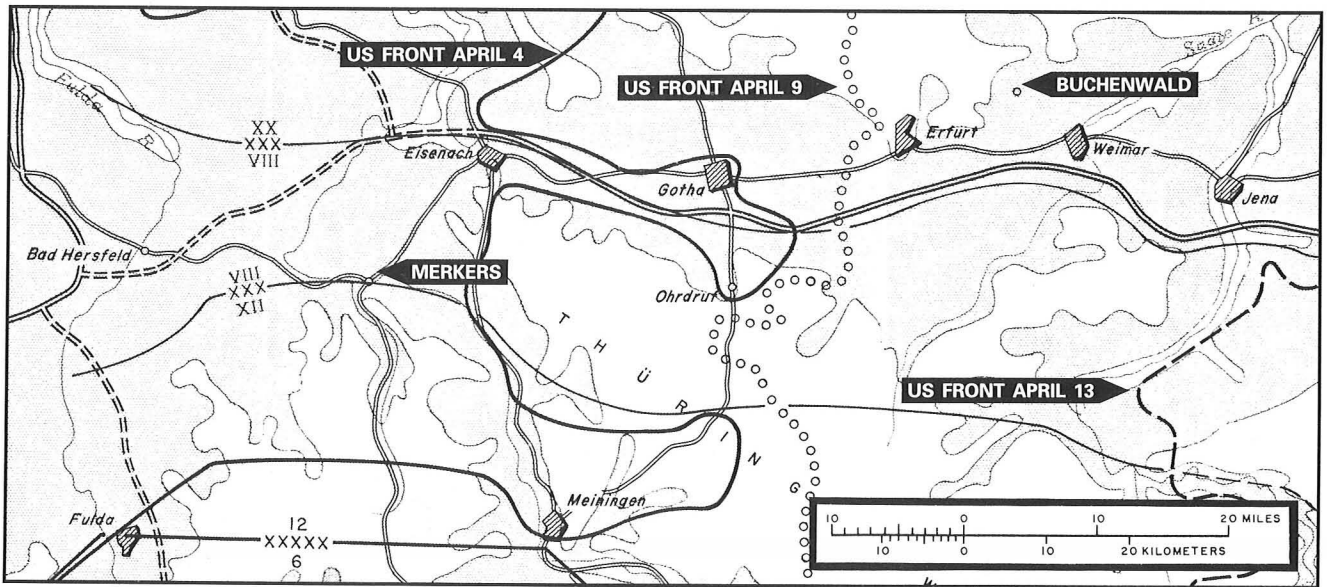
Kaiseroda II/III mine, the Second World War storage area being situated in the '1. südliche Abteilung Osten' (1st Southern Section East). Relevant to our story are: [1] Shaft No. 2. [2] Shaft No. 3. [3] Room No. 8 (gold storage). [4] Room No. 20 (paintings, objets d'art). [5] Location where photo of GIs holding Manet painting (on page 14) was taken. (Courtesy Merkers mine)

FROM MERKERS: SHIPMENT 1

During the morning of Wednesday, April 4, Lieutenant General George Patton's US Third Army forces were advancing through the village of Merkers proceeding south-east toward the Thuringian town of Meiningen.

Just beyond Merkers town centre, behind the fencing abutting the road, Berlin Reichsbank officials Albert Thoms, Dr Otto Reimer and Dr Werner Veick, with the help of some of the staff, were frantically racing up and down a shaft at the Kaiseroda mine to secrete sacks full of German currency in a specially constructed vault located almost 1,600 feet underground before the Americans could discover what was going on. Together with cases and crates of bullion, the Third Reich's gold reserves, and other monetary and artistic treasures, these banknotes had been sent from Berlin in two shipments (the first leaving on February 11) to be hidden in vaults inside the Kaiseroda mine.

Advancing through Merkers — June 1996. Here 51 years previously, spearheads of Patton's Third Army thundered eastwards in their drive to the Elbe.



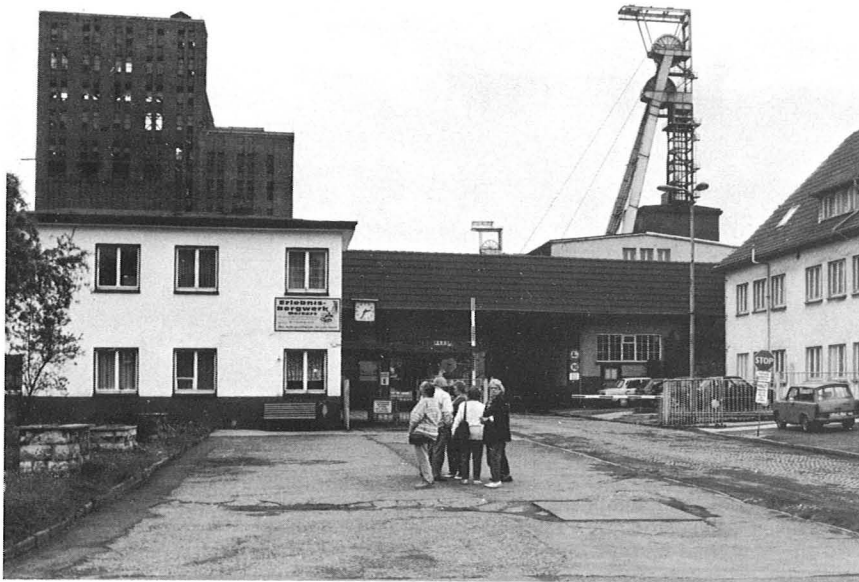
According to Thoms who, later, was interrogated by Colonel Bernstein on April 19, the February shipment, comprising 22 rail wagons, took German personnel and foreign labourers four days to unload and secrete in a section of the mine that had been prepared by Wintershall A.G., owners of the Kaiseroda mine, for the storage of the Reichsbank's holdings. The second and smaller shipment, arriving in the middle of March, required less than 48 hours to unload.

Interrupted by an Easter weekend railway shutdown from Friday, March 30 to Tuesday, April 3, Thoms and his people had been trying to send currency back to Berlin in order to replenish the supply in circulation after Allied bombing had stopped the printing of new banknotes.

Now, shortly before noon on April 4, the Germans carrying money bags back into the shaft housing continued to work, as streams of American soldiers passed by on the road fronting the mine entrance. During that Wednesday, several foreign workers in conversation with soldiers from the 3rd Battalion of the 358th Infantry Regiment mentioned the Reichsbank treasure hidden in the Merkers mine. Yet it was not until 11 a.m. the next day that Staff Sergeant Wall, Military Intelligence Team 404-G attached to the 358th Infantry, interviewed some French displaced persons who had worked in the mine. They stated that they had heard that gold



Just the other side of town lay the entrance to the Kaiseroda mine with the tell-tale winding gear of Shaft No. 3 towering above. US troops passed from right to left along the road in the foreground, unaware at this stage that a King's ransom lay buried deep beneath their feet.



Thuringia was one of the eight German Länder (or states) which had been assigned to the Soviet Union as part of their zone of occupation already agreed by the Allies in September 1944. Thus, American forces were already advancing across country which would have to be surrendered to the Soviets. For the next 45 years, Merkers was to remain inaccessible behind the Iron Curtain — the largest salt mine in Germany, if not the world — employing a workforce of 5,000. It was first opened to visitors on August 6, 1991 following unification but, at the same time, the mine workings were shut down. Now, some 250 miners are retained to safely close the tunnels and backfill — a job which will take at least ten years.

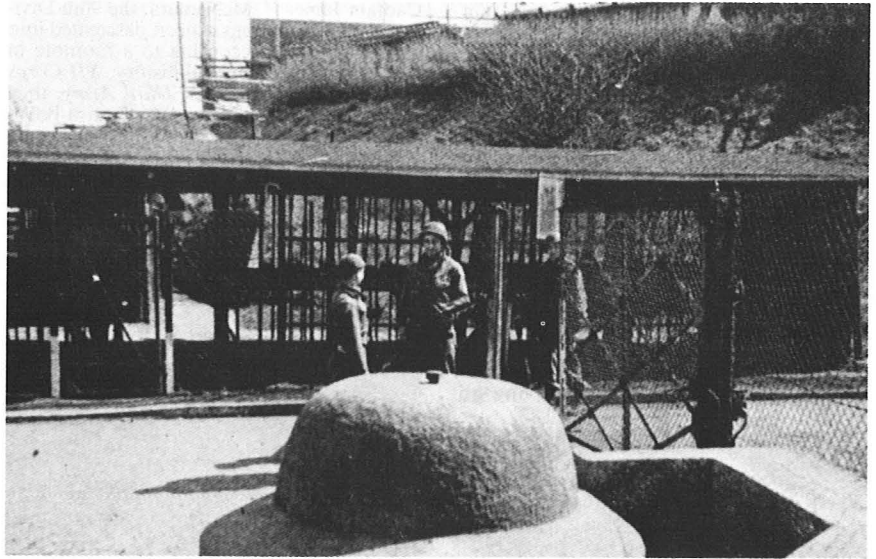
had been stored there. Sergeant Wall reported this information to Captain Dengler, the S-2 (intelligence officer) of the 358th. The commander of the 90th Division, Major General Herbert L. Earnest, without examining the mine, notified General Patton's headquarters that his command had been told by a worker who had been in the mine and reported from personal knowledge that 'Merkers mine . . . contains marks, gold, silver, paintings, jewels. There are approximately 500 kilometers of passages underground.'

On Friday, April 6, PFC Harmon and PFC Kline of the XII Corps Provost Marshal's Office challenged and stopped two women walking along the road between Kieselbach and Merkers for curfew violation. One of the women was pregnant. She stated that she was being accompanied by the other to find medical help. Taking the women as passengers in their Jeep, Harmon and Kline drove them to the XII Corps Provost Marshal's Office where they were questioned. Later in the morning they were driven back to the village of Merkers by Private Mootz. Entering Merkers, Mootz saw the Kaiserroda mine-shaft winding gear and asked the women what sort of mine it was. They explained that it was where the German gold reserve and valuable property of the national art museums in Berlin had been deposited. They knew this, they said, because they were personally acquainted with some of the civilian German workers from the Merkers mine who had worked for four days in February unloading a 22-car treasure train carrying gold, sacks of currency from the Reichsbank and numerous, precious statuary and paintings from art museums in Berlin.

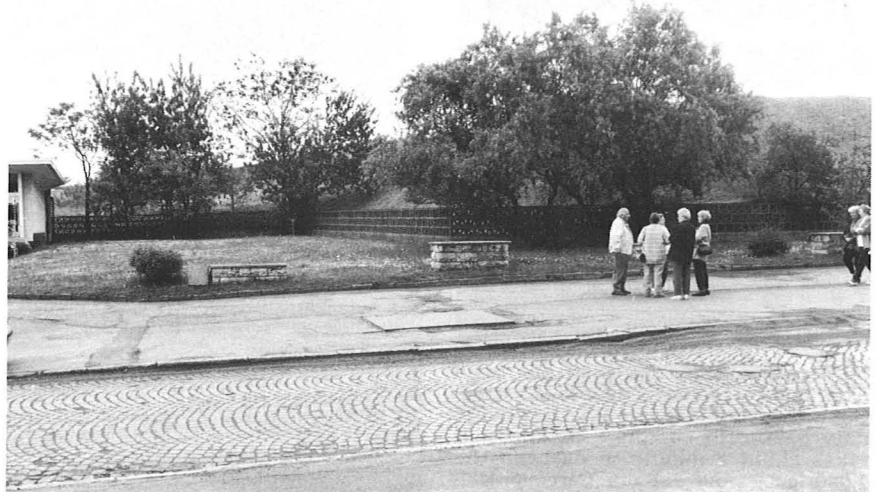
Private Mootz promptly reported the story

to Sergeant Matthews, Headquarters Company, 90th Division, who passed the information on to Colonel Whitcomb, Chief-of-Staff, and Lieutenant Colonel Russell, the Military Government Officer for the 90th Division. By midday, Colonel Russell had arrived at the Kaiserroda mine to interview displaced persons found in the area. One of this group was Sergeant Walter Farager of the British Army, a German prisoner since June 26, 1940 who, employed in the mine as a machinist's assistant for the past year, had helped hide the gold. These interrogations also produced the information that Professor Dr Paul Ortwin Rave, curator and assistant director of the National-Galerie in Berlin was living in the Merkers area to care for the paintings secreted in the mine.

With this evidence, Russell ordered the 712th Tank Battalion under the command of Lieutenant Colonel Vladimir Kedrovsky to guard the entrances to Kaiserroda. All the mine officials were placed under house arrest and confined to their homes for the night. Personnel checked the generators so that power would be available for the elevators and electric lights when the mine was inspected early on Saturday, April 7.



Capture of the mine is credited to Company I of the 3rd Battalion of the 358th Infantry Regiment, 90th Division (part of XII Corps) on April 4, 1945. This picture was taken just outside the main entrance.



Fifty-one years later, Karel Margry and Martijn Bakker met the mine manager, Hartmut Ruck, to take the photographs for this feature. (The underground workings are open to visitors from 9.15 a.m. to 1.15 p.m. except Mondays.) They found that the machine gun emplacement outside the entrance had been demolished.



However, on Friday evening, Colonel Russell discovered that there were five accessible mine shafts, three more than the two at the main site. He decided that one tank battalion would not be sufficient to guard these entrances in view of their proximity to the front lines, and requested additional reinforcements. Shortly before 10 p.m., the 357th Infantry Regiment, commanded by Lieutenant Colonel John H. Mason, arrived in the Merkers area to relieve the 90th Division Military Police and reinforce the 712th Tank Battalion.

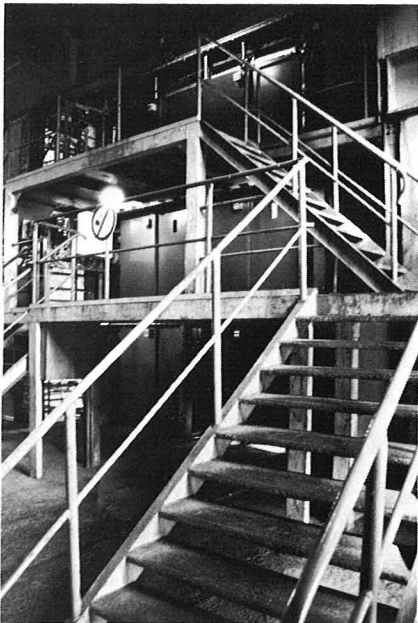
At 10 a.m. the following day, Lieutenant Colonel Russell, accompanied by mine officials, Dr Rave, Colonel Joseph J. Tully, Assistant Division Commander, Major

Information about the mine's contents sparked an immediate XII Corps reaction after two women walking along this stretch of the Kieselbach road overlooking Merkers were taken into custody by a XII Corps military police patrol. The winding gear to the two shafts in the town can be seen — No. 3 on the left with No. 2 to its right.

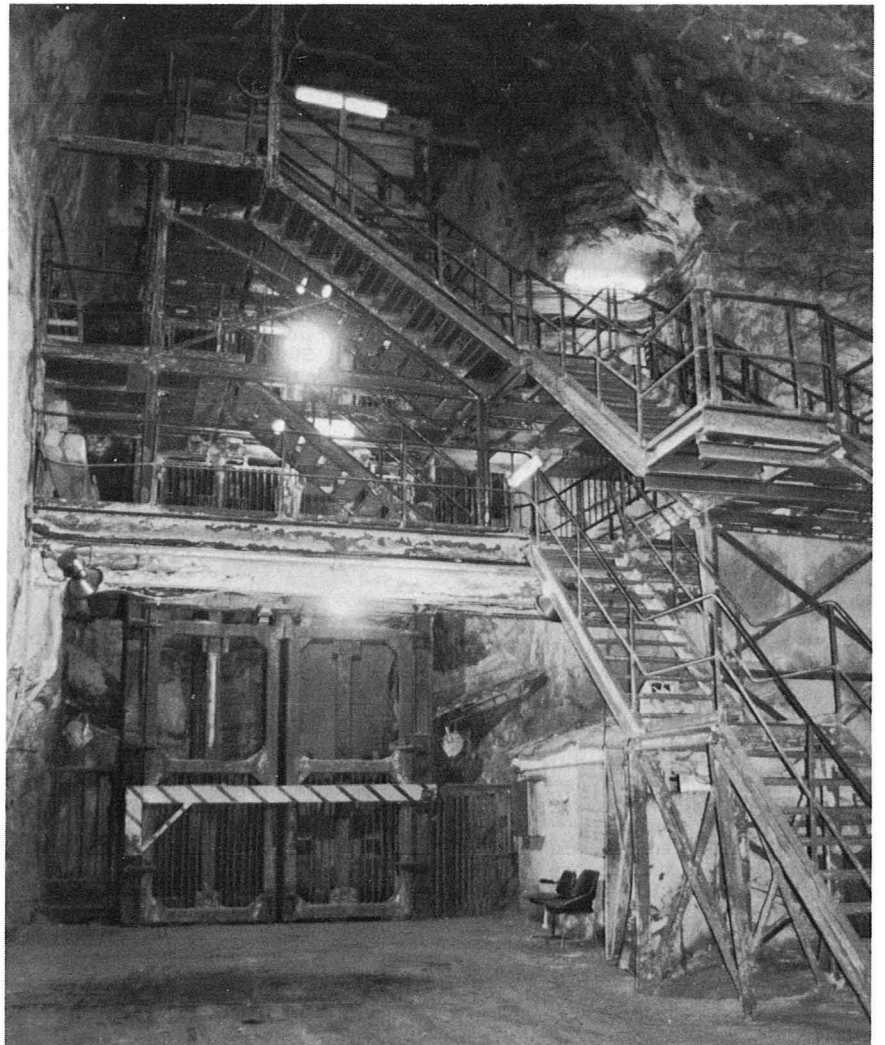
Joseph Brick, Judge Advocate General, and Captain James C. McNamara, the 90th Division's public relations officer, descended into the mine shaft. According to a footnote in George B. Dyer's official history, *XII Corps — Spearhead of Patton's Third Army*, they were guided to Room No. 8 by British PoWs from 'a camp near Merkers, who had been used as labor to get the treasure in place'. Using the jocular tone of the *Time* magazine story published during the week of April 16, Dyer's account mentions that 'rumor at least

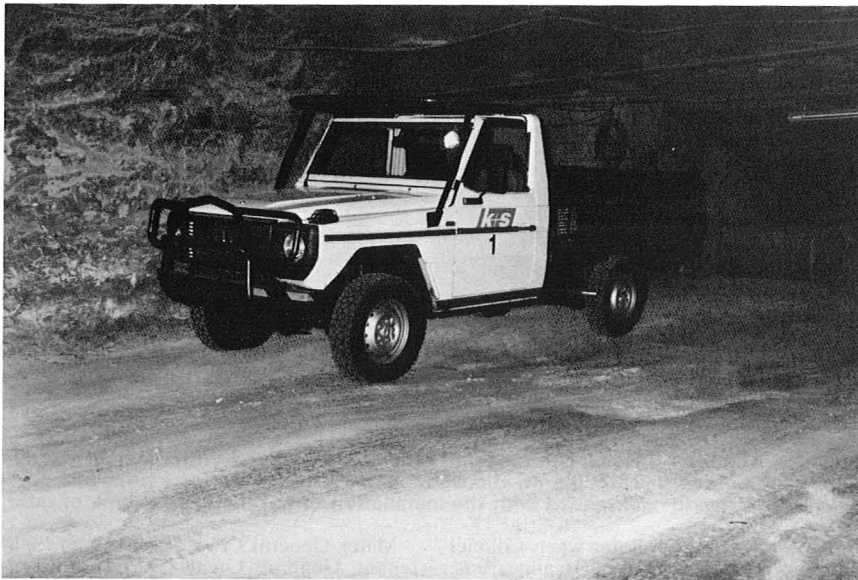
had it that the original tip off was given our troops not by the Krauts but by some British PW's in a camp near Merkers . . . but Colonel Albert C. Lieber [deputy commander of XII Corps] . . . remembers that a woman was said to have given the tip off. . . . The British PoW, Walter Farager, mentioned in connection to Russell's initial visit to Merkers mine, was, however, not mentioned in Lieutenant Colonel Carl L. Morris's detailed report to his superior, Major General Robert W. Crawford, the SHAEF G-4 (Logistics).

The main lift shaft used by the Americans to examine the mine on the morning of Saturday, April 7, was No. 3 — the one just inside the main gate. Below: The elevator is constructed in three tiers so that three 24-man teams of miners can be transported below ground in one go.



Right: Since 1945, the shaft has been extended to service a new lower level, the old sealed wartime lift stop being now passed in complete darkness. It takes about a minute to descend the 1,600 feet — our authors, Carolsue Holland, Professor of International Relations at Troy State University, and Thomas Rothbart, political journalist for the Thüringer Allgemeine, taking this picture at the bottom in 1995.





Above: Today, one has to drive in a 4x4 up an inclined connecting tunnel to reach the old level. 'It's all quite exhilarating', explains Karel, 'but with hundreds of kilometres of tunnels, with countless "Y" and "T" junctions, you would not want to go down without a guide. The main tunnels are 10-15 metres wide with a ceiling of 3-4 metres. It feels like driving on a motorway with no lights on a very, very dark night — with you the only one on it!'

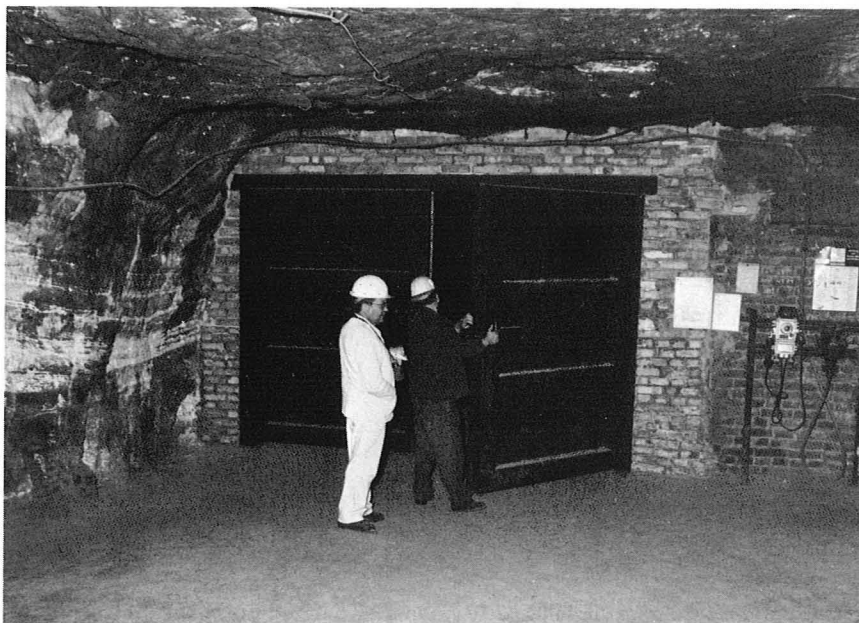
At the base of the elevator, Signal Corps photographers immediately took pictures of the bags of currency abandoned in the main haulage way after the futile attempt to resupply Berlin with Reichsmarks was interrupted by the arrival of the Americans on April 4. Russell's group continued along the passage-way almost 1,600 feet underground to a steel door barring the way into a vault. Just outside this door, they found 140 additional sacks of currency. Failing in their efforts to open the vault, Russell and McNamara returned to the surface to find and interrogate Dr Veick, one of the Reichsbank officials who had come to Merkers to escort the currency back to Berlin. Veick stated that the Merkers mine contained all of the gold that was in the Reichsbank and that these reserves were hidden in the sealed



vault. Arrangements were made to blast an entrance into the vault wall during the following morning.

Meanwhile, General Earnest directed that Kaiseroda be guarded by a reinforced rifle company of the 1st Battalion of the 357th Infantry supplemented by tank destroyers of the 773rd TD Battalion, tanks, and Jeeps mounted with .50 calibre machine guns. At 5 p.m., Major General Manton S. Eddy, US XII Corps commander, countermanded General Earnest's order, and retained the entire 357th Infantry in the area of Kaiseroda for security purposes. The other 357th Infantry battalions relieved the 358th Infantry and became the force guarding the

Karel took the picture of 'his' 4x4 to match this shot (below) of a Jeep of the 357th Infantry in the same tunnel between Room No. 8 and Shaft No. 3 (see plan page 3). The Americans took several Jeeps down to transport the valuables — note the vehicle is on a return trip from the shaft with empty trailer. The Browning has been set up to cover the length of the tunnel. (USNA)



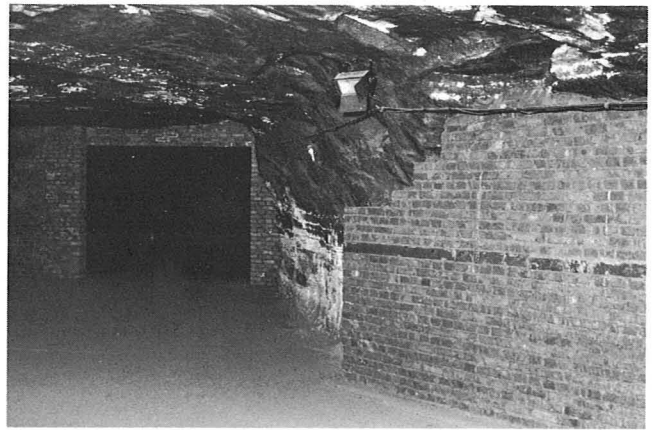
areas and entrances above the 500-odd kilometres of passages and vaults which comprised Wintershall's Kaiseroda mine.

At 8 a.m. on Sunday morning, April 8, with General Earnest in attendance, Russell and McNamara escorted photographers, journalists, and elements of the XII Corps engineers into the mine. When the engineers ascertained that a hole could not be dug through the vault wall, they blasted an entrance approximately 4ft x 8ft through the masonry.

On Saturday morning, April 7, Lieutenant Colonel Russell, the Military Government Officer with the 90th Division, led the first party down the mine, guided by mine officials and Professor Dr Paul Rave, the assistant director of the Berlin National-Galerie. They were taken to Room No. 8, sealed by a steel door. This impressive replacement (left) has been only recently installed for the benefit of present-day visitors. From the plan, it would appear that the original was much smaller, the new one taking up the complete width of the old door and opening which was blasted through by US engineers on Sunday morning.



Left: Reproduced from the 1947 XII Corps unit history: *XII Corps — Spearhead of Patton's Third Army* by Lieutenant Colonel George B. Dyer, this rather poor shot was taken from inside



Room No. 8 looking back to the entrance with the hole just discernible on the right. Right: Today, the brickwork has been extended with the installation of the 'bank-safe' type of door.

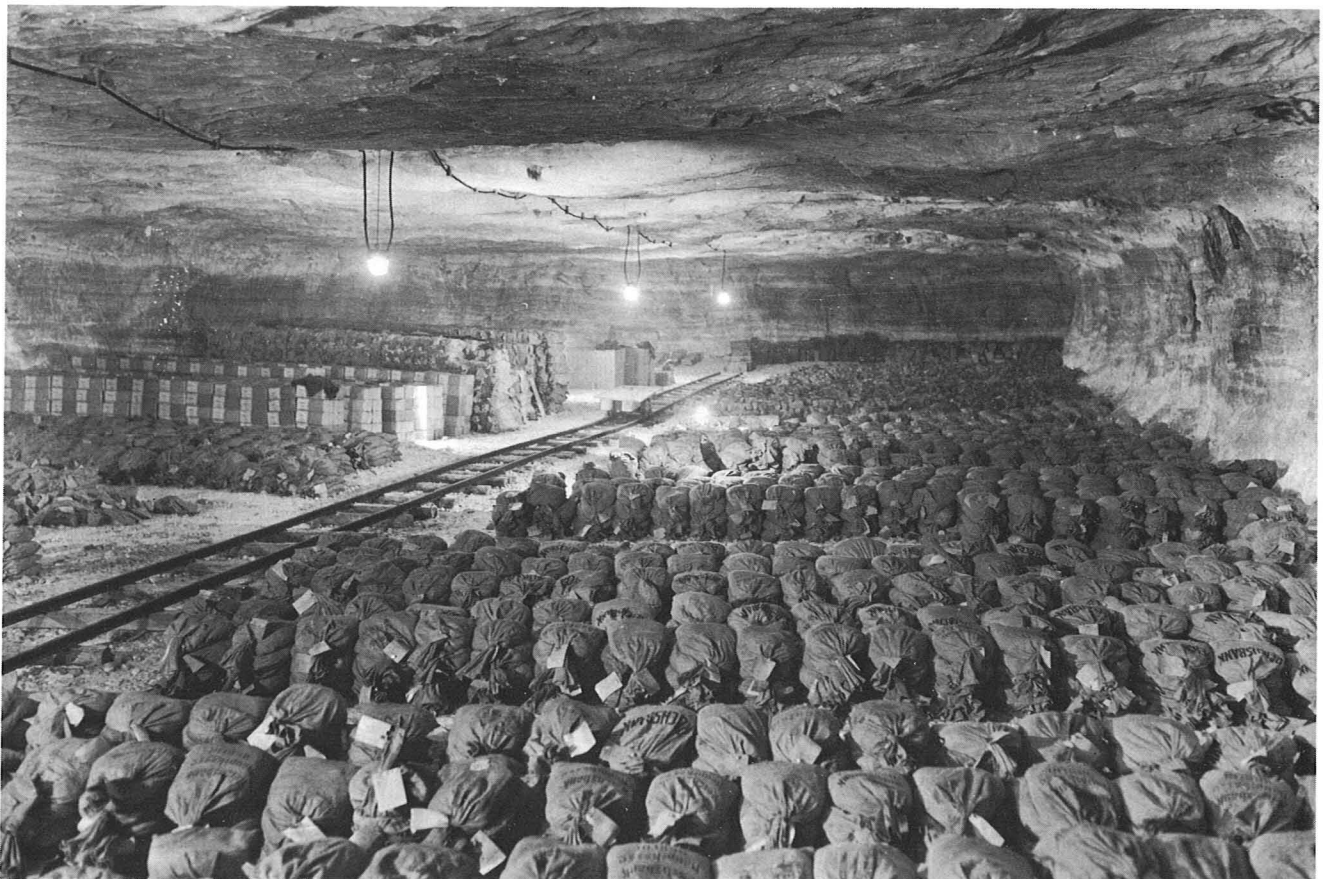
Once inside, Earnest, Russell and McNamara opened the seals on some of the bags to begin a partial inventory but they were interrupted by the arrival of General Eddy, his deputy, Colonel Lieber, and his G-5 (Civil Affairs), Lieutenant Colonel Asa W. K. Billings, who had come to inspect the mine.

By early in the afternoon, Brigadier General Frank McSherry, the G-5 (Civil Affairs) of SHAEF in Reims, was notified about the discovery of the Kaiseroda treasure. He transmitted orders to Colonel Bernard D. Bernstein, the chief of SHAEF's G-5 (Finance), to oversee US monetary and fiscal matters under the auspices of the American Secretary of Treasury, Henry Morgenthau. Colonel Bernstein was to go forward to Merkers as soon as possible to examine the treasures and take over their control in the name of the Commanding General ETOUSA (European Theater,

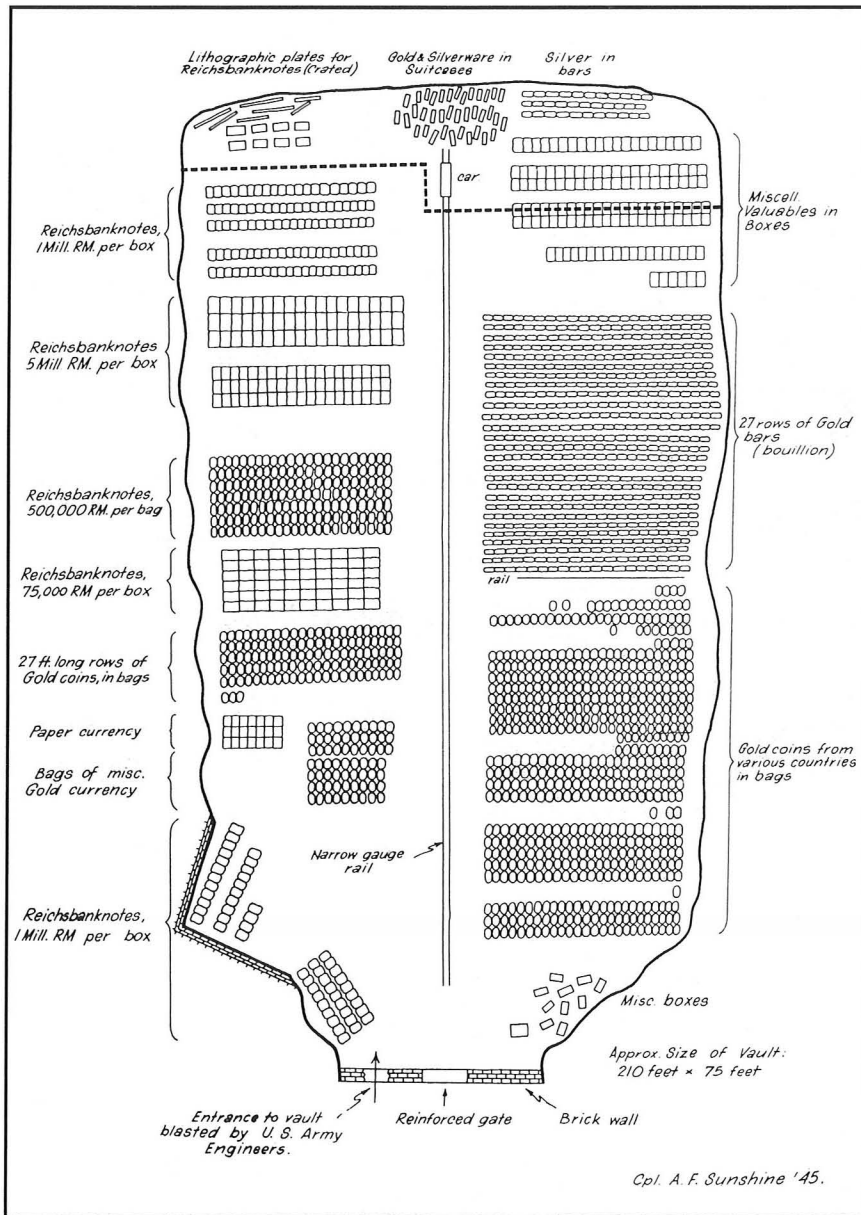
United States Army). Later when Colonel Bernstein arrived at SHAEF Headquarters, General McSherry informed him that he, Eisenhower as Commanding General ETOUSA, and Major General Robert W. Crawford, the SHAEF G-4 (Logistics) had decided that the entire contents of Kaiseroda be removed to a more secure area in order to relieve XII Corps combat units for tactical missions.

Meanwhile, the journalists were busy filing their stories. The Monday morning (April 9) edition of the US forces daily newspaper, *Stars & Stripes*, reported the story, stating that 'officials in Washington consider the gold in question to be the property of the United States'. Likewise, news of the discovery of the treasure in Kaiseroda mine appeared in the Paris edition of the *Herald Tribune* and in the issue of *Time* magazine published during the week of April 16.

Major General Crawford met with Lieutenant General Lucius D. Clay, Eisenhower's Deputy Military Governor; General McSherry; and Colonel Bernstein early Monday morning before the latter flew out to take control of the Merkers treasure. The chain of command established at that meeting became the basis for custodial responsibilities as well as for command and control of any other Nazi treasure troves located by American military authorities. These decisions fundamentally affected claims made later by belligerent and occupied countries whose gold had been sequestered by the Nazis. Colonel Bernstein was given discretionary power to determine a suitable new location for the contents of the Kaiseroda discovery, to coordinate the actual movement 'including taking treasure from the mine . . . arranging for trucks, security guards on the road and the permanent



Aladdin's Cave. This was the incredible scene which greeted Colonel Russell's party when they entered the chamber. (USNA)

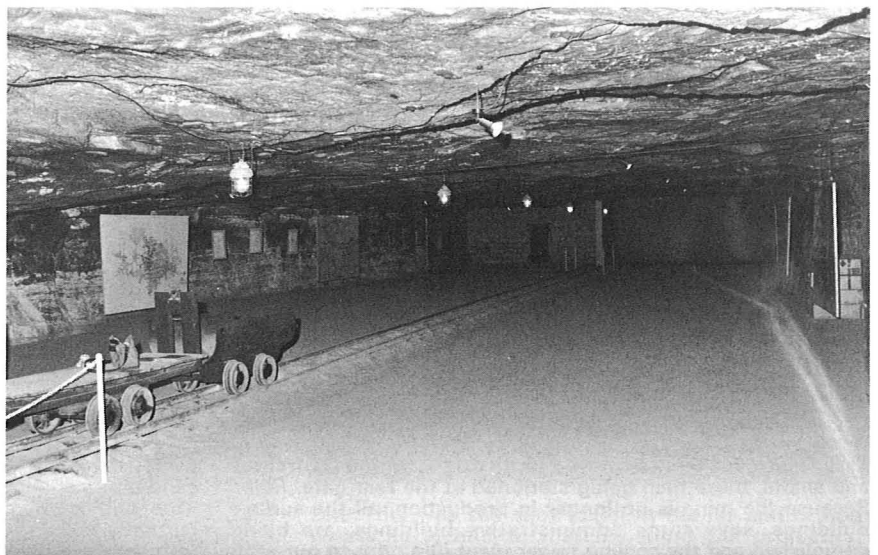


As well as making a photographic record, a plan was produced detailing the contents before they were disturbed. Today, a false wall has been built across the end of the chamber for the back projection of a huge enlargement of the photo opposite. We have added its position (dotted line). We were allowed access to the area behind to match the pictures of the silverware in the suitcases reproduced on pages 11 and 13.

guards at the new location'. Accompanied by Lieutenant Colonel Carl Morris, the SHAEF G-4 aide, Bernstein then left for Frankfurt in General Crawford's plane to look over the fortress at Ehrenbreitstein, rising high above the junction of the Moselle and Rhine rivers opposite Koblenz, for the storage of the treasure.

Arriving in Frankfurt before noon on April 9, Bernstein and Morris conferred with Third Army staff officers including Colonel Roy L. Dalferes, G-5, the Chief-of-Staff, Major General Hobart R. Gay, and his deputy, Colonel Paul D. Harkins, to formulate plans for the movement and administration of the Kaiseroda treasure. During the discussion General Patton joined the meeting and agreed that the treasure should be moved. He urged that it be done as soon as

The projection screen can be seen in the background, other blow-ups of the Signal Corps photos being spotlighted around the walls. The floor was levelled after the war and the narrow-gauge railway line is a recent reconstruction.



possible in order to release the 357th Infantry and the 712th Tank Battalion for combat. General Gay prepared a letter to General Eddy delineating Bernstein's authority for the purposes of administration, movement, and appraisal of the Merkers mine discovery as direct to Third Army. Defining the responsibility given to Bernstein, Gay's arrangements included a plan for detaching empty cargo trucks returning from forward hauls back to supply points in the Frankfurt area to convey the shipment to a secure depository.

By 2.30 p.m., Bernstein, Lieutenant Colonel Tupper Barrett, G-5, 12th Army Group, and Major Ferrara and Lieutenant J. S. Feary of XII Corps G-5, made a preliminary inspection of the Reichsbank building which was the property of Philip Holzmann A.G., located on Adolf-Hitler-Allee (today Taunusanlage) in Frankfurt. They then drove to Koblenz.

Finding the fort at Ehrenbreitstein inadequate because the great number of entrances to the storage vaults would require at least a full regiment to insure adequate security, Bernstein determined that the castle, already filled with archives and art taken from museums and public buildings by American units when they had deployed across the Rhine and Moselle river valleys, was an unsuitable location in which to store the volume of material discovered at Merkers.

By the authority of SHAEF and the town mayor, the Reichsbank building was requisitioned in the name of the Commanding General (Eisenhower). Although it was already too late to stifle publicity about the Kaiseroda mine treasure, the Third Army Censor was instructed by General Gay that no information of any kind would be allowed to emanate [sic] through private or press channels concerning the movement of this treasure, but stated that official pictures could be taken during the movement for possible release later.

Reporting to General McSherry by telephone early on April 10, Bernstein urged the assignment of both Property Control and Currency Section personnel of the SHAEF G-5 Financial Branch to the mission. McSherry verbally approved the requisition of the Reichsbank building and the retention of the services of the 1306th Engineer Regiment through the Engineer Officer, Third Army, to rehabilitate it. Lieutenant Feary was left in Frankfurt to coordinate the work with Colonel William C. Hall, the commander of the 1306th Engineers, because the tentative plan was to move the treasure to Frankfurt from Merkers by Saturday, April 14.



Once the full extent of the discovery became known, the entire 357th Infantry Regiment was drafted in to guard the mine,



reinforced by the armour of the 773rd Tank Destroyer Battalion. M-10s of Company A seen here guarding Shaft No. 3.

Before Bernstein and Lieutenant Colonel Barrett, the 12th Army Group G-5, drove to Merkers to establish an advance headquarters, they discussed security arrangements with General Patton and General Gay. Patton 'suggested the use of a cavalry squadron while the convoy was on the road, and Gay stated that a regiment would be required in the Frankfurt area to constitute a mobile reserve in the event of a major attack'. Lieutenant Colonel Morris's report to Major General Crawford hints that the command feared 'a major attack' less from the German military than from a rogue armed force out to enrich itself by stealing the Merkers treasure.

Once at Merkers, Bernstein and Barrett inspected the Kaiseroda mine in company with the commander of the 357th Infantry, Lieutenant Colonel Mason. Before they drove to XII Corps headquarters at Meiningen, Colonel Bernstein interrogated Dr

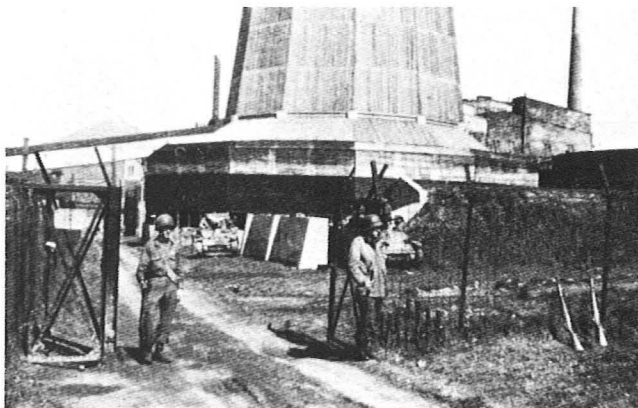
Veick and Dr Reimer, the two Reichsbank officials who were caught in Merkers when they were unable to finish moving the banknotes back to Berlin.

Amidst very detailed explanations of his rôle in the arrangements for the Reichsbank notes and monetary bullion, Veick's affidavit claimed: 'my [first] wife and two sons live in the United States. I say all I know'. What he told Colonel Bernstein was the basis for delineation between German monetary and gold reserves on the one hand and SS loot, some of which had been found in Room No. 8 in the Kaiseroda mine, on the other.

This early point in Bernstein's investigations marked the beginning of the idea to separate the captured Reichsbank assets from what was clearly SS booty. However, when the press was told about the transfer of the treasure from Merkers to Frankfurt a few days later, most of the journalists failed to make that distinction. Consequently, even

the official histories tend to lump German monetary instruments, gold bullion, reserves, and currency together with SS treasure. These early accounts were the inception of myths about great treasure troves of buried Nazi gold.

Determining the ownership of the more than 1,000 paintings and objets d'art that were found in the Kaiseroda mine was less sensational. Official inventories of the holdings of public galleries and museums were available from which to determine whether a particular item had been the property of the German state or of a sub-division thereof. Under international law these could be seized by the armed forces finding them and held until post-war restitution and reparations were arranged. Prima facie evidence that the Nazis in addition hid in Kaiseroda works of art taken from Jews and from countries occupied by the Nazis could be assured when experts of the Monuments, Fine Arts



Left: The troops were deployed to guard the various entrances and shafts, these men being stationed at the rear gate. Right: Because the mine is no longer in production, all the surface buildings, save some administrative buildings, are being demolished and the cooling tower went just prior to our visit.



Even though the Kaiseroda mine had 50,000 visitors in 1995, it cannot be self-supporting because of the limited number of visitors who can be carried by the lift each day. State support is currently available as part of schemes to foster employment in former East Germany.

and Archives (MFA&A) group, a joint Anglo-American mission headed by the Cambridge University Slade Professor of Fine Art, Geoffrey Webb, and Colonel Mason Hammond of the United States, authenticated all the property to determine that which had been stolen. Assuming scrupulous monitoring by Colonel Bernstein's mission, as long as the entire holding found in the Merkers mine remained intact until it was examined and appraised in the secure vaults of the Frankfurt depository, it would be possible to separate out SS loot.

Establishing a command post at the Kaiseroda mine on Wednesday, April 11, Colonel Bernstein and his staff assigned personnel and made preparations for the movement of the treasure to Frankfurt scheduled to begin on Saturday, April 14. The division of G-5 personnel between Frankfurt and Merkers insured continuing administrative oversight so that future contention about the categories of various items comprising the treasures could be avoided.

Bernstein had requested as staff at Merkers Lieutenant Colonel Omer V. Claiborne, of the SHAEF Mission to France and Chief, Currency Section for France; Lieutenant Colonel William S. Moore, Commanding Officer, and Lieutenant Benjamin S. Schilling of the European Civil Affairs (ECA) Currency Section for Germany, both detached from XII Corps; Lieutenant Commander US Coast Guard Joel A. Fisher, Chief Freezing, Foreign Exchange and Property Control Section of SHAEF G-5 (Finance); Lieutenant USNR George L. Stout, G-5 (MFA&A); 1st Lieutenant William A. Dunn, Financial Branch, US Group Control Council; and an American civilian, Maurice St Germain, a gold expert who was an officer in the Paris branch of Guaranty Trust Co. of New York. Enlisted personnel from the ECA Currency Section for Germany were detached from XII Corps and assigned to the working group moving the treasure. Awaiting the arrival of the convoy in Frankfurt were Lieutenant Colonel Henry D. Cragon of the ECA Currency Section for Luxembourg and Belgium; Captain John A. Love, Property Control Officer attached to SHAEF G-5 (Finance); Lie-

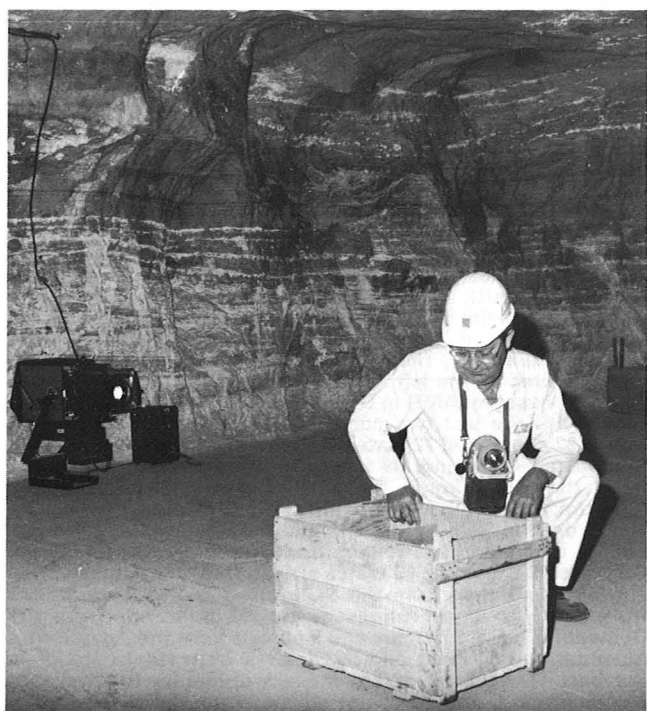


Colonel Bernard D. Bernstein, the chief of SHAEF's G-5 (Finance) branch, was detailed to take charge of the contents of the mine and to speedily remove everything to safe custody to enable the 357th Infantry to be released for combat. He arrived at Merkers on Tuesday, April 10, and began to organize the operation to carry out a complete inventory and have everything moved to Frankfurt by the weekend. Here Colonel Bernstein (left) is pictured with an aide examining sacks containing gold bars and gold coins. In all, there were more than 7,000 numbered bags, each weighing between 55lbs and 81lbs laid out in more than 20 rows. (USNA)

utenant Robert Kelso of the ECA Currency Section for Germany detached from XII Corps; Lieutenant J. S. Feary, XII Corps G-5 Finance Branch; and enlisted personnel.

The British were represented by Major Francis W. A. Fairfax-Cholmeley, British Army Headquarters Branch at the SHAEF Currency Section for Germany, and Professor Geoffrey Webb, the (civilian) British chief officer of the MFA&A, who had come to Merkers with Lieutenant Stout. Permis-

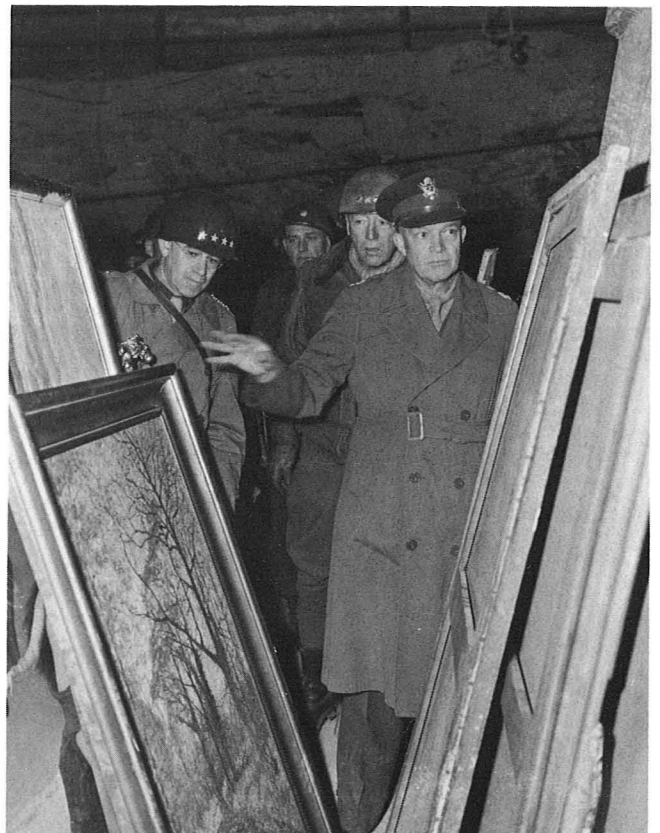
sion to inspect the mine was given to Stout through the custodial authority granted to Bernstein from General Patton, but Webb as a British civilian was excluded from the interrogation of Professor Dr Rave who provided to Stout information that initiated an inspection of an additional 45 cases of paintings and objets d'art from the Kaiser-Friedrich-Museum in Berlin that were hidden in a Wintershall mine nearby at Ransbach.



Left: This was the shot taken at the far end of Room No. 8 which Karel had to match behind the projection screen. (USNA) Above: Herr Ruck stands in for the Colonel.



Colonel Charles R. Codman (Patton's aide), April 13, 1945: 'Yesterday was a full day, and a gruelling one. General Eisenhower and General Bradley arrived in the morning to inspect the industrial salt mine at Merkers in which, General Eddy had reported, was stashed away the entire German gold reserve. We were met at the mine head by Generals Eddy and Weyland, also a Colonel Bernstein from the Finance Section of SHAEF. The party was ushered into a primitive freight hoist operated by an unprepossessing German civilian. The General began counting the stars on the shoulders of those about him as the jittery elevator rattled with ever-accelerating speed down the 2,000 feet [sic] of pitch-black shaft. He glanced up at the single cable now barely visible against the diminishing patch of sky. "If that clothesline should part", he observed thoughtfully, "promotions in the United States Army would be considerably stimulated." A voice from the darkness, that of General Eisenhower. "O.K., George, that's enough. No more cracks until we are above ground again." At the bottom of the shaft we stepped out into a dimly lit tunnel leading to a high-vaulted area not unlike the champagne cellars of Reims. Boxes, cases, crates, stacks of paper currency, gold coin and bullion, jewels, paintings, dental bridgework and fillings. More than 100 million dollars' worth, Colonel Bernstein estimated. In a corner by itself a dozen sizeable bales of Reichsmarks. "What are those?", General Eisenhower asked. "They are earmarked to meet future German Army payrolls", the interpreter explained. "I doubt if they will be needed", General Eisenhower said. Above: Here, Eisenhower, flanked by Lieutenant General Omar N. Bradley (left), Commanding General of the 12th Army Group, and Major General Manton S. Eddy commanding XII Corps, is pictured 'walking through one of the underground treasure chambers'. The clue to the location is the inscription on the crates on the left identifying them as coming from the Antiken-Museum (ANT) in Berlin. The items from this museum came with the last two consignments from Berlin. That on March 27 comprised 72 crates of the Antiken, plus 188 from the Skulpturen-Abteilung, 38 from the Islamische Abteilung, 52 from the Volkerkunde-Museum, 37 from the Zeughaus-Museum, 3 from the Museum für Vor- und Frühgeschichte, one each from the Gemälde-Galerie and the Ägyptisches Museum, and 20 crates and 231 folders from the Kupferstich-Kabinett. On March 30, another 19 crates arrived from the Antiken-Museum, plus 45 each from the Skulpturen and Volkerkunde, 3 from the Vor- und Frühgeschichte, 51 paintings from the Gemälde-Galerie, 27 crates and 9 parcels from the Ägyptisches Museum and 5 crates and 553 folders from the Kupferstich-Kabinett. However, owing to the lack of fuel for the transport below ground, and time, not all the crates from the former delivery were moved into Room No. 20 (where most of the art was stored) and none from the latter. They were provisionally stored in the main tunnels where this picture was possibly taken. (US Signal Corps)



Reflecting on his tour of the mine with Eisenhower down a tunnel lined with priceless paintings, General Patton (centre) observed in his memoirs: 'The ones I saw were worth, in my opinion, \$2.50, and were the type normally seen in bars in America'. The shadows and the narrow passageway suggest that this shot was taken in one of the tunnel corridors or in the haulage way in front of the elevator shaft. A great many paintings and packages of Reichsbank currency were abandoned in the tunnels when, on April 4, the Americans interrupted the frantic, post-Easter underground rearrangements by the Reichsbank and museum custodians responsible for the treasures in the Kaiseroda mine. (USNA)



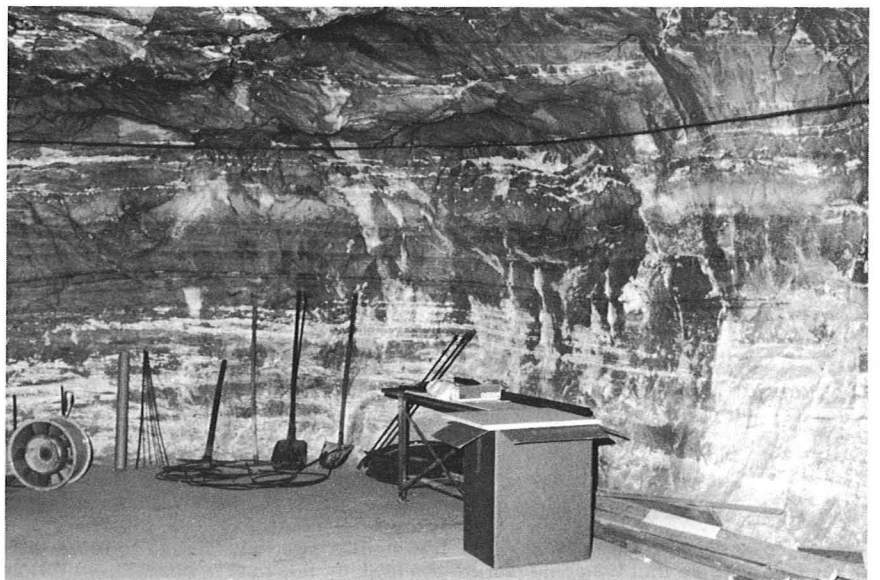
More certain are the pictures taken when the party reached Room No. 8.

The last task left for the late afternoon of April 11 were the arrangements made 'in anticipation of distinguished visitors ... [expected on] Thursday morning ... [These were] to see that the mine and shaft equipment was functioning properly and that German civilians were available for questioning if needed.' Colonel Bernstein and other staff personnel had been caught underground during a power failure in the mine earlier in the day. At 10.30 a.m. on April 12, the distinguished visitors — Generals Eisenhower, Bradley, Patton, Eddy, and members of their staffs — arrived for a subterranean tour of the Merkers mine. Before they descended in the main working elevator to the passage way, the party was briefed by Colonel Bernstein about the treasure. He provided a preliminary estimate of its value, how it came to be shipped there, and discussed the plans for moving it to Frankfurt. These 'were orally approved by the visiting officers'.

The generals were then shown Room No. 8, where the meticulously stacked and organised rows of bags and packaged currency, banknotes, gold coins, and bars of gold bullion were laid out. Behind these at the far end of the 210ft. x 75ft vault were suitcases crammed with obvious SS loot.

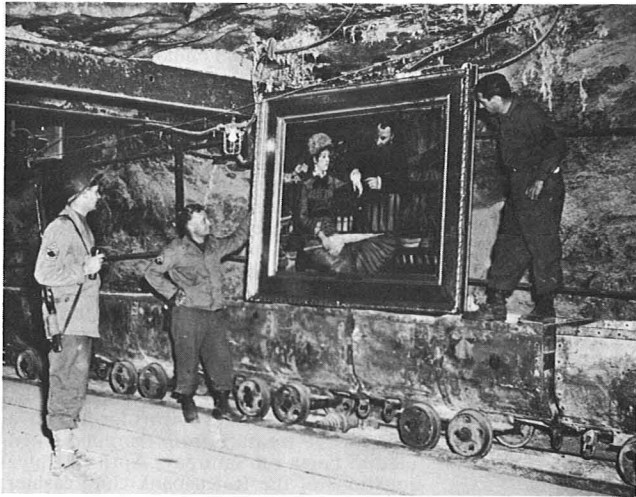
The generals also inspected the paintings and other art objects found stored in Room No. 20, further down the same mine tunnel, and alongside the tunnel at various places between the elevator and that room. Finding some 393 paintings protected only by loose wrappings or portfolios, the generals sifted through some of the 1,214 cases filled with paintings and miscellaneous objets d'art, 2,091 boxes containing engravings, drawings and prints as well as 140 rolls of oriental rugs and tapestries. These were all sent to Frankfurt on Tuesday, April 17, after the entire monetary, bullion and currency shipment — recorded as \$241,113,302 — had been delivered and secured at the depository. Two days later, a 'Top Secret' inventory was sent to US

Centre: With Bradley behind and Patton on the left, Eisenhower inspects one of the many suitcases filled with Nazi loot. We saw Colonel Bernstein (on the extreme right) making an inventory of the same case on page 11. Right: This is the rear part, inaccessible to visitors today, because of the projector wall.



Army Chief-of-Staff George Marshall indicating that preliminary assessment of the original monetary and bullion shipment from Kaiseroda consisted of, in addition, 18 sacks of gold or silver bars and '189 boxes, parcels, and suitcases containing silverware, coins, jewelry etc' thought to be 'SS property'. The inventory did not mention the former custodians of the paintings or objets d'art, or the boxes of engravings, prints, and drawings, or the rolls of carpets and tapestries. Whether these treasures were SS loot or stored for one or more of the Reich museums had yet to be ascertained.

After General Eisenhower's party left Merkers to inspect the nearby Buchenwald subsidiary camp at Ohrdruf, Colonel Bernstein assigned Lieutenant Colonel Moore the task of marking the money containers and preparing shipping documents for the movement of the treasure from the mine scheduled to begin on Saturday, April 14. Interrogations of the Reichsbank chief cashier, Otto Reimer, and the manager of the bank's Precious Metals Department, Albert Thoms, as well as Wintershall A.G. officials (Ernst Puntman, Walter Polnicke, Dr Waldemar Meyer, Hans Richter, George Peters) and employees (Dr Veil, Dr Schawe, Rathke, Kurzel, Enger, Boerner, and Rudolph) that



The locations of some of the masterpieces left in the tunnel can be precisely identified. This spot (left) can be immediately recognised as being in the main tunnel between Shaft No. 2 and 3 (5)

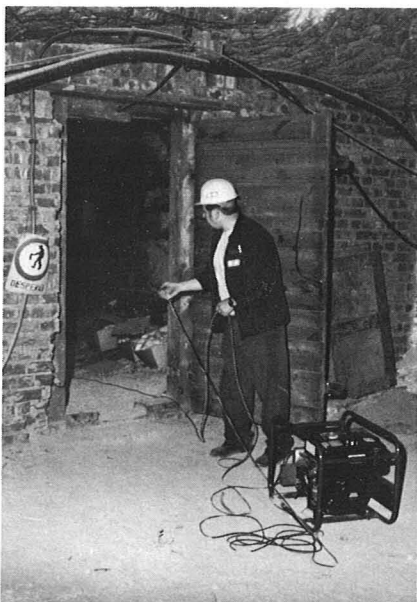
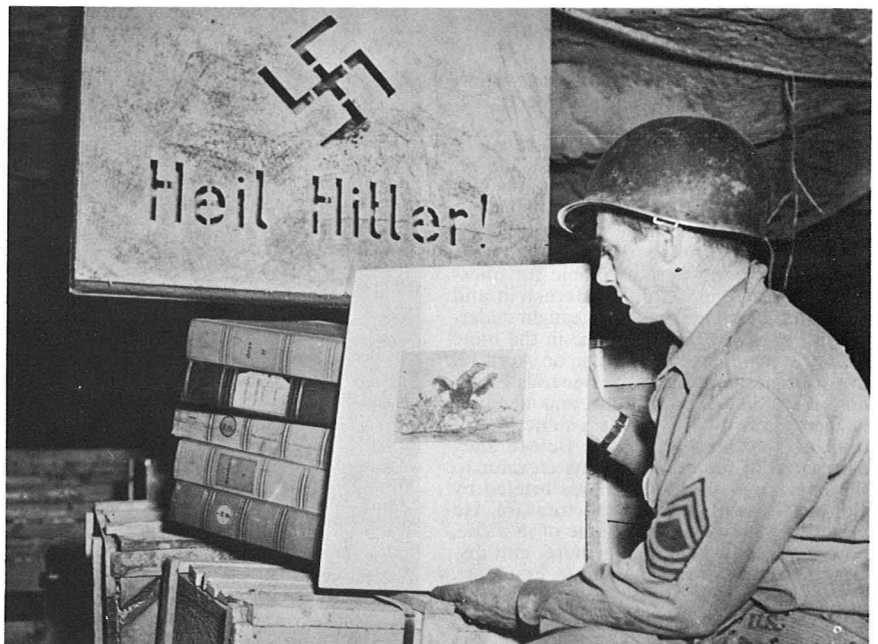


on plan on page 3). The picture is *Winter Garden* by the French impressionist Edouard Manet (1832-83). Right: The girder has since been removed.

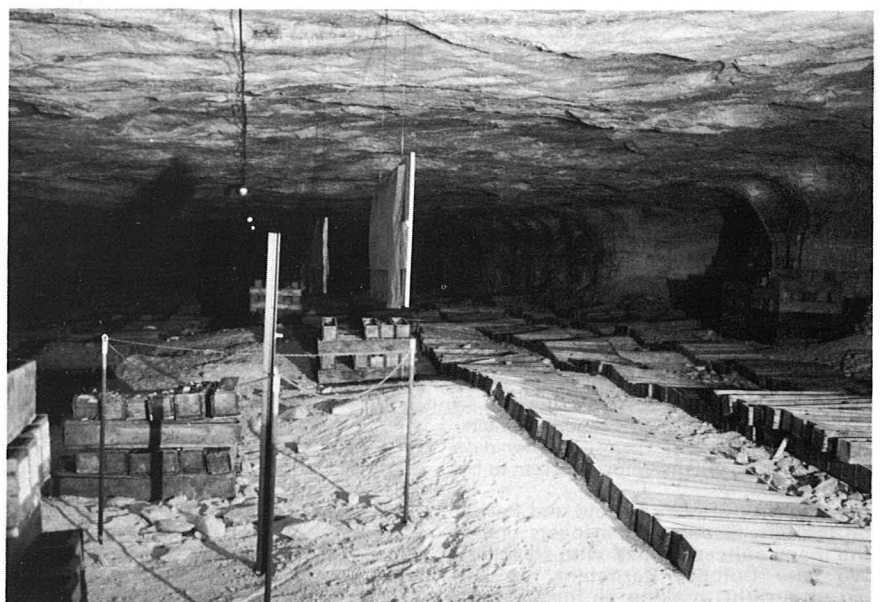
afternoon and evening provided information that other art and archival treasures were hidden in neighbouring Wintershall mines. Commander Fisher was assigned responsibility for preparing the inventories of treasure located in these mines and gathering financial and property control intelligence information.

Arrangements on Friday, April 13, were confounded by the news that President Roosevelt had died during the early afternoon (Washington time) on the day before. Nevertheless, with Lieutenant Colonel Cragon designated as the receiving officer in Frankfurt for the gold, silver and paper currency, and 32 10-ton trucks from the 3628th (this may be a typing error as the movement order states 3632nd) and 4263rd Quartermaster Truck Companies arriving by 7.30 a.m. the next day, Colonel Bernstein was able to start the loading as scheduled at 9 a.m. on Saturday.

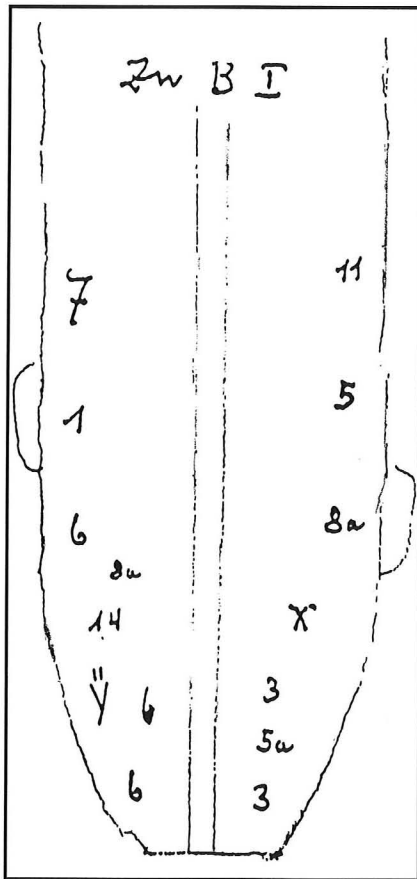
The interior of the art chamber is not so easy to identify. Master Sergeant Harold Maus of the HQ and Service Company, 1303rd Engineer Regiment examines a painting by the 18th-century Spanish artist Francisco de Goya (1746-1828). Above it hangs a stencil from a later era!



Room No. 20 is not open to visitors but it was specially unlocked for us so that we could picture the interior. It is now



used to store test drilling/boring samples (in oblong wooden boxes) from this and other mines in the area.



Professor Dr Rave prepared this sketch plan (left) on April 11, 1945, recording the contents of Room No. 20: 'Found at "X": about three dozen suitcases of staff personnel. "Y": about 20 crates of a water maintenance agency from Königsberg. Stored from the deliveries (from March 20, 1945, onwards): 1. Ägyptisches Museum: 19 (?) crates. 2. Skulpturen-Abteilung: about 60 crates [not shown on plan]. 3. Islamische Abteilung: 1 (?) crate, 10 rugs. 4. Schloss-Museum: about 60 crates [not on plan]. 5. Schloss-Museum: 150 rugs. 6. Gemälde-Galerie: about 40 crates. 7. National-Galerie: 342 unpacked paintings on beam gratings. 8. Kupferstich-Kabinett: about 60 folders in two crates [not on plan]. 8a. Kupferstich-Kabinett: 28 small crates with handles (top quality). 11. Volkskunde-Museum: about 6 crates. 14. Library of Reich Minister of Education Bernhard Rust (private property): 79 crates.' This picture (above) was most likely taken in the room as the tapestry rolls and parcels on the left are tagged 'Schl.M'. (Schloss-Museum) which arrived on March 22 when there was still time — and fuel — to move them to Room No. 20. Several of the boxes stencilled 'Sk.Abt' (Skulpturen-Abteilung) have pictures of the object pasted on the outside. (US Signal Corps)

To facilitate rapid removal, Jeeps with trailers were lowered into the mine to the 1,600-foot level and used to haul the treasure from the gold vault to the foot of Nos. 2 and 3 shafts. The trailers were disconnected from the Jeeps and hoisted to the surface, pulled by hand to loading ramps where the material was hand-loaded onto the trucks. Officers of the 357th Infantry and from Colonel Bernstein's G-5 staff checked the treasure on to the trailers in the vault and one officer accompanied each trailer to the hoist, staying with the load until it reached the surface where it was passed to the officer preparing inventories for each truck. The officer who had accompanied the trailer returned with it to the interior of the mine for another load.

The system of checking the treasure began with one officer and one enlisted man stationed at the inside of the door of the vault. That officer checked and called out the numbers as the bags were taken out of the door and loaded on to the Jeep trailers. The enlisted man at the door wrote the number on a sheet of paper to be used as a load slip for each container in the load. Once hoisted up, the officer on the trailer signed the load slip and turned it over to the G-5 currency section officer supervising the loading at the truck ramps. An enlisted man from the currency section called out the numbers of the items as they were put into the truck and the officer checked the load slip in order to verify that each item which left the vault below was loaded on the truck. The truck loading officer recorded the truck and trailer number, the names and serial numbers of the drivers and assistant drivers, and any special guards assigned to that particular truck, and initialled the load slip so the security officer could return it to the vault where the enlisted man at the entrance checked it against his register to verify that all containers removed from Kaiseroda were inventoried and accounted for.

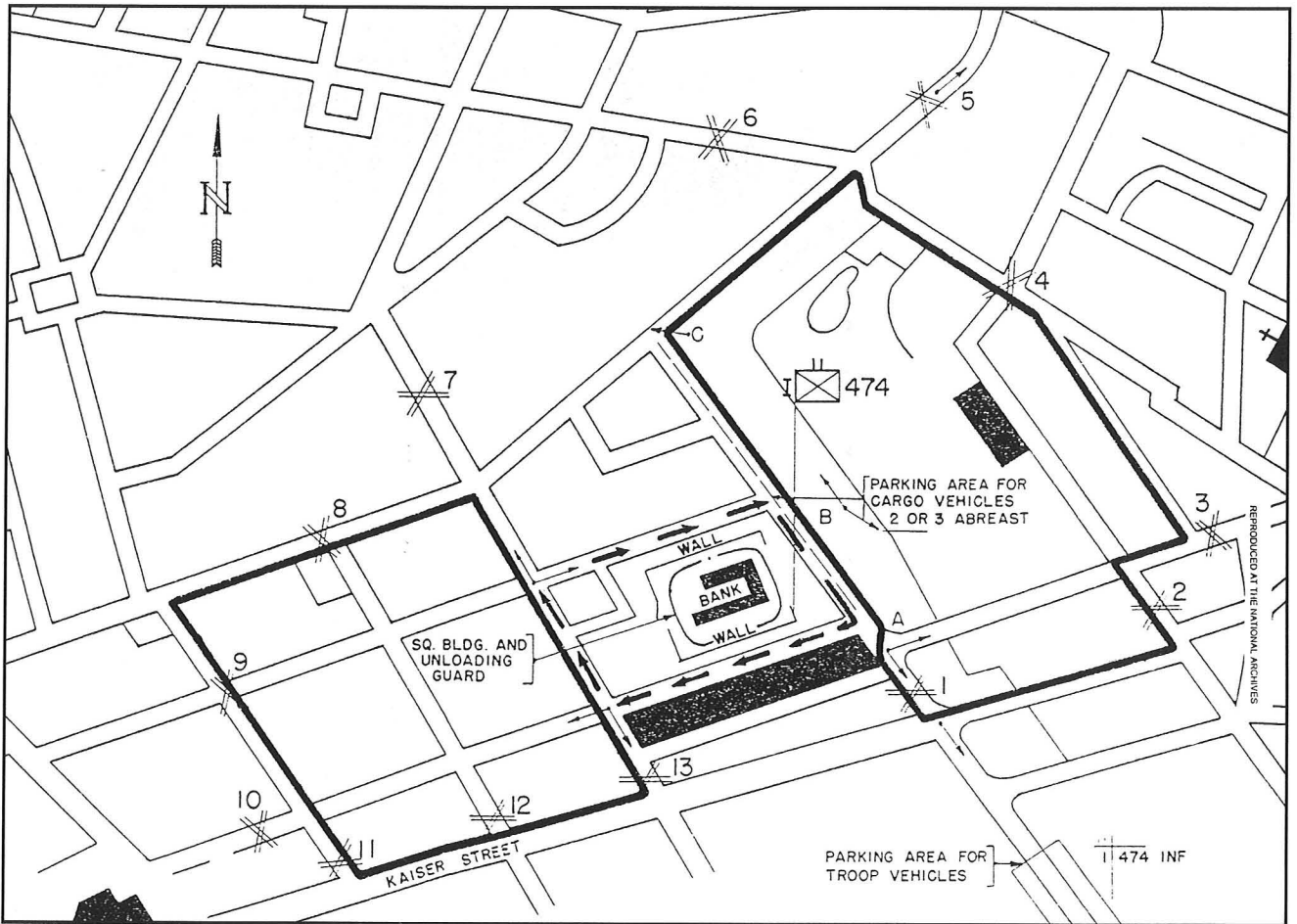
While the treasures from Room No. 8 and the corridors of Kaiseroda mine were being loaded, Colonel Bernstein called a meeting

with Lieutenant Stout of MFA&A, Captain Dunn of US Group Control Council, and Lieutenant Colonel Barrett of 12th Army Group to arrange the movement of approximately 400 tons of fine art stored in Room No. 20 and other parts of Wintershall's mines in the Merkers area. These were brought to

the surface on April 15 and 16. Loading of these precious masterworks was to begin at 12 noon on Monday, April 16, using 39 10-ton trucks procured from an American Frankfurt-based Highway Transportation Division. These arrived in three convoys of 13 each by 9 a.m. on the Monday morning.



The removal of the Merkers treasure trove began on Saturday, April 14, following a carefully-planned procedure to ensure nothing went astray. In all, the monetary cache was valued at \$241,113,302 — then the equivalent of £60 million at the exchange rate of \$4 to £1 — in today's terms possibly £1,300 million. (The military exchange rate fixed in 1945 for the Reichsmark was RM10 to \$1 or RM40 to £1). Here, 1st Lieutenant John A. Busterud of HQ Company, 1st Battalion of the 357th Infantry, the commander of the battalion's munitions and security platoon, checks off the numbers stencilled on the bags of gold as they are removed from Room No. 8. There was a double-check as the bags were taken out of the chamber and again when each load reached the surface and was loaded onto the trucks for onward shipment to the depository which had been prepared in Frankfurt. (Courtesy J. A. Busterud)



FRANKFURT

The gold convoy departed from Kaiseroda mine at 8.45 a.m. on Sunday, April 15, just one hour after the loading was certified as completed. Colonel Bernstein and his staff travelled to Frankfurt by car 'to make arrangements for receiving and storing the gold and currency within the vaults', according to Morris's report to General Crawford. The convoy arrived in Frankfurt at 3.45 p.m., having travelled on secondary roads as well as the Autobahn without any incident. Unloading began immediately and continued throughout the night until everything was secured in vaults by 1.30 p.m. on Monday, April 16.

The convoy carrying the 400 tons of art, loaded during that Monday until the job was completed at 9 p.m., left Merkers at 8.30 a.m. the next day, Tuesday, April 17. Morris's report stated there was 'approximately the same strength security guard as the gold convoy with the exception that fewer tactical aircraft were used'. Instead of the anticipated 39 trucks in the art convoy, 26 were loaded with art, two were loaded with prisoners, and two were empty for use in case a transfer of loads was necessary. The remaining nine trucks were sent to Forward Class III Depots to bring back empty jerricans to the Frankfurt area.

Just after dark on Tuesday, April 17, less than two weeks since the major discovery of precious metals, bullion, currency, and objets d'art in Merkers, everything was secured in the building in Frankfurt, now designated as the Frankfurt Exchange Depository (FED). Under supervision of Lieutenant Stout and Captain Dunn, the boxes and cases of art objects were placed in the protected areas according to each department of the German state museums. By 10.30 p.m., a tentative inventory of the gold, silver and currency was in the hands of General McSherry. At this point, the Americans

A designated route from Merkers to Frankfurt had been drawn up by HQ 1st Battalion of the 474th Infantry, the unit now responsible for safe transit. From the mine, the convoys would use Reichsstrasse 62 to join the Autobahn at Bad Hersfeld. Leaving the A5 at Bad Homburg, Frankfurt was entered from the north via the Friedberger Landstrasse to the city centre where the whole area surrounding the Reichsbank building on Adolf-Hitler-Allee had been cordoned off. There were road blocks at 13 places surrounding the bank, 1, 5 and 8 comprising heavy machine gun squads, the remainder half-squads of riflemen. Heavy machine gun positions were also established at A-C. The routes for foot patrols (solid line and arrowed) were also specified. In addition, once the convoy arrived, scout cars were to be deployed at Road Blocks 1, 4, 5, 6, 7, 8, 10 and 12 and Quad .50-calibre AA guns to perform ground defence at 2, 3, 9, 11 and 13. Five more .50s were to be located within the perimeter for anti-aircraft protection.

already had clearly separated the SS loot that would become Shipment 1 from the other assets: the gold, coins, bullion, monetary

reserves, from the Berlin central Reichsbank, the objets d'art from the state galleries and other Third Reich plunder.



The Reichsbank building was renamed by the Americans the Frankfurt Exchange Depository but today it is the Landeszentralbank Hessen.



FROM BUCHENWALD: SHIPMENT 16

At 5.30 p.m. on the afternoon of Wednesday, April 11, an American staff vehicle pulled out of the stream of the Third Army's military traffic passing the main gate of Buchenwald concentration camp. The car turned in at the front entrance where Lieutenants Edward Tenenbaum and Egon Fleck, two Psychological Warfare Division (PWD) officers, stepped out to be greeted by members of the inmate committee made up of all the nationalities incarcerated in the camp. As the *Buchenwald Report*, organised by inmate Eugen Kogon and submitted to PWD, SHAEF, by 2nd Lieutenant Albert G. Rosenberg (commander of Detachment B, 4th MRB Company), on May 11, 1945, expressed: 'A total of 21,000 prisoners had been rescued — 3,000 French, 2,000 Poles, 2,000 Czechs, 5,000 Russians, 600 Yugoslavs, 200 Italians, 200 Spaniards, 2,200 Germans, 6,000 other anti-fascists. They owed it to the US Third Army and their own international collaboration that on April 11, 1945, fascist slavery had ended for them and a new life in freedom had begun.'

Indications that the inmates intended to take matters into their own hands were made known to the Americans as early as April 8, when a home-made radio began to transmit

Buchenwald — literally 'Beech Forest' — never existed as a village, the innocuous-sounding name being coined for the concentration camp built on the northern side of Ettersberg Hill, north of Weimar, in 1937. Units of the US Army's 4th and 6th Armored Divisions reached the camp on April 11, 1945 but, based on arrangements worked out at Allied meetings at Malta (January 1945) and Yalta (February 1945), the Americans turned over the area to the Soviet forces when the formal zoning of Germany came into effect on July 1. The Soviets then used it as an internment camp — *Speziallager Nr. 2* — until 1950, shortly after the German Democratic Republic was organised. Between 1954, when the GDR earmarked it for memorialisation, and 1958 when Otto Grotewohl, the Prime Minister, dedicated it as the first anti-Nazi memorial on German soil, a large monument, incorporating three mass graves, was erected on the south flank of Ettersberg Hill. During the 40 years under GDR control, literature available at the camp emphasised the 'anti-fascist' nature of Buchenwald as a memorial site; now, like all historical sites in the former GDR, Buchenwald has been subjected to a 'revision of the basic concept' or, as the Germans so well put it: 'Überarbeitung der Gesamtkonzeption'. At Buchenwald, this revision focuses on war crimes issues: evidence derived from the American discovery of the treasures in the quarry as well as the collusion between the SS and the 'German political prisoners' (a euphemism for the German communists who were interned there) in the internal administrative operations of Buchenwald as a concentration camp. (RIOD)

'SOS Buchenwald', according to Armin Walther, a German inmate whose job at the camp was to build and repair communication equipment for the SS. Thus, by 2.10 p.m. on April 11, when Combat Team 9 of the 9th Armored Infantry Battalion of the 6th Armored Division of the Third Army arrived at the main gate on their way to take the Weimar sewage treatment plant, prisoner

shock-troops had taken control of the command tower at the camp gate by disarming and holding as prisoners those SS guards who still remained after the camp administration had fled. Armed groups of inmates systematically began patrols outside the perimeters to capture any SS who were hiding in the surrounding forests once the American tanks were in the immediate vicinity.





The American Army immediately established humanitarian and relief missions throughout Buchenwald concentration camp . . . yet the Commander-in-Chief has not lived to see the final victory. The Stars and Stripes fly at half-mast in front of the SS-Kommandantur building following the death of President Franklin D. Roosevelt on April 12 — the day after US forces arrived. (RIOD)

Tenenbaum and Fleck described their arrival at Buchenwald in the following words: '... turn[ing] a corner onto a main highway, . . . [we] saw thousands of ragged, hungry-looking men, in orderly formations, marching East. These men were armed, and had leaders at their sides. Some platoons carried German rifles. Some platoons had Panzerfausts on their shoulders. Some carried 'potato masher' hand grenades. They laughed and waved wildly as they walked, or their captains saluted gravely for them. They were of many nationalities, a platoon of French, followed by a platoon of Spaniards, platoons of Russians, Poles, Jews, Dutch, mixed platoons. Some wore striped convict suits, some ragged uniforms of the United Nations, some shreds of civilian clothes. These were inmates of Buchenwald, walking out to war as tanks swept by at 25 miles an hour.'

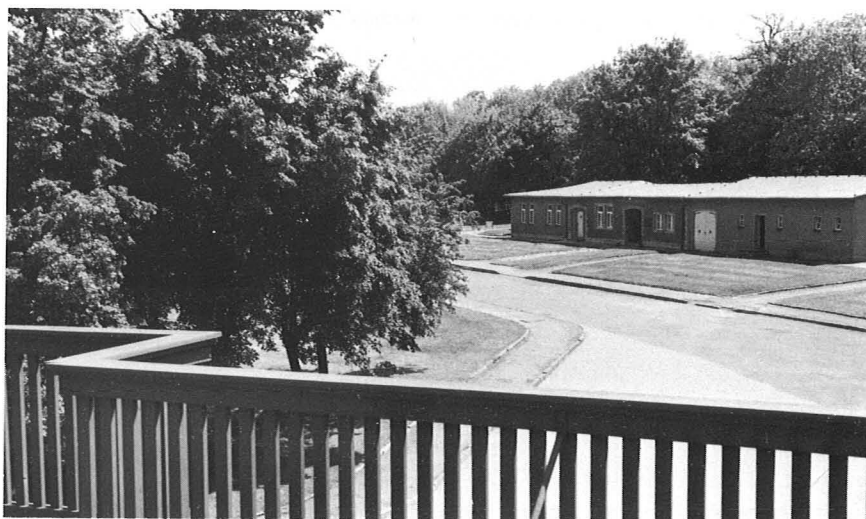
By nightfall, Tenenbaum and Fleck had first-hand evidence of the orderly processes by which the inmate committee had begun to manage the camp. Spending their first night in beds in Block 50, the Typhus Experimental Laboratory where victims of typhus injections had been observed as they died, they began immediately on April 12 (the day of General Eisenhower's inspection of the Kaiseroda mine at Merkers and the Ohrdruf camp) to interview some of the inmates.

By evening, Eisenhower had been notified that Buchenwald had been liberated. But in the words of Fleck and Tenenbaum: 'The full truth about Buchenwald will never be known. To approach it, a large staff of interrogators would be necessary, as well as some means of protecting witnesses. The look of terror in the eyes of inmates when certain questions were asked was not lost on [us]. Names of informants are not given in this report. They are still in Buchenwald, and would undoubtedly be in gravest danger if what they said ever becomes known there. The major informants are two Allied intelligence agents who were caught by the Germans.' (These were probably two British

spies, Wing Commander Forest Yeo-Thomas and Captain Christopher Burney, who had been apprehended by the Germans earlier during the war and incarcerated in Buchenwald.)

Completed by Saturday, April 14, two days before Lieutenant Rosenberg's four-man team arrived to do an in-depth study of Buchenwald for Psychological Warfare Division (PWD) SHAEF, the Fleck-Tenenbaum preliminary report as revised from the original was not released by 12th Army Group Headquarters PWD until April 24 to SHAEF under a 'restricted' security classifi-

cation. By April 24, conditions and the ideological affiliation of the inmate committee at Buchenwald had already been the subject of a parliamentary question in the House of Commons raised by F. E. Smith, MP. Within the ten-day period, delegations from the legislatures of the United States (led by Senator Alben Barkley) and Great Britain (led by the Earl of Stanhope), internationally prominent journalists, US labour leaders, and well-known American clergymen as well as a special French mission had witnessed the horrors and atrocities found at the camp at the invitation of Eisenhower.



The field-guns have long gone but the SS building still survives, albeit with post-war extensions. Picture taken from the balcony of the main gatehouse seen overleaf.



Lord Wright was 'to confirm at first hand ... [the indictments] which it had already made' and his report entitled *Visit of Delegation to Buchenwald Concentration Camp in Germany* was submitted to the UN War Crimes Commission in less than five days, on May 2, 1945. Not only had the delegation visited Buchenwald at the invitation of General Eisenhower, they provided a preliminary briefing at SHAEF Rear Headquarters on their return trip to London on April 27. Describing the functions of the commission as it had been organised, Lord Wright mentioned that Colonel Claude B. Mickelwaite, Staff Judge Advocate of 12th Army Group, and Colonel M. Brannan, Staff Judge Advocate of the US First Army, had greeted the members at the camp and, at the initial meeting, had introduced Major Howard M. McBee, the First Army Judge Advocate staff officer who had been sent to Buchenwald by his superior, Lieutenant Colonel John W. Bonner 'with the view of learning everything possible about the camp so that we would be familiar with it at the time we acquired jurisdiction'. McBee's role as guide and his comprehensive orientation was described in Lord Wright's report as formidable. Indeed, Major McBee had spent all the subsequent waking hours showing the camp and its sub-divisions to the delegation.

As the first concentration camp to be opened to the Allied news media and legislators from Great Britain and the US, and international relief missions, the revelation of the horrific scenes within Buchenwald — like those at Belsen entered by British forces a few days later (see *After the Battle* No. 89) — shocked the world. Eisenhower called in the Allied War Crimes Commission, the inspection team arriving on April 26. R-L: Lieutenant Colonel J. V. Hodgson, US Army (accompanied by Lieutenant Commander Latta, US Navy), Wing Commander E. R. Hopkins (Canada), Dr B. Ecer (Czechoslovakia) and a US Navy escort, Lieutenant Prowse, view bodies left in the enclosed courtyard of the camp crematorium. (USNA)

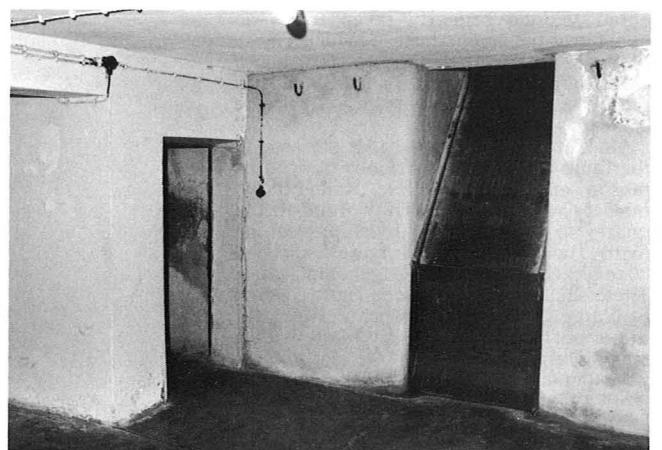


The building in the background is the mortuary (where no doubt any gold teeth were removed), the crematorium itself being out of the picture to the right. Karel's comparison takes in the wider view to show the relationship between the two buildings.

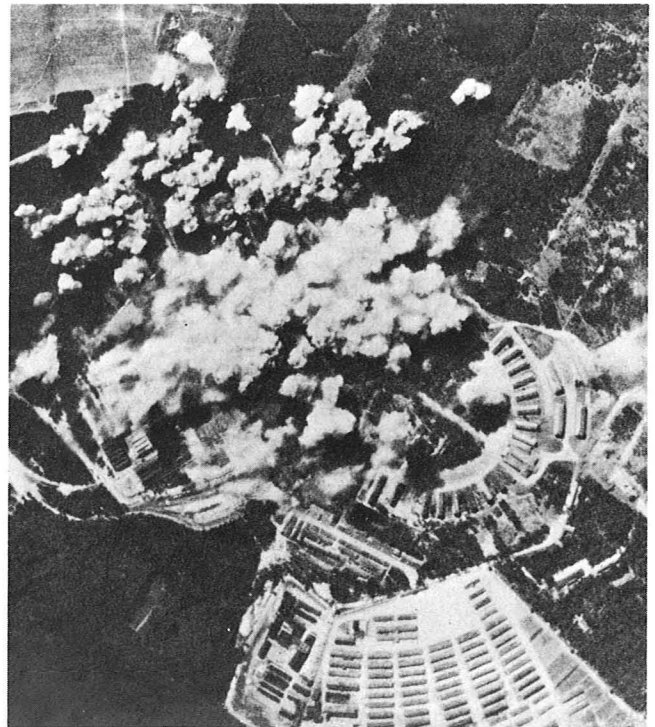
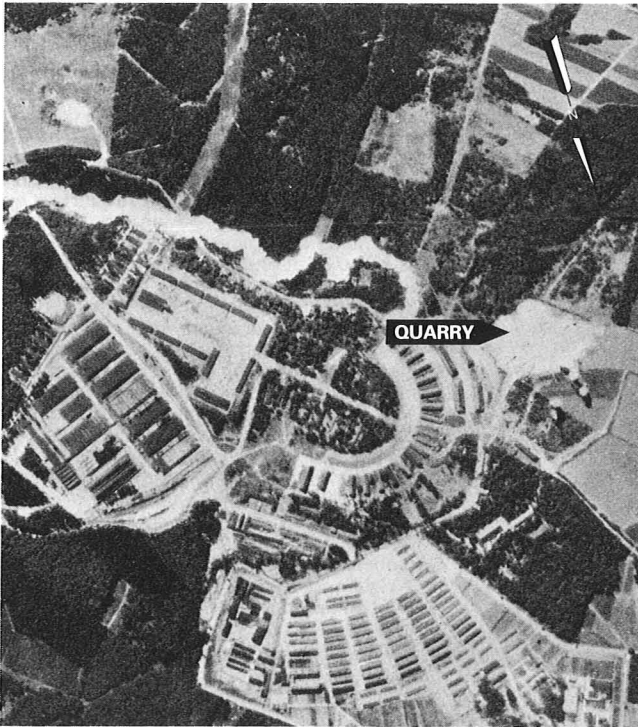
Meanwhile, in order to complete an encirclement to trap the Germans, Patton's Third Army continued on toward Bavaria to capture a Nazi alpine redoubt alleged to be located there. Control over the area surrounding Weimar, including Buchenwald, was transferred to Lieutenant General Courtney H. Hodges's US First Army which had moved south and east by the time the United Nations War Crimes Commission, headed by Lord Wright, arrived on Thursday, April 26, to inspect Buchenwald.



Left: The Commission inspected the cellars where, the contemporary caption says, 'victims were hung from hooks in the ceiling until dead'. (RIOD) Right: The cellar of the crematorium was probably used for fuel storage for the coal-fired ovens above —



the chute is visible. Deliberately falsifying the historical record, the East Germans enshrined the crematorium to honor the memory of pre-war leader of the German Communist Party, Ernst Thälmann.



Buchenwald was a work camp and the inmates were employed both in the nearby quarry and at radio and armament factories. The bombing of the Gustloff-Werke, which lay south-east of the semi-circular SS-Kaserne (barracks), by the Eighth Air Force on August 24, 1944 was later used by the GDR to claim that Thälmann died in the attack. However, the Fleck-Tenenbaum report (drafted by the two US Psychological Warfare Division officers who were first to arrive at the camp) states otherwise: 'This bombardment was used as an excuse for the murder of Ernst Thälmann, the famous German communist leader, though Thälmann had never been in Buchenwald.' (RIOD)

It was not until the War Crimes Commission delegates had left on the morning of April 27 that Major McBee was able to track rumours about treasure hidden in the nearby quarry ('Steinbruch' in German) by interrogating two German ex-prisoners, Armin Walther and Kurt Mascheski. They found Friedrich Mueller, another ex-prisoner who had worked in the disinfection section of Buchenwald, who denied knowing anything about 'hidden property taken from the inmates of the camp'. Instead, Mueller took Major McBee to the quarry to show him a cave where, at the orders of the SS, he had placed a poison gas canister which, he claimed, was a sham.

Once it was determined that the area in the camp quarry was not booby-trapped by poison gas, Major McBee brought two inmates who had formerly worked in the quarry to the site and 'upon questioning them . . . discovered two air raid shelters had been located near the spot Mueller indicated. These shelters had been completely covered by blasting, the marks of which showed near the upper rim of the quarry.' Later, after making arrangements for a German civilian work detail from Weimar for the next day, April 29, Major McBee 'crawled through . . . [a small hole made into entrance No. 1 of what ostensibly had been two air raid shelters] and made an investigation of that part of the tunnel [where there were] . . . several suitcases, and wooden boxes, and also a few barrels visible'. Such was the discovery of what was to become part of Shipment 16.

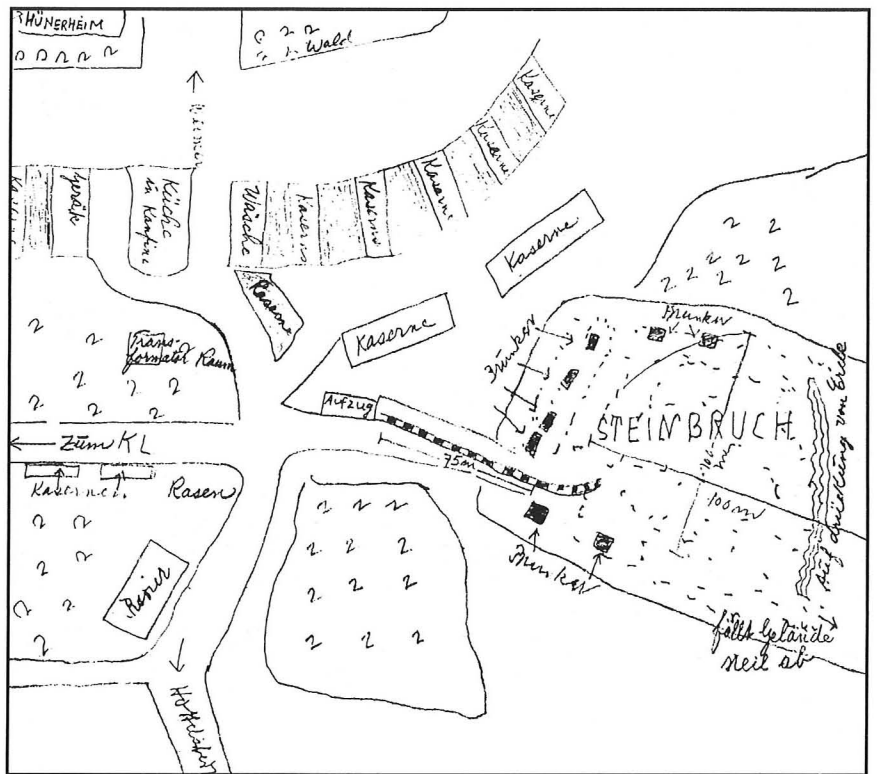


Air raid shelters for the use of the camp personnel were tunnelled into the side of the quarry which lay just west of the SS barracks. (BWA)



All but six of the SS barrack blocks were demolished in the 1950s. (See plan on page 2.) Of the rest, only foundations remain but the ramp of the tip-cart rail line from the quarry floor can still be discerned.

Two days before Buchenwald was transferred from the jurisdiction of the Third Army, the First Army's Chief of War Crimes, Lieutenant Colonel John W. Bonner, ordered one of his investigating officers, Major Howard M. McBee to familiarise himself with the camp. As the escort of the War Crimes Commission until they left on April 27, McBee learned of rumours that the SS had hidden valuables in the quarry and located the area later that day. After digging for three hours, a small opening was made into the first bunker and McBee crawled inside to find several suitcases, wooden boxes and barrels which were removed. Preparations were made to excavate the area on the following day using a German civilian work detail from Weimar. Once a second entrance was opened, everything in the tunnels and bunkers was removed. On May 2, Colonel Bonner inspected the interiors with McBee and, being satisfied that nothing was left, ordered the tunnels to be sealed. *Right:* This hand-drawn sketch of the quarry was found in April 1945 among SS documents by members of the US First Army G-5 (Finance) and became one page of a report that accompanied the inventory of the SS loot sent to Frankfurt from Buchenwald as Shipment 16. From a topological perspective, features like buildings, roads, and foliage do not conform to distances, positions, or structures as they were in April-May 1945.



Colonel Bonner's affidavit describes the assembling of the hidden treasure: 'Major McBee then continued to bring the suitcases containing property from the tunnels to my office when it was found that more space was needed and the Inspector General then made arrangements to use a separate building at this headquarters. All of the property in my office was then transferred to the newly acquired building and finally all of the property taken from the tunnels was deposited therein. The last of the property was removed on 1 May 1945. This property included bars of gold, US currency, US gold coins, diamonds, various precious stones, boxes of silver spoons, watches, clocks, and various other items of property. . . . After all the property was taken from the tunnels, I made arrangements with the Engineer Section of this headquarters to close the entrance to the tunnels by blasting so that no one would be injured or killed in case of a cave-in. The entrances to the tunnels were blasted and a bulldozer was used to finish covering the holes.'

'On 29 April and 30 April and 1 May, nine 2½-ton truckloads of property were removed from the two tunnels and turned over to the Inspector General. . . . On 2 May, . . . Colonel Bonner and I made individual inspections of the interior and found that everything had been removed', stated Major McBee in his affidavit.

The hand-drawn map does not indicate which bunkers were excavated by Major McBee. Our joint authors, Carolsue Holland and Thomas Rothbart, have spent many months on every line of enquiry but no other plan has come to light to pinpoint exactly where the two bunkers opened on April 28 and 29, 1945 were located. The discovery of this misfiled diagram in a US National Archives First Army G-5 Record Group in 1984 generated interest on both sides of the Iron Curtain (which continues even today) to locate the other alleged tunnels. In the winter of 1995-96, when the hillside was bare of foliage, our authors visited the quarry to look for evidence, the best indications being that the two lay just to the right of the ramp.





On Tuesday, May 2, Major McBee transferred custody of the quarry find to the First Army Inspector General.

On Friday, May 5, Colonel Damon M. Gunn, the First Army G-5, issued a memorandum for his subordinate, Major A. H. Whitman, who was designated to assume responsibility for the quarry find from the Inspector General. Colonel Gunn's directives to Major Whitman included crating, packing, and loading so that the convoy could leave for the Frankfurt Exchange Depository by 7 a.m. the next day.

Major Whitman's Annex I of the inventory accompanying the property to be designated as Shipment 16 included the packing schedule for items of special value in addition to a tentative valuation. Before Shipment 16 left Buchenwald for the Frankfurt Depository, 12th Army Group War Crimes Board noted that Colonel Bonner was concerned about assuring retention of at least two of the six 'truck loads of currency, jewelry, gold fillings, silverware, etc. which had

Teams of military personnel, helped by a few Buchenwald internees who had professional knowledge of gems, sorted and counted the valuables recovered from the quarry, estimated at a gross weight of nearly 21 tons! According to Lieutenant Colonel Bonner, his office soon became overloaded, at which point a separate building (since demolished) near the quarry on the grounds of Buchenwald was made available to sort what was to become evidence for future war crimes trials.

been recovered in a cave outside of Buchenwald. . . .'

The convoy transporting Shipment 16 to Frankfurt consisted of six 2½-ton trucks, two armoured cars, one MP motorcycle, and one Chevrolet. It arrived at the FED late in the afternoon of May 6.

By the time Lieutenant Colonel Cragon and Captain Paul McCarroll signed receipts on May 7 for '313 boxes or other containers numbered 1 to 313, inclusive', Major Whitman's shipment was deposited in safekeeping for account of the War Crimes Section, Staff Judge Advocate, 12th Army Group. On May 11, Colonel S. E. Senior, First Army Assistant Adjutant General, provided to General Bradley, the commander of 12th

Army Group, the description, receipts, and annexes dealing with Shipment 16, assuring that it was clearly in the custody of the Frankfurt Exchange Depository.

General McSherry, the SHAEF G-5, inspecting the FED on May 28, issued 'verbal instructions . . . [that] two small boxes (Nos. 313 and 168) from Shipment No.16 stored in room 2 (air raid shelter) were [to be] removed and placed on display in room 15 (vault)'. The memorandum documenting the display, drawn up by Colonel Cragon and his deputy, Major Edward Jesser, reported that 'the boxes were opened and part of the contents displayed. Contents were returned to boxes which were then closed and returned to the original depository.'



Above: More than 600lbs of fountain pens, wrist-watch straps and novelty jewellery were found. Right: Sorting precious and semi-precious stones. (USNA)





Grim reminders: a box containing hundreds of wedding rings (left), and (right) thousands of gold teeth. (USNA)

Major McBee's and Colonel Bonner's affidavits were sworn at First Army Headquarters, then located in Weimar, on May 8, 1945, just one week after the entire treasure from the Buchenwald quarry was turned over to the custody of the Inspector General

and two days after Shipment 16 arrived intact at the Frankfurt Exchange Depository. Altogether, Major McBee's discovery in the quarry constituted an inventory of loot filling 313 boxes, barrels, cases, crates, and packages. As FED records show, the official

accounting of Shipment 16, recorded by Colonel Bernstein during the summer of 1945, stipulates that a total of 313 containers, later re-arranged to 319, were in the custody of the Frankfurt Exchange Depository awaiting war crimes adjudication.



Major Howard McBee looks over his treasure trove, which included more than 17,000lbs of silver tableware, before the

crates were sealed to be transported as part of Shipment 16 to the Frankfurt Exchange Depository on May 6. (USNA)



FROM FRANKFURT: SHIPMENT 1 AND SHIPMENT 16

The official US Army historians, Charles B. MacDonald and Earl F. Ziemke, make no mention of Major McBee's discovery of the Buchenwald treasure that subsequently became Shipment 16, and in February 1994, Brigadier General Harold W. Nelson, the chief of the US Army Center of Military History, explained that their files revealed 'no specific information to indicate that the US Army removed from Buchenwald concentration camp and shipped to the United States valuables that the German SS had confiscated from Jewish prisoners in the camp'.

It is clear that since April 1945, when Colonel Bernstein made the initial differentiation between Third Reich assets and plunder on the one side and Nazi loot on the other, few people, if anyone, noted discrepancies between the complete accounting of the inventory taken from Merkers and the inventory listed as Shipment 1 from Merkers. The designation of shipment numbers was simply Bernstein's way of separating SS loot from other assets.

When allegations of grand theft and major pilferage against American military personnel and occupation forces surfaced in Bavaria during the late summer of 1945 (see *After the Battle* No. 31), classified military records screened out many of the details about the treasures that were in the custody of the Frankfurt Exchange Depository pending the collection of evidence for forthcoming war crimes trials. Political tension between General Lucius D. Clay (an Army career officer who became American Deputy Governor in Germany in July 1945) and Colonel Bernstein (whose patron, US Secretary of the Treasury Henry Morgenthau, facilitated his attachment to SHAEF G-5 finance) may have deflected attention away from the latter's systematic classification schemes. Once Bernstein left the European Theater, shortly after the Paris Conference establishing the Inter-Allied Reparation Agency was held between early November and mid-December 1945, security classifications shielded the open exchange of information between the various American commands and agencies about the movement and custody of Nazi loot as well as Third Reich assets and plunder.

In the summer of 1945, Colonel Bernstein (bare-headed on right) put on a huge display of captured gold, silver, diamonds, foreign currency and other valuables stored in the underground vaults of the Frankfurt Depository. This was then estimated as the largest concentration of treasure the world had ever seen, valued then at around \$500,000,000, somewhere over £3 billion plus at 1996 prices.

Since a few American officers were suspected of plundering Third Reich treasures, nothing specific about 'Nazi Gold' was retained in the official files. Later, sanitised records were returned to the Office of the Chief of Military History (OCMH). Therefore, details of Colonel Bernstein's 'shipments' remained part of the Frankfurt Exchange Depository papers.

As late as the Potsdam Conference between July 17 and August 2, 1945, the Americans were reluctant to abandon claims not only to the SS loot, but also to the Third Reich assets and plunder. They believed that as a bargaining point, sharing the treasures 'will turn upon how far other nations yield to our views on reasonable definitions of both "restitution", "war booty" and an accounting



After the Buchenwald war crimes trials ended, Colonel William G. Brey, USFET (United States Forces European Theatre) and Chief of the Frankfurt Foreign Exchange Depository, showed Abba P. Schwartz, Director of Reparations for International Refugee Organizations, the assets captured from the quarry and used as prosecution evidence. In 1948, these were sold through the Bank of England by the Inter-Allied Reparation Agency (IARA), which had been set up in January 1946, and the proceeds used to fund refugees. (USNA)

A second organisation, established by Britain, France and the United States in September 1946, was the Tripartite Commission for the Restitution of Monetary Gold which had, as its title implies, the job of handing back gold found in Germany and other countries to its rightful owners. The Commission's first Secretary was a member of the French delegation to the IARA, Jacques Lanson, their offices being set up in Brussels in the Residence Palace at 155 Rue de la Loi (right). Today the same street is host to the massive headquarters of the European Commission, the old Tripartite office now the capital's vehicle licensing office. The Commission sent questionnaires to the governments of those countries which had been overrun by Germany as a first step in the verification of claims for the restitution of gold backing currency missing from their central banks. While these responses were being rigorously checked against the records, the gold in the Frankfurt depository was transferred to the Bank of England in London for safekeeping.



therefore.' Using a precedent from Article LIII of the Hague Regulation of 1907 ('if material is actually in use by the enemy forces or is helping its operations'), the Americans argued that material was liable to confiscation. 'The gold in question, whether or not we recognize that title was in the German state, was clearly being used in behalf of the German state. Accordingly, from a strictly legal point of view, apart from the policy considerations involved, the gold may be treated as war booty.'

Stalin had indicated at Potsdam that the Soviet Union did not intend to make any claims against the American discoveries. But it was not clear whether he intended to make claims against Austria, Hungary or any of the states that fell into the Soviet area of occupation. Late in the summer of 1945, General Clay, Deputy Military Governor of the American zone, was reported to have said that the gold would be used to purchase imported supplies for Germany, indicating some truth to a rumour that the United States intended to claim the gold as war booty. Since General Clay's statement directly contradicted the position of Colonel Bernstein, then director of the finance sec-

tion of OMGUS (Office of Military Government, United States) in Berlin, who kept the US Treasury Department in Washington fully informed, once US policy shifted from harsh economic treatment of Germany to respond to reality after Potsdam, the American occupation forces charted a more lenient course of action.

The modifications in attitude toward the vanquished Germans coincided with the growing divide between the British and the Americans on the one side, and the Soviets on the other. Consequently, when the British proposed the formation of an Inter-Allied Reparation Agency (IARA) in September 1945, the questions about whether the Nazi treasures would be US war booty were once and for all stifled.

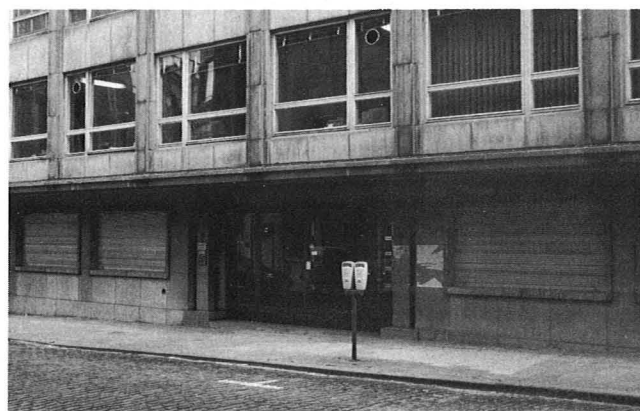
On January 14, 1946, the United States and 17 other governments signed an 'Agreement on Reparation from Germany, on the establishment of an Inter-Allied Reparation Agency and on the Restitution of Monetary Gold' which came into force on January 24. By Article 8 of Part 1 of the Agreement, a subordinate agency, the Inter-Government Committee on Refugees was allocated \$25,000,000 in German monetary gold as the

initial installment 'for the rehabilitation and resettlement of non-repatriable victims of German action. . . . The assets of victims of Nazi action who have since died and left no heirs' as well as non-monetary gold, jewelry and dental gold, gold found in church ornaments and tableware, silver wire, and precious stones were added in toto to the original \$25,000,000. In accordance with Paragraph H of Article 8, 'these funds would not be used for the compensation of individual victims, but for the rehabilitation and resettlement of persons eligible' as specified in the agreement. This arrangement established in principle that since the overwhelming majority of eligible refugees were Jewish, the funds would be allocated for the rehabilitation and resettlement of Jewish victims of Nazi action. About 5 per cent of the fund, however, was set aside for non-Jewish victims.

On July 3, 1948, a series of shipments of the remaining assets together with the valuables returned from the war crimes trials began from the Frankfurt Exchange Depository via Pan American Airways to the Bank of England on behalf of the Inter-Governmental Committee on Refugees. The last shipment took place on August 3.



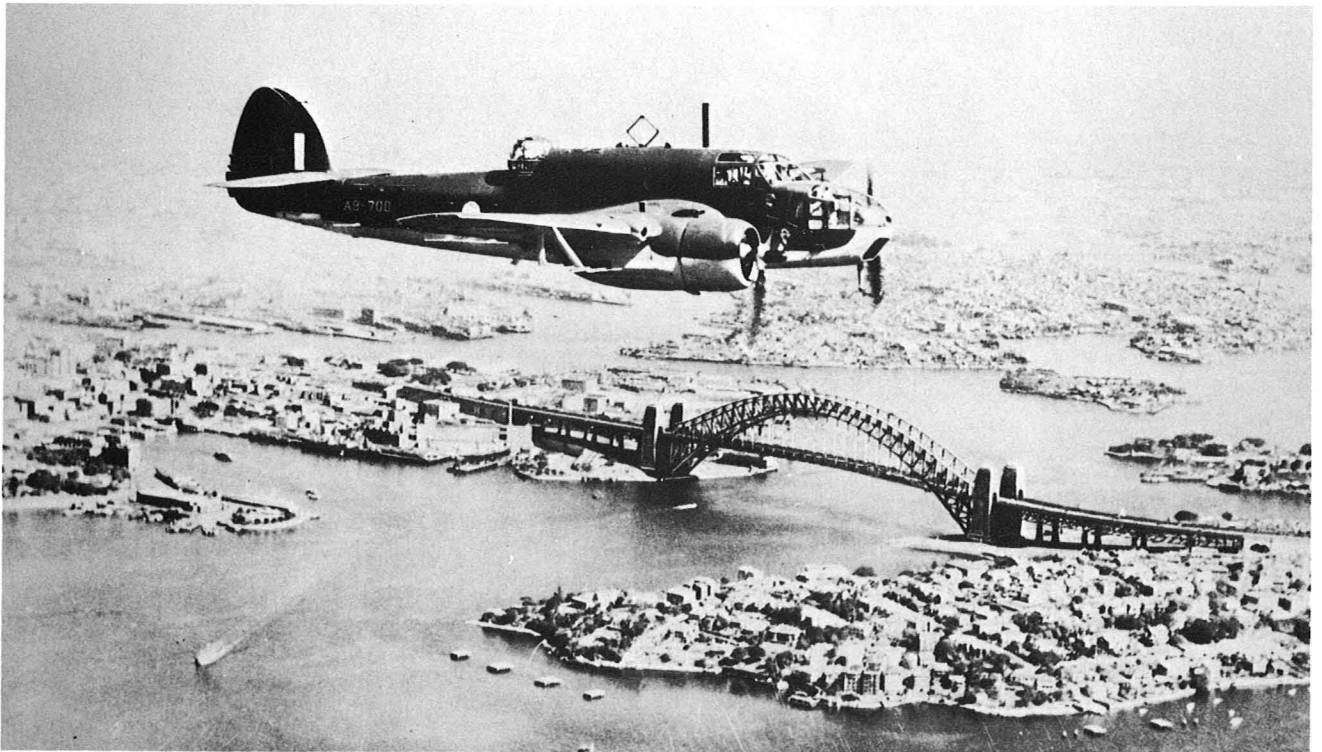
In 1947, Michel Hirigoyen took over the executive position from M. Lanson to be replaced in turn by Colonel J. A. Watson in 1948. In 1953, the Commission moved offices to 50 Avenue des Arts (left), now the Banesto Bank. While gold rightfully the property of governments in the West was fairly easy to resolve, that of countries behind the Iron Curtain was more difficult and, in some cases, the arguments have gone on right up to the present day. The Commission moved offices in 1964 to 9 Rue de la Science (today a notary office) (right), the slimmed-down organisation leasing an office in the British Embassy, currently in Rue d'Arlon, in the early 1970s. Colin Harris was appointed Secretary General in January 1977, working indefatigably over the following 15 years to try to resolve the



outstanding problems. One of the thorniest concerned Albania, probably the most hard-line entity in the Communist bloc. When Harris died in 1992 there was an interregnum until Emrys Davies, former Ambassador and High Commissioner in the British diplomatic service, took over as Secretary General in June 1995. At the time of writing (July 1996), he is the sole remaining member of the Tripartite Commission — itself virtually the last of the many organisations and agencies set up by the wartime Allies — and is very close to success. Agreement with Albania, anticipated within the next six months, will finally close a chapter which began over 50 years ago when an American combat unit stumbled across a treasure trove of unimaginable proportions.







A 1935 RAF specification calling for an aircraft to supersede the Avro Anson initiated Bristol's design of the Type 152. Bearing many similarities to the earlier Blenheim, it was a twin-engined, multi-purpose aircraft with a crew of four. The prototype machine, serial number L4441, flew for the first time on October 15, 1938. With the Duke of Beaufort's permission, the RAF's new bomber was officially christened the Beaufort.

As the possibility of a war against Germany increased during the late 1930s, Britain began to look towards Australia and Canada as potential suppliers of military aircraft. Negotiations had commenced two months prior to the maiden flight of the Beaufort for it to be produced in Australia. The off-shore manufacture of the bomber would supply aircraft for both the RAF and the RAAF. The ambitious building programme was officially announced by Australian Prime Minister Joseph A. Lyons on March 23, 1939. It was estimated that 250 Beauforts would be built each year in Australia at an estimated cost of £30,000 per plane. An initial order for 180 bombers was placed in July 1939 with delivery forecast for 1942.

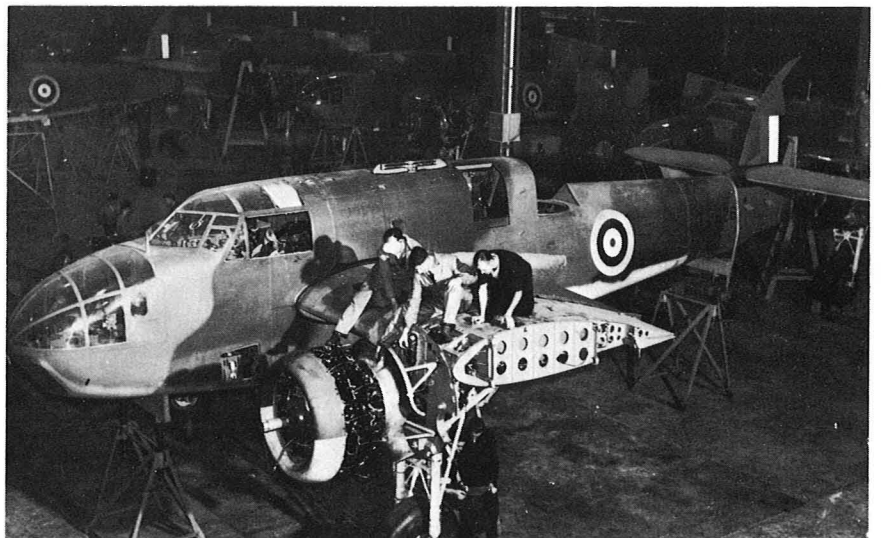
Australian production of the Beaufort was a widespread operation involving manufacturing plants in three states employing over 10,000 workers. New aircraft final assembly lines were built in Victoria and New South Wales and over 600 firms were involved in component manufacture and sub-assembly. The original plan involved the incorporation of British specialist assemblies such as flight instruments and gun turrets into the Australian airframes, but the European war situation was such that all exports of war materials from England were curtailed in May 1940. This further complicated the manufacturing process and led to certain raw materials and equipment being obtained from the United States. It was also necessary to introduce some 2,000 local design modifications before the first aircraft rolled off the Australian assembly lines. In retrospect it was a quantum leap forward for the embryonic Australian aircraft industry; the Beaufort building programme has since been hailed as one of Australia's greatest industrial achievements.

AUSTRALIAN BEAUFORT CRASH

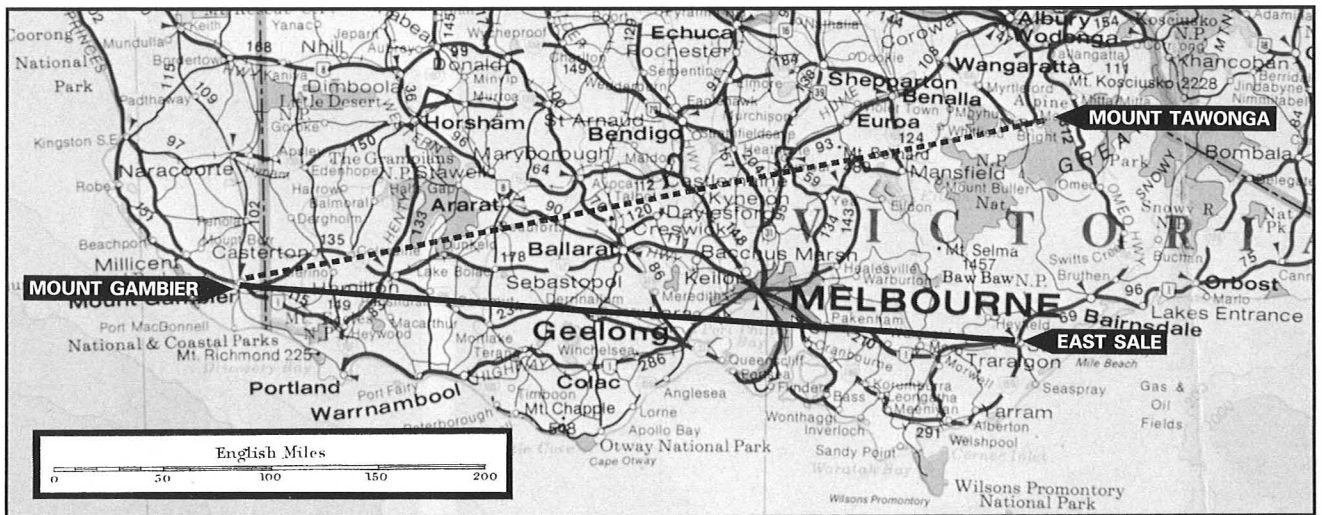
By David M. Green

The fall of Singapore in February 1942 and the Japanese threat to Australia prompted the RAF Beaufort delivery agreement to be cancelled with all subsequent aircraft transferred directly into Australian service. Royal Australian Air Force Beauforts first saw action on June 25, 1942, when the newly-formed No. 100 Squadron attacked Japanese shipping off Lae in New Guinea. A versatile torpedo/bomber/reconnaissance aircraft, the Beaufort became the RAAF workhorse of the Pacific War, equipping ten operational

squadrons together with assorted training and supply units. Although relatively obsolete when first introduced, Beauforts served with numerous battle honours throughout the south-west Pacific. Its contribution in this region to the defeat of Japan has been described as being 'of greater significance than any other single aircraft type'.



Top: One of the 642 Beauforts built in Australia. The first flew on August 22, 1941 and was handed over to the Royal Australian Air Force on September 3; this is the last, pictured symbolically over Sydney harbour on September 1, 1944. Above: The production programme broke fresh ground in Australia: 80 per cent of the workforce had no prior experience of aircraft production and 35 per cent were women although this photograph does not portray their involvement. David Green's story concerns just one particular Beaufort and a long-forgotten incident on the night of June 4, 1945. At that time, the war in the Pacific still had two months to run: victory on Okinawa (see *After the Battle* No. 43) was yet two weeks away and there were exactly six weeks to go before the first test of the atomic bomb (see *After the Battle* No. 41). (AWM)



Beaufort A9-228 took off from Mount Gambier airfield in South Australia for a night flight of 350 miles to East Sale aerodrome in the adjoining state of Victoria. The four-man crew consisted of Flying Officer Donald Flavel at the controls; Flying Officer Robert Clayton navigating; with Flying Officer Frederick Wallis and Flight Sergeant Sims acting as wireless operator/air gunners. The aircraft took off at 1733 hours just as it was almost dark (remember that the June flight was undertaken in the

Australian winter). However, instead of taking up a heading of almost due east for the two-hour flight, the aircraft maintained a north-easterly course towards the mountains which rose to 4,000ft. Although various bearings were transmitted to the aircraft, it failed to turn onto the proper heading and instead the crew made the fatal mistake of descending, no doubt to try to fix their position. At 2015 hours, all radio contact ceased when the aircraft hit the side of Mount Tawonga.

THE CRASH OF BEAUFORT A9-228

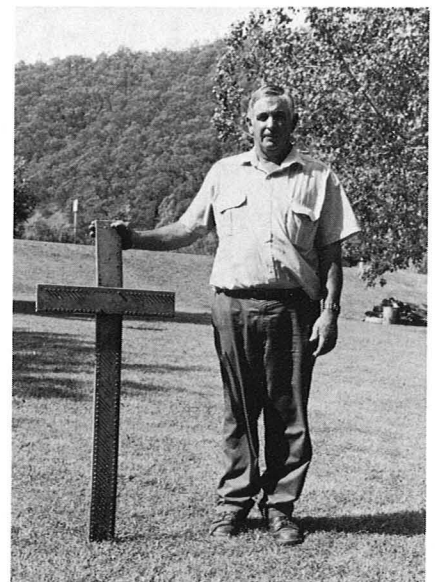
On the night of June 4, 1945, three RAAF Beaufort aircraft took off from Mount Gambier airfield in South Australia for the night portion of Operation Training Exercise No. 6. This entailed a return flight to No. 1 Operational Training Unit at East Sale, Victoria. Navigation during the exercise was to be primarily by astronomical means but radio navigational facilities were available and especially highlighted during the pre-flight briefing. Seeking flight authorisation, the crew of Beaufort A9-228 were ordered to obtain meteorological reports and provide flight details to the Operations Room, a mandatory procedure not complied with and the first in a succession of fatal errors.

A9-228 departed Mount Gambier at 1733K. The crew consisted of Flying Officer Donald A. Flavel, pilot and captain; Flying Officer Robert V. Clayton, navigator; Flying Officer Frederick A. Wallis, wireless operator/air gunner; and Flight Sergeant Lloyd J. Sims, wireless operator/air gunner. Recent training courses had found the crew to be of an average standard. Flavel's pilot ability was rated as 'average minus' with a total of 1,906 flying hours to his credit. The pilot and crew were considered physically fit with no evidence of fatigue noticed prior to taking off. No unserviceability of the aircraft or instruments was reported.

Although the intended altitude of the aircraft was uncertain, other crews in the exercise were obliged to climb to approximately 8,000 feet before clearing the cloud tops, A9-228 most probably doing likewise. After leaving Mount Gambier, a gross navigational error resulted in the Beaufort flying an easterly heading of about 70 degrees (true) instead of the required 95 degrees. Flight Officer Flavel continued along this track ignorant of any mistake, confirming by radio at 1906K that he was 28 miles from the town of Sale. In reality, the crew were completely unaware of their actual position, most likely mistaking the lights of the New South Wales town of Albury for those of Sale, several hundred miles away.

Three days after the Beaufort had gone missing, this preliminary report was prepared and, almost before the ink was dry, a Court of Inquiry was convened, even though the aircraft and its crew had not yet been found.

ROYAL AUSTRALIAN AIR FORCE		R.A.A.F. Form P.T.81 (Revised March 1944)
EXTERNAL PRELIMINARY REPORT (INTERNAL) OF FLYING		
ACCIDENT OR FORCED LANDING		
Air Force Orders (10/D/2 & 18/E/1)		Serial No: 809 Period: 1944/45
(a) AIRCRAFT:	Type: Number:	Beaufort A9-228
(b) UNIT:		1 O.T.U.
(c) LOCALITY:	Place: Date: Time:	Unknown 4-6-45 night
(d) PILOT:	Rank: Name: Condition:	F/O. D. A. Flavel Missing
(e) CREW:	Rank: Name: Condition:	F/O. R.V. Clayton) F/O. F. A. Wallis) Missing F/Sgt. Sims L. J.)
(f) NATURE OF ACCIDENT:		Aircraft crashed on long range sea reconnaissance and night astro exercise.
(g) PROBABLE CAUSE:		Unknown.
Date 7-6-45		
Copies for information to		
C.A.S. A.M.P. A.M.E.M. Secretary, AIR BOARD D.R.M. D.M.S. D.T.S. D.F.S. D. F. S. D.T. D.S.D. File with (D.F.S.) Historical Records D.O.R.		
		<i>A. Stevan Help</i> FOR DIRECTOR OF TRAINING FLYING SAFETY
MINISTER FOR AIR D.P.S. (CAS. SECTION)		



Failing to locate the East Sale RAAF aerodrome, Flavel retraced his path before once again flying over Albury. Unable to ascertain his position, he then flew over the surrounding countryside, contacting the East Sale high-frequency direction-finding station at 1928K for a navigational heading. A second bearing request was received by Flavel at 1954K. Failing to comply with instructions which would have enabled him to return to base, he flew an erratic path noted by several ground observers. Descending beneath the low cloud formations, the aircraft was noted at 2015K by the VAOC (Volunteer Air Observation Corps) observer at Tallandton to be flying just above a 1,500-foot ridge. The Beauforts' landing lights were clearly visible to those watching below as Flavel unknowingly flew in a south-westerly direction along the Mitta Valley towards Mount Tawonga (4,161 feet).

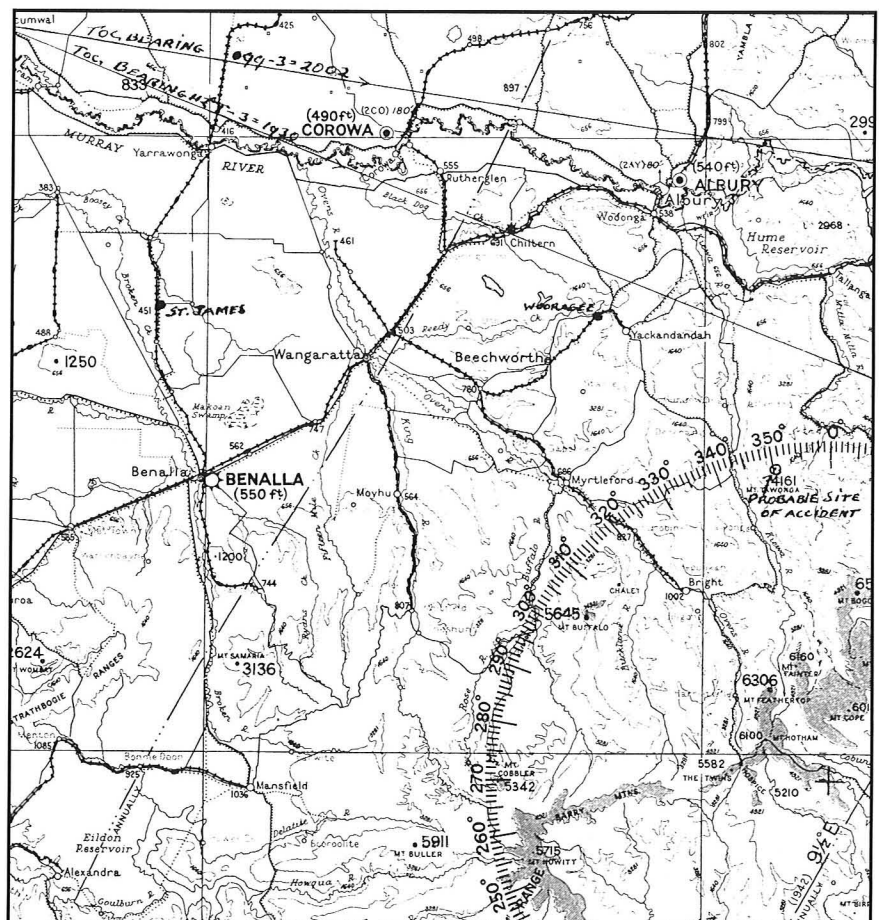
All radio contact with the bomber ceased after 2015K. Three minutes later, several local farmers witnessed the impact of the aircraft as it slammed into a remote hillside, briefly illuminating the wintry night sky. No explosion was heard due to the wooded country and its blanketing effect on sound.

An RAAF Court of Inquiry into the accident was convened on June 9, 1945, by Squadron Leader H. W. Wheeler of No. 2 Air Observers' School, Mount Gambier, and Flight Lieutenant B. S. Roberts of No. 1 Operational Training Unit, East Sale. The investigation found the cause of the accident was fundamentally due to faulty navigation on the part of pilot and crew.

Evidence suggested that the navigator had chosen to exclusively use astro-navigation without verifying the pilot's course, yet there were numerous wireless navigational aids for the other crew members to have utilised. Additional errors contributing to the disaster were the incorrect position reports broadcast from the aircraft during the flight. The failure to heed the correct navigational headings given by East Sale and the irregular course flown all contributed to the accident as did the low altitude flown by the lost aircraft. This was not only highly dangerous but it also hindered effective wireless operation. It was the opinion of the court that had A9-228 maintained sufficient height then the transmissions from the Operations Room at East Sale would have guided the pilot and crew home safely.

The aircraft hit the northern side of Mount Tawonga (the name ironically means 'flight through the air as of birds or spears') on the 3,200-foot contour line. Plan from the Court of Inquiry file.

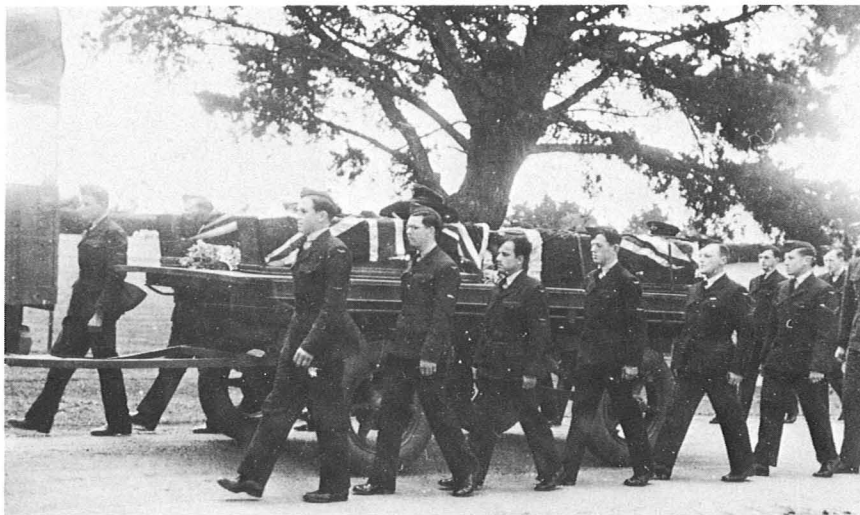
A five-day search of the suspected crash area proved fruitless and the Court had to close its case without the missing airmen being found. However, the relatives were far from satisfied and, two months later, a ground search of the mountainous area around Mount Tawonga was initiated, led by Lieutenant Richard Hamilton. Formerly of the 22nd Battalion of the Volunteer Defence Corps, Dick is pictured (left) in his home in Glenrowan, Victoria, with a piece of the wreckage and an original map used in the search. Gordon Seymour, who lived at the base of the mountain in the Kiewa Valley where the Beaufort had come down, had told the Court of Inquiry that 'at about 8.20 p.m. outside my house my attention was attracted by a flash of light appearing along the hilltops a little south of east from my house. The light rose into the sky, illuminating the clouds which were low on the hilltops. A few seconds later a column of brighter light flashed very high into the clouds: this light persisted a while, then gradually faded away. The light was visible for one to two minutes altogether and remained in the one spot, apparently behind the tops of the hills. I did not hear the noise of an aircraft or any unusual noise. If an aircraft had been in this part of the Kiewa Valley at the time I should certainly have heard it.' Right: Fifty years later, his son, Bevan Seymour, stands in the valley with the cross fashioned from the wreckage which was erected by the search party at the crash site.



THE SEARCH

Based on all available reports, a fruitless five-day search, involving Beaufort aircraft from East Sale and Tiger Moths from Benalla, began at 0700 the following morning. Ground searches were organised by experienced local horsemen and residents. Their participation was recognised by the court who noted that 'the ground search parties made commendable efforts to cover the country but admit that it would be possible to pass quite close to the scene of the accident without discovering it'. The Court of Inquiry concluded the location of the accident unknown, but most likely in the region of Mount Tawonga.

Eight weeks after the tragedy, a further search was organised through 'sheer desperation' by three relatives of Flying Officer Wallis. Eyewitness accounts had suggested the probable crash site to be on the north-eastern slopes of Mount Tawonga so, acting on RAAF aerial photographs, the men travelled to Eskdale where they contacted the local Volunteer Defense Corps (the Australian equivalent to the British Home Guard). The Commanding Officer, Acting-Lieutenant Frank 'Dick' Hamilton, together with Wallis' relatives and 30 VDC members located the missing aircraft after a 2½-hour search of the dense bushland. The bodies of the crew were retrieved and a simple cross fashioned from the wreckage left as a memorial.



The bodies of the four airmen were retrieved from the mountainside and taken to the base of No. 1 OTU at East Sale airfield — the intended destination of the Beaufort. After a service in the camp chapel, the cortege proceeded to Sale War Cemetery (above) which had been established within the public cemetery on Maffra Road in Sale. Below: There they were laid to rest in Row D of Plot B, the graves (Nos. 5-8) being marked with wooden crosses (bottom left). Bottom right: After the war, the Commonwealth War Graves Commission landscaped the area into one of their permanent cemeteries, replacing the crosses with standard CWGC-pattern headstones.





In 1993, our intrepid Pacific battlefield explorer David Green decided to see what remained of A9-228 which had been built at Sydney's Mascot airport. The RAAF Inquiry in 1945 stated that 'the nature of the terrain renders air and ground searching difficult. It is extremely rough, mountainous country with very dense timber and accessible only to persons familiar with it.' After a 30-minute climb from the remote fire trail, David was surprised to find that a substantial amount of the aircraft still lay scattered on the mountainside. Evidence of the fire which broke out can be seen with metal solidified on several rock faces. Surprisingly, much of the original paintwork has survived after many years in the harsh climate. *Above:* A piece of wing (the metal for the skin for the Beauforts was imported from the USA) and *(below left)* the mid-upper section with the Bristol B.1 MkV dorsal turret missing which would have contained two .303 Browning machine guns. *Below right:* This Beaufort was a Mk VIII with Australian licence-built 14-cylinder Pratt & Whitney R1830 Twin Wasp engines.





50th ANNIVERSARY COMMEMORATION

Australia celebrated the 50th anniversary of the end of war with tributes to those men and women who had served, suffered and fallen. With 50 years also passing since the crash of RAAF Beaufort A9-228 and this investigation, it seemed more than appropriate that a memorial should be erected to the four airmen.

The Victorian branch of the Australian Returned and Services League (RSL) was approached with the idea of placing a plaque on the actual crash site. With the suggestion adopted, relevant organisations were contacted about funding, and producing and installing the plaque. An official ceremony was organised by the Mount Beauty RSL Club (in the vicinity of Mount Tawonga) who contacted the armed forces, service organisations and local population to participate in the dedication of the memorial.

On November 17, 1995, a crowd of over 60 gathered near the base of Mount Tawonga for the memorial service. Unfortunately, no relatives of the airmen could be contacted for the service although several original members of the search parties which had located the missing aircraft were present. A special guest speaker was Air Commodore Keith Parsons (Rtd), who related his wartime memories of flying and the hazards involved. The commemorative service and unveiling of the plaque concluded with the Last Post and an aircraft flypast. The official party then travelled by army four-wheel-drive vehicle up Mount Tawonga to where a walking track now cuts through the bush to the crash site. With the plaque affixed to a suitable rocky outcrop, the Revd Stewart Eiseman, an ex-Beaufort bomber squadron member, led further prayers and a wreath-laying ceremony. Pieces of wreckage were placed beneath the memorial which is now officially recognised in Australian records as a sacred site.

Australia remembers. Surrounded by members of the armed forces and veterans of the local Mount Beauty Returned Services League, David proudly stands beside the plaque — a fitting tribute to the four RAAF airmen. (He would like to dedicate this story to the memory of his father, John R. Green, who died during its compilation.)

When David returned to his Melbourne base he reflected on the fate of the four airmen. Just as the little-known training accident on a remote Victorian hillside was overshadowed in 1945, likewise David felt that with the national 50th anniversary commemorations of the end of the war in the limelight, once again events abroad would largely overshadow their sacrifice. 'We shall remember them', vowed David and he promptly set about raising interest in providing a permanent memorial on Mount Tawonga. *Above:* A specially inscribed plaque was dedicated on November 17, 1995. *Below:* A smaller party were then taken up the mountain in four-wheel-drive vehicles to a point where a new track had been cut through the bush to the crash site where the plaque was then fixed on a rocky outcrop.





THE ROYAL GUNPOWDER FACTORY EXPLOSIONS 1940

Gunpowder was used for the first time on the battlefield by the English at Crecy in 1346, but it was not produced in any great

quantity for a further 200 years. Eventually, privately owned powder mills were set up in Britain, mainly in the south of England.

By Bryn Elliott



Top: The devastating effect of 'gunpowder' — in this case a mixture of 6,000lbs of nitro-glycerine and gun-cotton — which accidentally detonated at the Royal Gunpowder Factory (RGPF)

at Waltham Abbey, 14 miles north of London, in January 1940. *Above:* We pictured the exact spot in April 1996, the site of the explosion still clearly visible.



The RGPF — the ‘mother-house of the British explosives industry’ — with a colourful history extending back over 400 years, was closed in 1991. In April 1996, we obtained permission to investigate the various explosions which occurred there during the Second World War which cost the lives of ten men and led to the award of three George Crosses and three British Empire Medals. When we reached the site of No. 5 Mixing House (pictured *opposite*), at first glance there appeared little to be seen. It was the realisation that the line of concrete posts in the background still stood in exactly the same positions they had taken in the face of the blast in 1940 that provided the link between the two photographs. *Above*: Closer examination by our author, Bryn Elliott, revealed that although the services that the posts had originally carried at shoulder height were long gone, one small section of pipe still remained firmly embedded in its support.

The mills at Waltham Abbey were established to the north of the town reputedly in 1560, so it may be presumed that the products of this ancient factory might have been available to the fleet of Sir Francis Drake before the last great attempt at invasion. The site was in private ownership before 1700, then passing into the hands of the government in October 1787 when it became the Royal Gunpowder Factory [RGPF]. The site, in West Essex and on the border of Hertfordshire, was well placed in the valley of the River Lee 14 miles north of London, and in the early days, the river provided the water for power and transportation.

Many questionable claims are made for the mills in Waltham, including the one that they were the source for the powder intended to blow up Parliament and the King at the hands of Guy Fawkes and his plotting compatriots, river access to Westminster certainly being easy from the factory. Less steeped in fable is the story that it was from this site that a form of artillery rocket was developed for use by British armies from the early 19th century. Known as the ‘Congreve rocket’, among the targets bombarded by these weapons was Fort McHenry in 1814, a fact commemorated in the line of the United States’ national anthem which refers to ‘the rockets red glare’. In Napoleonic times the factory was producing some 1,100 tons of powder per year for the war effort.

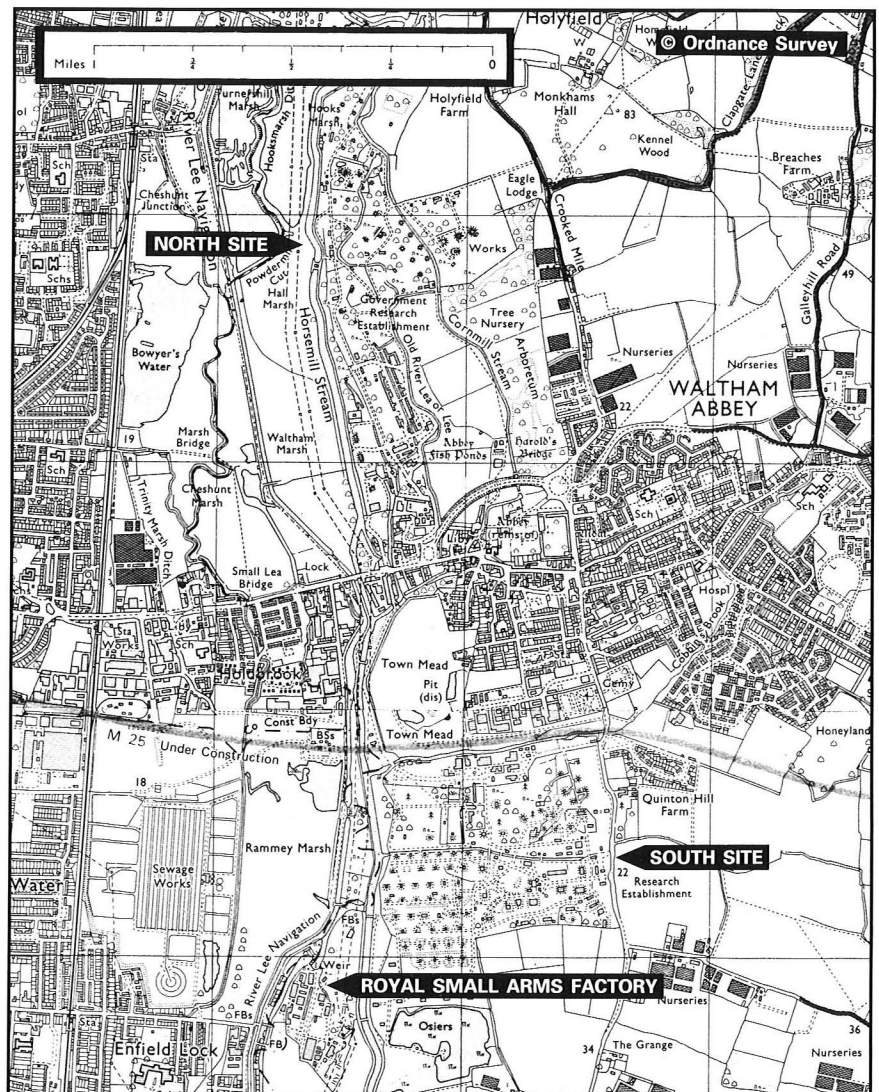
In the middle of the 19th century there was a diversification of effort as two new explosives, gun-cotton and nitro-glycerine, came on

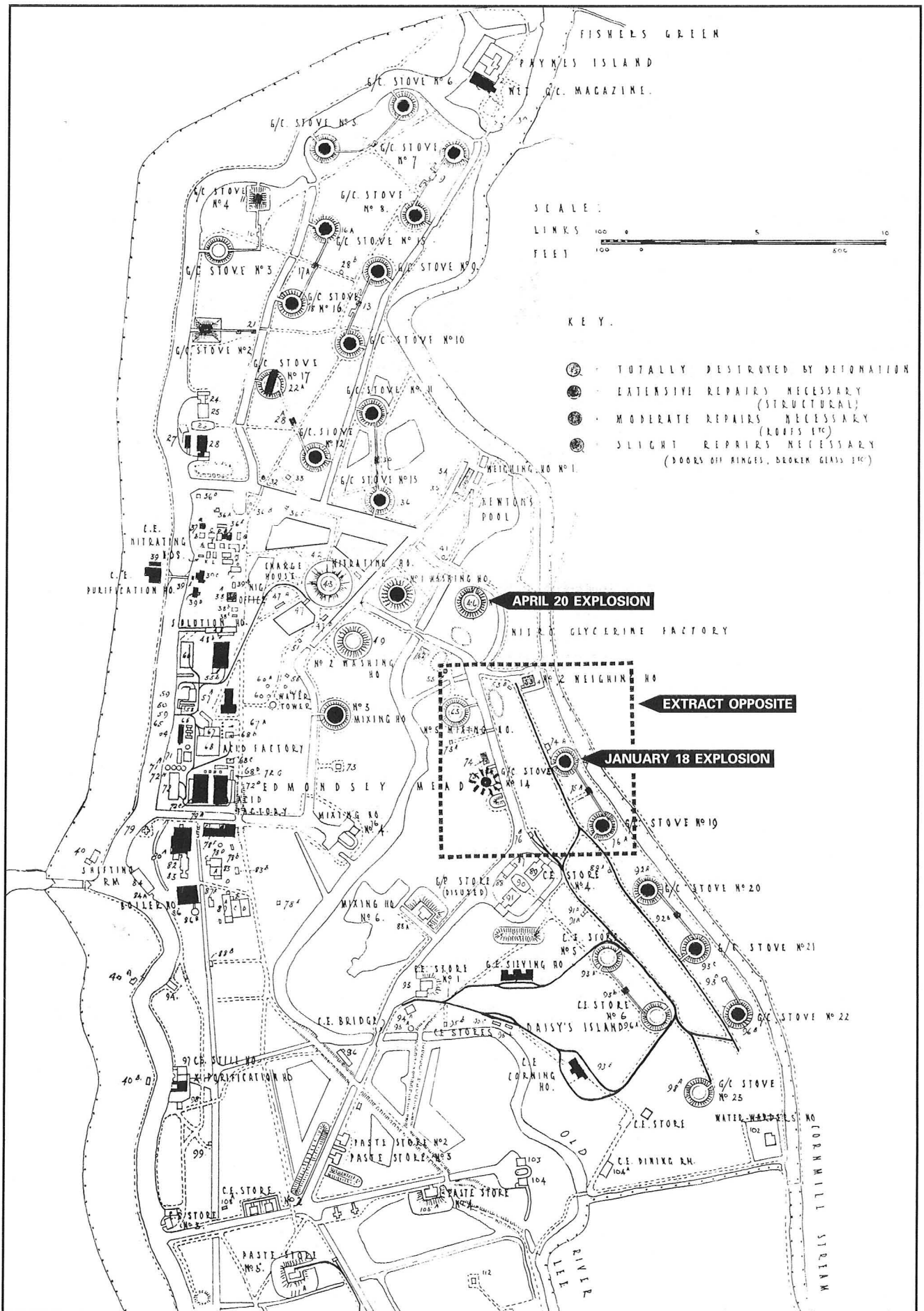
The RGPF developed on two sites on either side of the town of Waltham Abbey, bordering the River Lee (also spelt on some maps Lea) which provided a convenient — and more or less safe — route for the factory products to be moved by barge downstream to the River Thames and the Royal Arsenal at Woolwich. When the M25 was constructed in 1975-86, the RGPF was provided with its own exclusive tunnel beneath the motorway. The Royal Small Arms Factory (see *After the Battle* No. 2) lay just to the south.

to the scene. By 1872, 250 tons of these were being produced and by 1885, the ever-increasing call for these products, as Britain enlarged and defended its Empire by force of arms, resulted in the factory expanding into farmland to the south of the town and building further nitro-glycerine production facilities. The development and production of cordite followed in 1891.

In the early part of the 1914-18 Great War, Waltham was the only government-owned explosive factory and, as such, the 5,000 employees were obliged to operate the processes around the clock to supply the major proportion of the Woolwich Arsenal’s requirement to fill its shells. At the cessation of the ‘war to end all wars’, this production effort was run down, but experimentation continued and a number of important explosives were developed. The scaling down of the factory effort was reversed in the early 1930s with the rearmament programme, and on the outbreak of war, Waltham was producing TNT and was the only site producing the major explosive of this new war, RDX. In effect, through RDX production, it was from here that the Ruhr Dams were burst in 1943.

There were major problems caused by the inter-war shut down. Ever since the factory had opened, virtually all transportation had been by canal barge. Small dumb barges moved the materials around inside the site and delivered the finished product to larger sea-going sailing barges which were pulled down the Lee Navigation to the River Thames and Woolwich. However, following the end of the Great War, the canals had silted up, and instead reliance was placed





The explosions which are described in this article took place on North Site where nitro-glycerine was manufactured.

upon the tramway and a small internal electric railway system. Although the railway connected with the main line from London to Cambridge, it was some months before the silt problem was overcome by a massive programme of dredging which left the railway at full stretch. In the meantime, much of the explosive went through the streets of Essex and London by road. Fortunately there were no accidents!

A greater threat was the lack of skilled manpower to operate the delicate processes within the factory. Although there was a core of trained process workers in the surrounding population, with the passage of some 20 years since the last contraction of the factory, there were insufficient of the right age group to fill the yawning need that war had created.

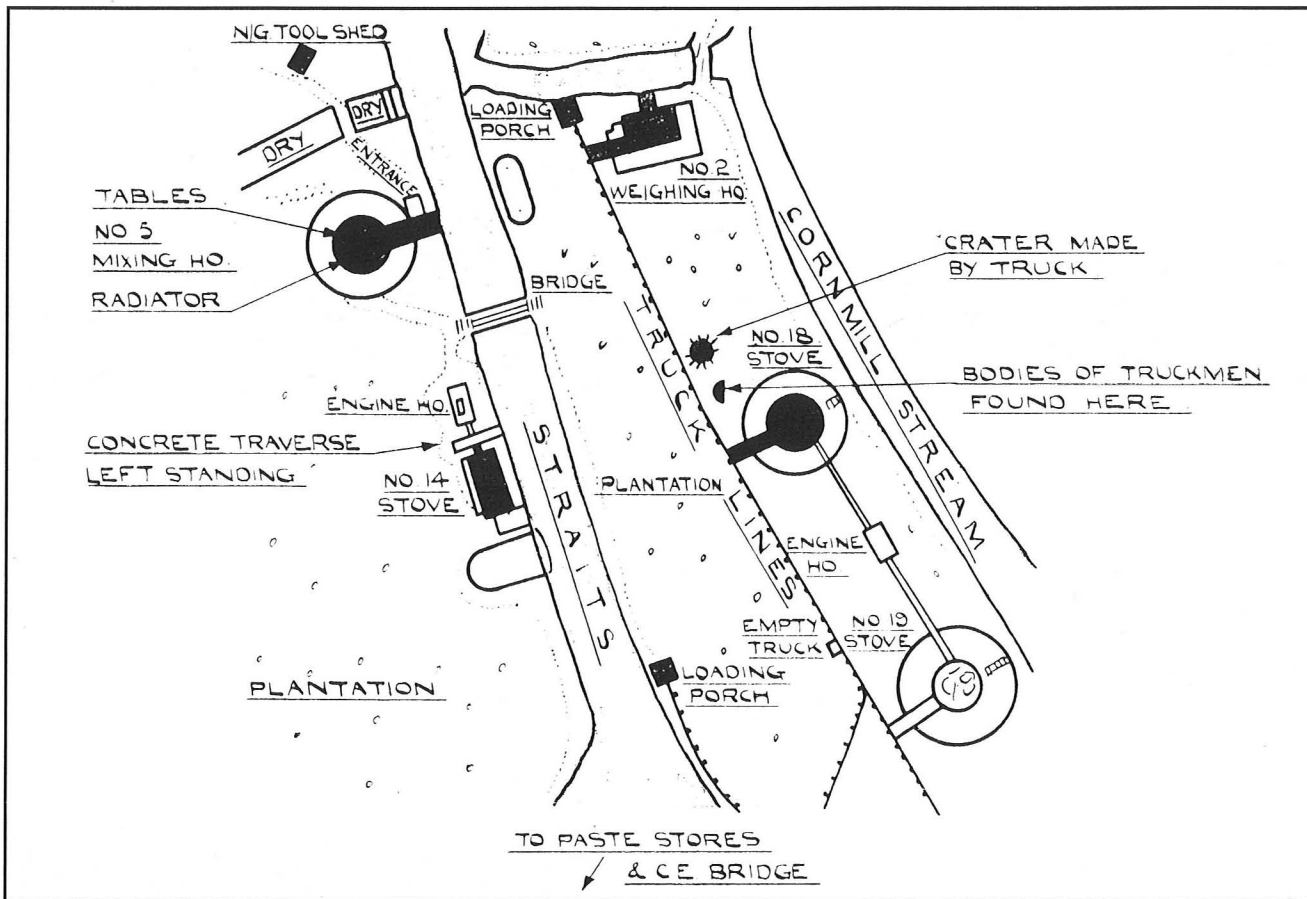
ine works, the railway was reduced to a hand-worked tramway with leather-lined carriages running on a spark-free wooden track.

By design, nitro-glycerine trickled from building to building along gutters or, in smaller quantities, was carried about in leather pails. The liquid travelled along a continuous lead gutter by gravity, the whole resembling an outsized domestic rainwater system, carried between buildings supported on substantial wooden trestles. The top of the gutter was open but covered and protected from the elements by a system of heavy canvas sheets.

To reduce the dangers of explosion from the tools used in the process, all metals were phosphor bronze or lead, and rooms were lined with wood, leather or lead. In some

perature of the rooms in which the work was undertaken was a critical factor. An extensive network of lagged steam pipes snaked through the site carrying a means of heating the individual process buildings from a central boiler room. Within the buildings, the heat was by means of a radiator. As most processes required a temperature of 70°F (21°C), the network of pipes was an important feature in winter. Standing instructions were that all work would cease if building temperatures fell below 50°F (10°C).

In spite of all these elaborate measures, there were regular deaths and horrific injuries effecting the workers. Every generation in the local town featured individuals stained yellow by sulphur from head to foot. Occasionally the accidents were horrific



The plan of the North Site opposite was produced to illustrate the explosion on April 20, this enlargement being to cover the earlier accident on January 18. In both cases, they formed part of the Court of Inquiry findings as do the photographs. (PRO)

This resulted in the creation of massive training programmes to integrate whatever workers could be found into a highly dangerous environment. Nevertheless, no matter how much training was given; no matter how long the worker was involved in producing the final product, there would always be accidents involving human error. The materials gave little leeway and any accidents invariably involved severe injury and death.

Precautions included a police force dedicated to rooting out all items of smoking apparatus. In peacetime, workers found with a few flakes of tobacco, a paper, match or pipe on their person, would face a criminal prosecution followed by instant dismissal. In time of war they *might* just escape with the imposition of a £5 fine — a week's wages. On site, the workers wore special protective clothing to reduce the chance of a stray spark, and ward off the chemicals involved in the processes. The hob-nailed boot was banned and stitched leather clogs and slippers were the order of the day. In the most dangerous areas, primarily the nitro-glycer-

cases virtually the whole floor of some buildings were lined with clearly defined interlocking sections of elephant hide and one such building survived into the 1990s. Thick leather buckets, fashioned from the same source, were the rule. By 1940, for newer items, there was a general move towards the substitution of rubber for the leather but with the superior longevity of the leather item, both materials were to be employed side by side for a further 50 years.

With a general resistance against the mechanical, all jobs employed tools long outdated. Wooden knives and gunmetal chisels were never to match their steel counterparts. An additional restriction was the paperwork. War or no war, almost every job required a multiplicity of signatures. Workers sat around for days, even weeks, awaiting the final signature on the job sheet, especially if someone as important as the Superintendent was away on other duties. This inertia affected every job in the danger areas of the factory — from dredging to manufacture.

In addition to all these measures, the tem-

perature of the rooms in which the work was undertaken was a critical factor. An extensive network of lagged steam pipes snaked through the site carrying a means of heating the individual process buildings from a central boiler room. Within the buildings, the heat was by means of a radiator. As most processes required a temperature of 70°F (21°C), the network of pipes was an important feature in winter. Standing instructions were that all work would cease if building temperatures fell below 50°F (10°C).

In spite of all these elaborate measures, there were regular deaths and horrific injuries effecting the workers. Every generation in the local town featured individuals stained yellow by sulphur from head to foot. Occasionally the accidents were horrific



THE PROCESS

The RGPF was not a factory dedicated to the production of one final product, involving a common production process. The series of explosions which ripped through the factory in the early part of 1940 involved only the nitro-glycerine section of the extensive plant, the very fact of the explosions clearly underlining that this was one of the more dangerous areas of production.

Nitro-glycerine was then produced in large lead vessels called nitrators by the action of sulphuric acid and nitric acid upon glycerine. The process was a very delicate one and very critical. Following the production of the nitro-glycerine itself, two further processes were undertaken. The first was pouring the liquid onto dry gun-cotton in rubber bags, and, secondly, the mixing of the dry gun-cotton and the nitro-glycerine by working it through a half-inch mesh sieve by hand into calico bags. Some of the Mixing House buildings incorporated both these operations in the same structure and others took in 'poured-on' supplies from other parts of the factory. In any case, the two stages of production were never carried out simultaneously and only three operatives were allowed to work in the building at the time.

Gun-cotton, was produced in the Gun-cotton Factory section of the RGPF and, as 'wet gun-cotton', was transported in aluminium boxes in compressed cylindrical form by lorry to the nitro site for drying. The 55-60-hour hot air drying process ended with the material being placed in bags and sent, via a Weighing House, to the Mixing Houses for the addition of the nitro and the subsequent mixing.

An initial portion, about 1,200lbs (enough for 65 bags) was run into a holding tank along the gutter from the previous building in the process, the Washing House, where the product was purified. As soon as the portion arrived in the process building, a special rubber hose shut off further supply to the nitro-glycerine tank. During its passage, the fluid would contaminate the lead gutter so, to retain the integrity of the fail safe system, one of the process workers, called a 'hill-man', then cleaned the gutter out starting from the Washing House.

The Mixing House was central to the production process for nitro-glycerine and these photographs illustrate Mixing House No. 3, the most south-westerly one on North Site (see plan page 36) photographed here in 1940 from the west bank of the 'cut'. The latter was part of a series of waterways which linked the various process buildings at the RGPF, each having its own landing stage or 'porch' like the one visible in the foreground. The actual process building was made of wood erected within a circular earth and concrete mound. Should an explosion occur, it was thereby hoped that the blast would be directed skywards to eliminate the chance of sympathetic detonation of the surrounding buildings.

As soon as the nitro-glycerine arrived in the Mixing House, 2oz samples were put in lead bottles and placed out of harm's way under the tank. The bottles were some three inches high and weighed 10½ ozs when empty. Dry gun-cotton, contained in rubber bags, was then brought in from a Weighing House and a measured amount of nitro

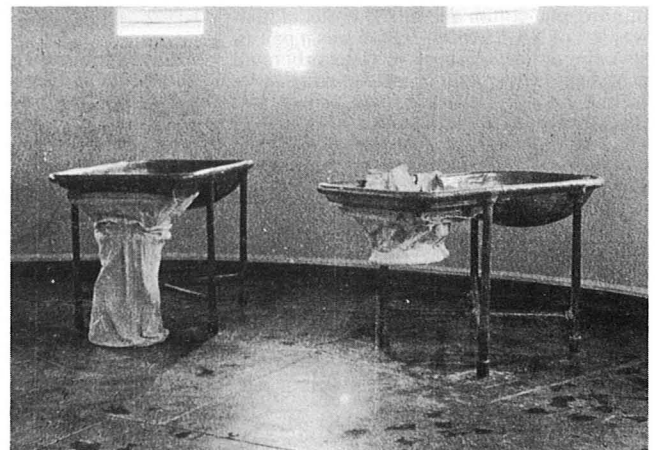
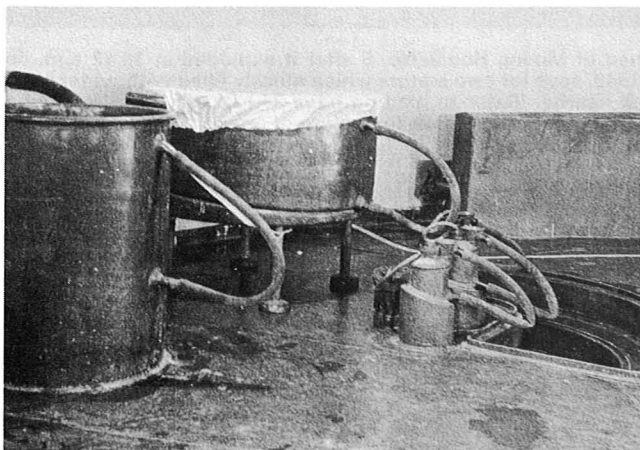
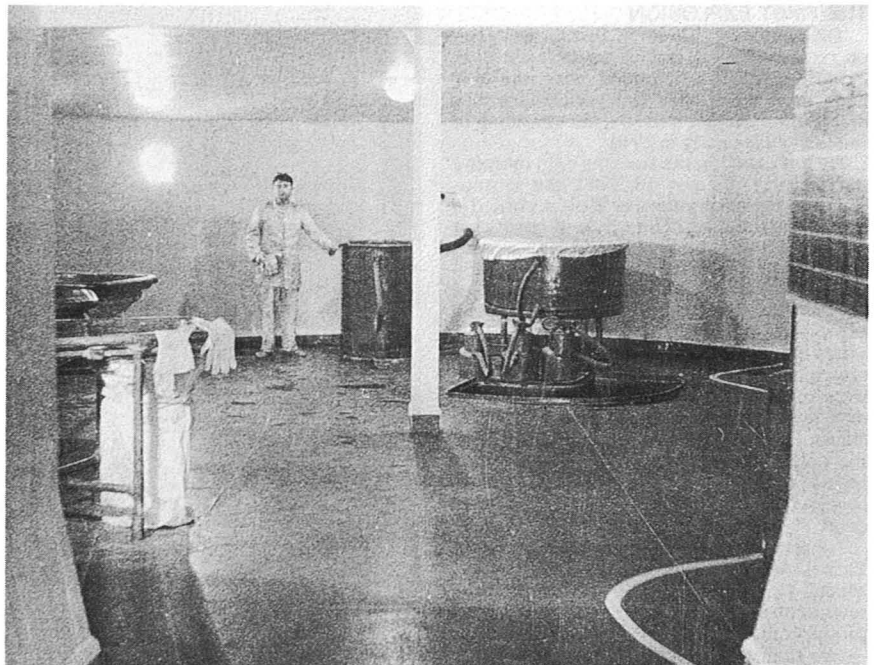
added. It was generally the duty of the chargeman to pour this on from one of a number of measuring vessels called burettes.

The bags were then either sent away in a barge to another building or put to one side until the initial operation was completed. The separate mixing operation consisted of emptying the contents of the rubber bags



Like many of the former watercourses at the RGPF, the modern comparison shows the dry bed and remains of the crumbling bankside timbers. We timed our visit just before the foliage masked the view although, without a ladder, your Editor refrained from risking life and limb by climbing up the high blast wall from where the original was taken. The small white notice on the tree identifies this as Building 62.

Right: The interior of Mixing House No. 3 photographed from the porch showing the central pillar, the spark-free floor and lead tanks. The visible wall is the light inner structure. Nitro-glycerine, or Glyceryl Trinitrate (a mixture of glycerol, nitric and sulphuric acids) was first prepared by an Italian chemist, Ascanio Sobrero, in 1846 but the highly volatile nature of the liquid explosive was not brought under control until the Swedish scientist Alfred Nobel mixed it with absorbent inert materials in the 1860s. Nobel also discovered that nitro-glycerine could be combined with other explosives like gun-cotton to make it a more stable product. The production process seems remarkably crude by today's standards where the hazards have been greatly reduced by continuous processes. The liquid nitro entered the mixing house via the rubber tube in the far wall to be stored in the mixing tank beside the operative. Measured amounts would then be run off into 'burettes' which would be added to dry gun-cotton in rubber bags. The mixture would then either be taken by barge to another building to be mixed or, in the case of Mixing House No. 3, stored ready for the separate mixing operation.

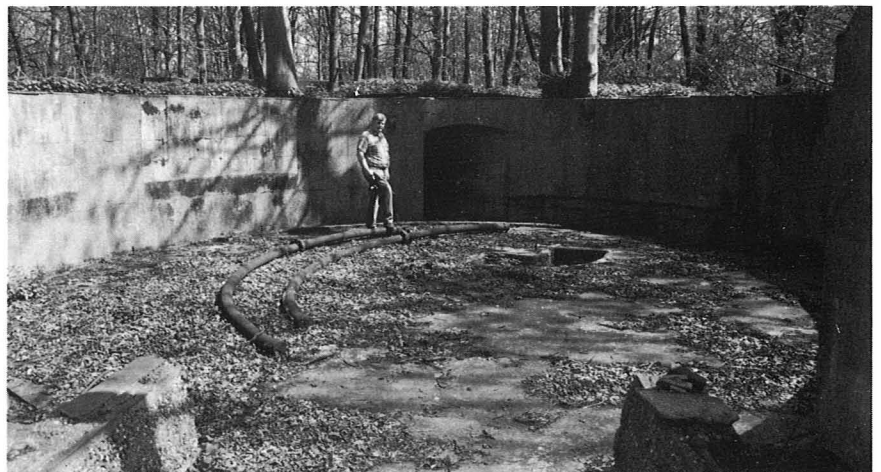


Left: Close up of the burettes and the arrangement of rubber tube safety overflow pipes from them to the rubber bag on the stand. The 'well' was lead-lined. *Right:* The paste-mixing tables were fitted with a phosphor-bronze sieve onto which the contents of the bags were emptied. The material then had to be worked by hand through the mesh by operatives wearing long leather gloves, the resultant mix falling into bags which were then taken away for additional processing.

One serious problem with nitro-glycerine is its high freezing point 55°F (13°C) so that the maintenance of high room temperatures was critical. However, the transportation of the material in the open air by barge largely negated this precaution, particularly during the freezing conditions encountered during the winter of 1940. It was the hand-mixing process, on a table just like this, that was believed to have been the cause of the first explosion.

onto paste-mixing tables made of lead supported by steel framework welded to the floor and then taking the material to the phosphor-bronze sieve and hand working it through to mix it thoroughly and deposit it into the hopper-mounted bag below. The operatives wore leather gloves for this operation. When this process was completed, a barge would call at the canal side entrance and take the material, now called mixed paste, away for further processing into the final product such as cordite.

At irregular intervals during the day, one of the hillmen would call at the process building to collect the sample bottles, place them in a special carrying box, and take them to the laboratory for quality control testing. The handover of the bottles, between the hillman and the chargeman, took place in the porch of the building. This procedure allowed each to retain his respective level of cleanliness. After the hillman had taken samples to the laboratory, he returned with other tested samples for their respective process buildings. This operation was not undertaken at night, lest the hillman trip and fall in the dark.



The mixing house has been derelict since 1945 and the interior building long dismantled, hence we are now looking at the inside of the concrete blast mound. The lead-lined well is clearly visible, as is the opening in the back wall through which the nitro-glycerine entered the room. The porch provided the only pedestrian access.

THE FIRST EXPLOSION

The winter of 1939-40 in Britain has gone on record as being one of the severest ever experienced. This, coupled with the war itself, were to provide two variables with a major influence upon the events unfolding in the Lee Valley early in 1940.

At 10.42 a.m. on the freezing cold morning of Thursday, January 18, 1940, the seismograph in the observatory at Kew recorded a shudder in the earth. The whole of north-east London knew about it within seconds as windows caved in under the pressure, debris rained down, and a number of columns of smoke rose from the secret site north of the town. With the absence of an enemy raid, a series of explosions of that magnitude could only mean one thing. The violent explosions were reported as far away as 25 miles and a man living 90 miles away in the New Forest claimed to have felt the shock. By the time the staff at Kew became aware of the twitch in its recording, the five men directly involved in this minor seismic event were dead.

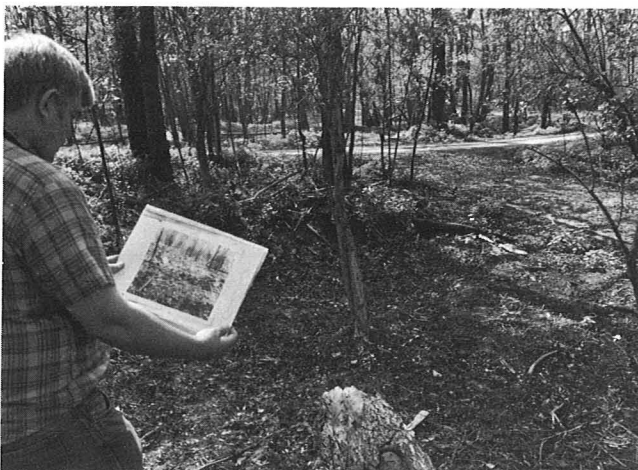
Albert Lawrence, Charles Perkis and John Parkes were working in the circular No. 5 Mixing House building in the nitro-glycerine section of the RGPF North Site pouring the product onto the gun-cotton when something — we shall never truly know what — went wrong. After the explosion of some 6,000lbs of nitro, gun-cotton and mixed paste, all that was left of No. 5 Mixing House was a pair of steaming craters. A shock wave reverberated across the factory and, in spite of a high protective mound — the tried and proven feature designed to deflect the blast safely upwards — the catastrophe was not confined just to the mixing house. The blast also travelled to the east through the canal-side loading bay gap, this shock wave striking a hand-worked paste wagon being pushed by two men northward from No. 20 Stove along the truck lines only 100 feet to the east. The wagon pushers, Bert Kelman and John Robinson, were lifted off the trackway, hurled to the ground and, suffering terrible injuries, both killed. It was Robinson's first day on the job.

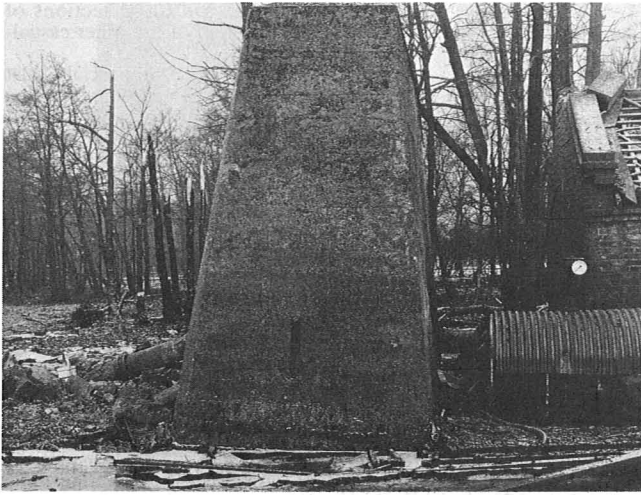
The 8ft-long, leather-lined wagon toppled from the track and the 640lbs of dry gun-cotton packed in 16 bags within detonated.

Below left: Bryn Elliott orientates himself to line up the Court of Inquiry photograph *below right* showing the spot where the paste wagon blew up. Being pushed along a rail line (visible on right) just 100 feet from the first explosion, it was struck by blast which detonated the 600lbs-odd of gun-cotton within it. In spite of the passage of 55 years, a slight crater still remains — the route of the former truck line now the beaten track on the right. This crosses a new roadway towards No. 18 Stove.



Above: Nothing remained of Mixing House No. 5 after it exploded at 10.42 a.m. on Thursday, January 18, 1940, save for two craters which quickly filled with water from the ruptured canal bank nearby. (Refer to plan on page 37.) Of the three men who were working inside, nothing was found save for a piece of one arm. *Below:* The view is opposite to that reproduced on page 34.





Left: Although this massive blast wall stood between No. 5 (about 250 feet away, out of the picture to the right) and No. 14 Stove, nevertheless the ton of gun-cotton in No. 14, which originally stood to the left of the wall, sympathetically detonated. However, although in direct line from the first blast, by some quirk the Engine House on the right still remained



standing. The picture was taken looking due west from across the waterway. **Right:** For some reason, the upper section of the wall was later removed but the shuttering marks on the end clearly match up. The engine house has since been dismantled. In the foreground, the dry bed of the canal. The rough bridge on the left is a recent addition.

Although further protected by a substantial concrete wall, Building No. 75 (No. 14 Stove), the next danger building to the south, added its 5,200lbs of dry gun-cotton to the cacophony. The contents of this building were only 17 hours into the lengthy cooling down period and were still unstable.

Assailed from a distance of around 250 feet by the explosion of No. 5, added to the subsequent blast of No. 14 Stove across the canal and the eruption of the wagon load less than 50 feet away, the explosion of Building No. 74A (No. 18 Stove), was perhaps understandable, even though the 5,200lbs of gun-cotton had been drying inside for 37 hours and represented the most stable explosive in the immediate area.

As some of the black, white and yellow smoke from the series of blasts cleared, other sources of fire threw further columns of acrid smoke into the sky, and Building No. 76A (No. 19 Stove) started to burn. In addition, a range of other factory buildings had already been wrecked by blast, four being totally destroyed and several put out of action.

In a newspaper report, one unnamed survivor stated that he had a narrow escape when blown over in the blast. Carrying a bag of gun-cotton in a shed close to the one in which the first explosion occurred, the blast threw him 20 yards, to land on his back — fortunately still holding the volatile bag clear of the ground. If the bag had struck the ground, the chances were that this building would also have blown up. As the occupants of this building picked themselves up and fled, the second explosion occurred. Disorientated, and fearing that they were heading towards further danger, they threw themselves to the ground as a third explosion rent the air and flames leapt some hundreds of feet into the sky. Under billowing clouds of smoke, debris of all shapes and sizes rained down.

Another witness quoted in the newspaper stated that nothing above the size of an inch remained of No. 5 Mixing House and that he had narrowly missed being struck by a 'one ton' lump of concrete travelling through the air at a disconcerting height.

Right: We took the comparison a little further back to show some of the concrete remains today. Many new trees and a new bridge over the Cornmill Stream obscure part of the view, but on this clearer, warmer, day, the rising land beside the distant roadway is no longer shrouded in mist.



With the truck exploding less than 50 feet away, inevitably the contents of No. 18 Stove containing another ton of gun-cotton also blew up. **Above:** On a freezing day, the scene shows the shattered remains of the building looking east towards the line of mist-enveloped trees flanking the Crooked Mile from Waltham Abbey, north to Nazeing. The flat material in the base of the crater is the remains of the lead-lined floor. The broken trees are the only indication of the line of the Cornmill Stream hidden behind the rim of the crater.





Just 200 feet to the south of No. 18 lay the old dry Stove No. 19. The wooden structure caught fire, this picture giving a good illustration of the method of constructing the inner building inside the protective mound. The view is looking west across the truck line, towards No. 14 Stove and the Engine House.

While a number of the workers in the factory understandably ran from the area of the explosion, there were no reports of outright panic, and many brave hearts stood firm and completed their delicate and dangerous tasks. Thereby many buildings survived that might have themselves blown up if abandoned.

Among the ongoing processes was that inside No. 2 Washing House 150 yards from the seat of the explosions. Two hillmen, William Sylvester, aged 25 years, and Leo O'Hagen, also 25, and Stanley Sewell, 33, a hillman trainee, were working on the most critical stage of the production process when the series of explosions occurred outside. The structure of the Washing House itself was little affected by the blast and the debris raining down outside, but the liquid in their charge remained particularly susceptible to shock and the men could still have left their posts for a safer place. The danger of the situation was heightened by the loss of the all-important heating system.

Sylvester maintained a watch over more than a ton of nitro-glycerine through its final purification process, while O'Hagen and Sewell stayed together overseeing the delicate process of bringing the nitro to a point of relative stability. To achieve this, all three men were obliged to stay at their posts for a further two hours. Subsequently, each was awarded what was then known as the Empire Gallantry Medal. (Later, when the George Cross was instituted in place of the EGM, they received the Cross in its stead.)

Rescuers and the factory fire brigade approached the disaster area and sought to take control of the situation, and by the end of the day most were to be stained with the tell-tale yellow of the chemicals. A swift roll-call in the nitro section confirmed the loss of five men and narrowed down the identities of those involved. Meanwhile, the factory was besieged by the fraught relatives of almost everyone on shift that day. Those outside the strongly-guarded gates did not have the luxury of roll-calls; all they could see and hear meant little except death, and with stringent wartime secrecy, most were not

even aware which section of the factory their loved ones worked.

The shattered bodies of Kelman and Robinson were soon found half buried by debris some four yards from the 12-foot-wide crater, some 3ft deep, created by the explosion of the truck. It was the constituents of this settling debris that led to the conclusion that it had been the first explosion — that of the Mixing House — that had killed them, rather than the subsequent explosions. The bodies of these two unfortunates were subsequently examined by Dr Keith Simpson, the well-known pathologist, and found to have died from multiple injuries.

When the danger of further explosions had receded, many helpers, including officers from the town police station, were drafted in to search for human remains inside and outside the factory but only a few scraps of flesh

and bone, later assessed to be sections of human arm, were found of the other casualties.

Even as the fires burned, an official Court of Inquiry to look into the disaster was being set up. Under Lieutenant-Colonel J. C. E. Pellereau, six members were assembled to decide upon the probable cause and sequence of the disaster.

Among the aspects to consider were:

- (a) Sabotage.
- (b) Faulty procedure.
- (c) The presence of foreign matter in the mixture.
- (d) The condition of the plant.
- (e) Impure ingredients.
- (f) Acceleration of output.

For some time before the explosion, there had been rumours of sabotage affecting a number of manufacturing centres. These rumours had been taken seriously and the police were tasked with investigating them but, in spite of the gravity of these suggestions, there seems to have been little active investigation affecting the Royal Gunpowder Factory. In theory, it was generally accepted that sabotage of an explosive works was relatively easy. This was not the classic instance of a saboteur introducing a bomb into the factory. The greatest danger to the plant lay in the deliberate introduction of impurities into the dangerous process. Fortunately, self-preservation by the process workers was already designed to screen out all impurities, whether deliberately or accidentally introduced, so it was thought that only poor levels of training and faulty procedures would allow such sabotage attempts to succeed.

That evening, an official communiqué was issued in Whitehall: 'The Minister of Supply greatly regrets that an explosion occurred this morning at a factory in North London. Five men were killed and a number of employees were injured. Fortunately most of the injuries were slight. An enquiry into the causes of the accident is being made.'

Although the majority of London knew the exact location by this time, the defensive note of the press release tried to hide the location from the enemy. In these couched terms, the BBC announced the event on the one o'clock news. Eventually, it apparently became clear that such a tactic was pointless and a further communiqué was issued shortly afterwards: 'The name of the factory where the explosion took place is the Royal Gunpowder Factory, Waltham Abbey.'

At 9 p.m., the BBC bulletin added the name of the factory in full.



This particular picture turned out to make one of the best comparisons for the January blast with a section of the overhead heating pipe still lying where it was left when the burned-out remains of the building were cleared away. Quite how or why it remained there for over half a century is a mystery.



Another good comparison, although one which caused us a lot of head-scratching, was this one which we assumed was taken looking along a road towards one of the blasted buildings on North Site. The Court of Inquiry annotation stated that it showed the 'C.E. Magazine', fortunately also describing it as 'Building 89'. Although this did not appear on the associated drawing on page 37, reference to the plan produced for the Inquiry after the second large explosion on April 20 (page 36) did indicate its location.

Commensurate with the size of the multiple explosions, there had been considerable damage to property off site. The most important local landmark, the parish church of St Lawrence, a vestige of the dissolution of the monasteries having a history going back almost 900 years, drew the greatest attention with the loss of five (plain-glass) clerestory windows completely blown out. Stained-glass windows at the east end of the building that were already boarded up as a precaution against air raids survived.

However, in terms of the scale of glass loss, the glazing of the church was small fry when compared with the acres of nursery glasshouses in the Lea valley shattered in the blast. On a lesser scale, Chaplins, wet and dried fish shop at 43 Sun Street, suffered a plate-glass window blown in and numerous tiles were scattered from roofs near the factory.

With the sheer force of the explosion, the Court of Inquiry had little remaining evidence to allow them to decide the root cause of the initial accident in No. 5 Mixing House, and the result could only be based upon supposition, no matter how well founded that may be. The loss of the two hillmen pushing the truck, the truck itself and the surrounding buildings, Nos. 14, 18 and 19 Gun-cotton Stove's were all known to be as a consequence of the initial blast.

The site was visited by the members of the Court of Inquiry the following day. No. 5 Mixing House was now just two large lakes, the nearby canal waters having seeped through. The location of the former No. 18 Gun-cotton Stove was now a 6-7-foot-deep circular depression with a diameter of 60 feet. Hemmed in by a concrete wall at the north end and an earth mound at its southern end, No. 14 Gun-cotton Stove had blown sideways across the canal and into the trees without creating a crater.

The inquiry quickly homed in on the two most likely causes: the lack of training and the prevailing freezing temperatures.

Although it was a rare occurrence, it was widely known among the chemists and longer-serving process workers that a phenomenon known as frozen nitro-glycerine existed, indeed, it was one of the prime reasons for the cessation of work if temperatures fell below 10°C. Where it occurred, the freezing of the nitro created solid lumps which were difficult, and particularly dangerous, to force through the mixing grid. The problem was rare and one that most of the



However, when we reached what we believed was the same spot today we were faced with recent excavations for a canal. To us, this was a strange fate for a roadway but it was only then that the truth dawned upon us: the 'roadway' was not a road after all! Covered with dust and debris from the blasts, the surface of the water of the canal just appeared to take on the mantle of the solid. Much of the wood lining the edge of the canal bank has survived and, although cut down in height, the concrete traverse retains the impressions from the wooden shuttering that was used in its construction. The buildings in the background include a disused gunpowder store.

regular staff had never actually encountered. To many of the newer wartime workers it was just one of many things that they had been told about. The Court heard evidence from a wide range of witnesses, most being asked about the possibility of frozen nitro being introduced into the building although the majority discounted this line of explanation. Nevertheless, the Court was inclined towards the theory that it might be that an insufficiently trained worker could have failed to recognise the problem and tried to force a piece of frozen-hard nitro-glycerine through the grid with disastrous consequences. Both Purkis and Parkes might fit that scenario.

The Court heard that No. 5 Mixing House did not undertake its own pouring-on process. Instead, it was one of the buildings which took delivery of the bags by small canal barge and then sent off its mixed product before setting to mix more. It was realised that it might be possible that one or more of the poured-on bags could have frozen at some stage of the journey after leaving the warmth of the supply building, and that this had not defrosted before being worked on. It was found that 60 bags of material had been exchanged shortly before the explosion. The incoming bags had been prepared in No. 2 and No. 3 Pouring-on Houses. Robinson and Kelman loaded at No. 3 and took the boat to No. 2 where they handed the vessel over to Mr. Head before setting off to undertake the trucking duty which was to kill them a short while later. The severe weather had resulted in a need to break the surface ice, this extended the journey to the Mixing House to 25 minutes, which Head claimed was twice as long as normal. He arrived and unloaded just after 10 a.m., some 40 minutes prior to the explosions. Times were rarely more than guesses as factory time-pieces were rare and personal watches absent.

In the absence of precise timing, the question that the Court of Inquiry had to ask itself, but could not answer, was whether the poured-on mixture was outside the relative warmth of the process buildings long enough for a portion of it to freeze. More controversially, it was a question whether one of the less-trained operatives did in fact abuse the resultant frozen lump in trying to force it through the sieve. We will never know.



Left: No. 2 Weighing House after the first explosion looking south-west towards the Engine House alongside No. 14 Stove.



Over to the right is the seat of the explosion. Right: The framework of the footbridge over the waterway still stands.

In order that production could restart with the least delay, repairs to the damaged buildings were started immediately, a number of the structures being completely rebuilt.

The repairs were urgent, a factor which resulted in outside contractors being rushed onto the site with a minimum of delay. Among these additional workers were some from the Mowlem organisation. Long-term site workers used to their own safety equipment based on rubber, leather and gunmetal, were disconcerted at the sight of the burly outside workers smashing the scattered lumps of concrete with heavy steel sledgehammers. Warnings from the old hands failed to result in these outsiders desisting.

Not long after their arrival there was the inevitable bang as steel met a particle of nitro-glycerine. No one was hurt, but the Mowlem men walked off site as a body and were never seen again.

FURTHER ACCIDENTS

The following month the RGPF was shaken by another explosion. Fortunately, on this occasion on Thursday, February 22, no one died, but three men were taken to the hospital.

There was a link between this incident and the first explosion. One of the pouring-on buildings affected by the first explosion had been abandoned in such haste that one of the workers had failed to shut off the supply of nitro-glycerine before getting clear of the collapsing roof. The result of this was that the floor became covered in a sheet of frozen nitro.

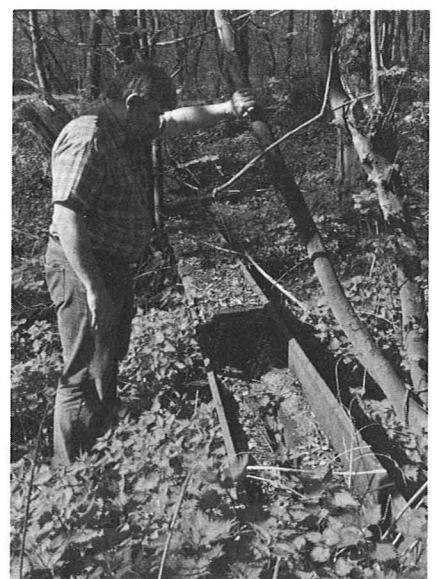
After a great deal of searching, the authorities managed to find two volunteers who were willing to enter the building and remove the material. The sagging roof was shored up and secured with ropes and the pair entered with a steam jet to liquefy the

frozen material and then toss sawdust over it, prior to bagging up the mixture and removing it.

These now waste explosives were being burned on an area off to the west near the Powdermill Cut termed 'the burning ground'. This was not far from the area in which the five men were killed in January. The principle behind the process was that the waste material was spread on the ground and when ignited, like most explosives in an uncompressed state, they simply burned fiercely and went up in smoke. Occasionally, and this is what appears to have occurred in this instance, the flames ignited a pocket of powder which had slipped down a small fissure in the ground. This, being effectively contained by the fissure, exploded. Although the area was shaken by the blast there was no damage to private property and the injuries caused were minor.



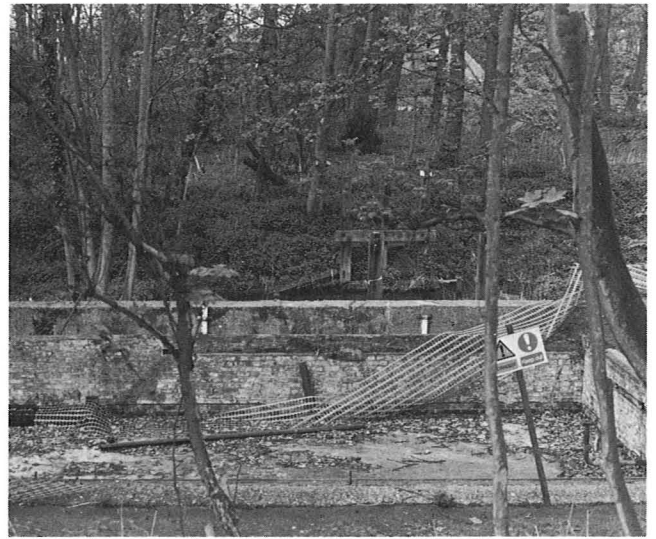
Having just been rebuilt, No. 2 Weighing House (Building 53A) was wrecked again in April so that the modern replacement (left), considerably enlarged and bearing a different building number (S27), bears little resemblance to the original. The footbridge is hidden in the trees. Right: An unexpected discovery in the nearby undergrowth was the remains of the old



nitro-glycerine 'gutters' by which the explosive ran by gravity between buildings. Long since deprived of its lead lining, this particular one had a felt-covered wooden lid rather than the more usual canvas cover. It may be significant that this trough appears to have led towards the site of the ill-fated No. 5 Mixing House.



Left: The reliance on gravity for distributing the nitro is well shown in this photograph showing the gutter snaking down from the mound of No. 2 Washing House and over the cut beside the blasted Washwater Settling House. It was in No. 2 Washing House that three men, William Sylvester, Leo O'Hagen and Stanley Sewell, were working on the most critical stage of the whole process: the nitration of the glycerine when the risk of a spontaneous explosion is greatest. Not only was the material then specially sensitive to shock or vibration, but the hot water and air service necessary to maintain the temperature of 70 degrees on that cold January morning had been put out of action by the explosions elsewhere on the site. The three men stayed at their post to monitor more than a ton of nitro-glycerine going through its final purification process, their



courage and devotion to duty being acknowledged by the award of the Empire Gallantry Medal — replaced later by the George Cross when the new highest award for civilian gallantry was instituted in September 1940. (Mr O'Hagan died in 1968, Stanley Sewell the following year, and William Sylvester in March 1996 during the research for this feature.) *Right:* Were it not for the sharp eyes of Ray Sears, a local historian who accompanied us on our expedition to the RGPF, we might never have pinpointed the spot and thus have appreciated the importance of the picture. The spring growth was beginning to shroud the view of the mound around No. 2 Washing House when Ray spotted a building number sign hidden in the nettles. Much of the support structure for the nitro-glycerine gutters remains, in spite of being abandoned since the end of the war.

Two of the less injured were a couple of workers from the Building Works Department, Bob Boswell and Cyril Eagles. Cyril had been well out of the way at the time of the first explosion setting up sandbags at the Sandhurst Hospital in the RGPF. This pair were tasked with dismantling the wooden scaffolding from the previously damaged Acid Factory. They had all but finished when the bang went off and threw them sideways.

The corrugated iron acting as a black-out measure to mask the glow from the retorts was ripped off and showered down on them. The scaffolding had to be re-erected to undertake yet more repairs.

As if this incident on the burning ground was not embarrassment enough, on Monday, April 8, another accident at the factory killed one of the workers. Although there was no explosion this time, nonetheless Nathaniel

Evans, aged 32, of Enfield, was fatally injured by extensive acid burns and died in hospital.

With these albeit minor incidents weighing heavily, and the shooting war having started for real on the Continent, there is little doubt that when in mid-April another massive explosion ripped through the RGPF some of the workforce were gripped by a state of despair.



As for the casualties, the few pathetic fragments of Albert Lawrence, of Albury Road, Enfield Wash, married with four children; John Parkes of Charlton Road, Edmonton; and Charles Perkis of Forest View Road, Walthamstow, both married with one child, were buried in one coffin in Waltham Abbey New Cemetery in Sewardstone Road (see page 49). *Centre:* Ray and Bryn stand at the spot where the two truckmen were found buried under debris. Both bodies were so

badly shattered that recognition was impossible but the inquest held at Walthamstow on January 22 accepted identification from identity discs. Albert Kelman, married with three children and living in Brecon Road, Ponders End, was laid to rest in Grave 7337CON in Enfield Highway Cemetery (*left*), and John Robinson, of Bowood Road, Enfield, also married with three children, in Square N6 (*right*) in Abney Park Cemetery, Stoke Newington, now an overgrown nature reserve.



ANOTHER FIVE DIE

The second major disaster in 1940 occurred within the North Site nitro-glycerine section at 9.14 a.m. on Saturday, April 20. The seat of this explosion was No. 2 Paste Mixing House, a structure sited immediately to the north of the earlier blast. This was one of the buildings which had been completely rebuilt as a result of the damage, and was of similar design and use to that involved in triggering the series of blasts in January, all the major features of the original design being reproduced in the rebuild.

Again five men were killed, a further 15 being injured, six severely. The building was totally destroyed as were the bodies of the three occupants within, the only remains found being a section of skull. Those of two other men were found floating in one of the aqueducts.

Whilst a number of other structures were affected by the blast, on this occasion there were no further explosions or fires. The flimsy design of the building and the strength of the surrounding mound worked exactly in the manner designed and few other buildings suffered severe damage. One reason behind this was the smaller amount of explosive involved as it was estimated that No. 2 Mixing House had contained a total of 3,800lbs of nitro-glycerine and gun-cotton of which 1,260lbs was nitro.

Whereas the January explosion had damaged up to 20 buildings badly enough to require rebuilding, this time — other than the site of the blast — only five were damaged. In both explosions, Building No. 45, (No. 1 Washing House) and Building No. 53A, (No. 2 Weighing House), received such damage as to require a complete rebuild.

To the workers within the factory, the danger of sympathetic detonations in neighbouring buildings remained. The greatest risk was to No. 1 Washing House, across a canal and 55 yards to the east, where three hillmen were working. The chageman, Hugh Burns, with Edward Sollis and W. T. J. West were inside the Washing House with a ton of nitro only half way through its production process when the roof came in on them. Burns was

injured in the collapse but worked himself free and remained with the other pair to see the nitro-glycerine carried through until it had reached a safer state of purification. For their devotion to duty, all three hillmen were awarded the British Empire Medal.

Cyril Eagles had again been out of the way of the blast, this time walking along Long Walk to the west. He recalled that a number of others who might have been expected to be closer to the explosion had fortunately sloped off for their half-hour morning meal break a little earlier than scheduled. Their injuries were less in the line of duty. The wooden canteen building this group had been in was lifted up off its disintegrating

brick foundations and crashed down with such effect that a number were scalded by the spilling mugs of tea!

Later the same day, another Court of Inquiry was set up, again under the leadership of Lieutenant-Colonel Pellereau. The investigating group visited the scene but, like in the January incident, the strength of the explosion left them with little tangible evidence to determine the root cause of the accident. The rebuild of the Mixing House was examined lest it have a bearing but no fault could be found in its construction so they looked elsewhere.

Although the proceedings for the first explosion had taken place both speedily and in the full glare of publicity, understandably with the war now having started with a vengeance on the near Continent, the latest incident was played down and the newspapers were not allowed to publish the true location of the blast until after the inquest almost two months later. To all but the locals, the site of the loud bang that had reverberated across the capital remained 'North London'.

As before, one of the first causes suspected was sabotage and the question was raised as to whether the police at Scotland Yard should be consulted but this potential reason for the disaster was quickly ruled out. However, although the deliberations of the Court may have satisfied them that there was no question of sabotage, the press, muted though it was by censorship, raised the spectre of a Fifth Columnist in the midst and, at one stage, the 'suspicious' movements of a specific workman were highlighted. The result of this diversion of effort was that Scotland Yard was eventually brought in and Detective Inspector John Scurr, stationed with the Metropolitan Police J Division at their headquarters in Hackney, gave evidence to the proceedings on April 26. Predictably, he cleared the man and was unable to provide a renewed link to the sabotage theory.

Whilst the blast took place in the same general area of the production facilities, on this occasion it appeared that the cause might be a little different in that the weather was warmer and it appeared to involve the deaths of hillmen with a relatively long history of service. So, there remained a hope that there might be a reason, other than a lack of training leading to human error, for this accident.



Top: Three months later, another devastating explosion rent the air at Waltham Abbey. This time it was No. 2 Mixing House (Building 46) which went skywards but the protective mound largely confined the blast. Looking north-west from the porch, we see the Washwater Settling House in the background. Although it appears intact, in fact it was only the roof that remained. Above: The original report stated that after being wrecked twice in a year, No. 2 Mixing House was to be abandoned and rebuilt on a different site to the north beside Newton's Pool. Our comparison shows that clearly someone changed their mind about the re-use of the old site.



At the time, three men were working in the building: Francis Keene, David Lewis and Thomas Galvin. This time there could be no suggestion that frozen nitro was the cause as the temperature was almost 70 degrees (21°C) so the Court of Inquiry had to look elsewhere for an explanation. It was the discovery of a piece of skull near fragments of a sample bottle carrier that led the Court to believe that the chargehand, Francis Keene, might have dropped one of the bottles on the porch so setting off a chain-reaction with the 1½ tons of explosive inside the building. It was believed that the sample carrier had just been delivered to the Mixing House as the bodies of the two men on the delivery round — Harry Monk and Leslie Raby — were found blown into the nearby watercourse.

Francis Keene, aged 26 years, was the chargehand inside the building. With him were a 36-year-old Welshman, David Lewis, and Thomas Galvin, a 41-year-old married man. All three had worked in the factory since before the war, the latter pair for three and four and a half years respectively. Keene had only taken the post of chargehand a week before the blast, replacing the usual man who was on leave but from the evidence given to the Court, it was clear that Keene was an utterly reliable worker, it being this reliability that led to him being given the post in the first place.

The two bodies recovered from the water, a feature variously referred to by witnesses as the aqueduct or 'the cut', were of local Waltham Abbey hillmen, Norman Henry 'Harry' Monk, a fully-trained hillman, and Leslie Raby, a hillman learner. They were both aged 27. Both were employed in support of the local Mixing Houses so it was initially assumed that they had the misfortune to have been passing the building at the wrong moment when they were blasted into the water which ran only 18 yards from the Mixing House.

An overriding worry was the continued lack of experience exhibited by the majority of the workmen. The Superintendent, Mr P. G. Knapman, was quoted as telling Court that 'our labour at the moment is appalling'. His disquiet was further reinforced by comments from one of the shop stewards who made a statement with regard to allegations of accelerated output, the suggestion being that the process workers were being pressured into ever greater levels of production. However, the Court took the opinion that as there was evidence that the rate of work had not increased above 92 bags per shift, there could be little credence given to this aspect.

It was the finding of the remains of a sample carrier in the water near to the spot where Monk and Raby had been found that provided one of the major clues to the final outcome of the investigation. The position of other fragments of the sample bottle carrier and the small section of skull, ascertained to be from the body of Keene, were also deemed important clues. The bodies, the sample carrier and the section of skull all lay

on the same side of the seat of the blast in No. 2 Mixing House — the nitro tank. Although some of the wooden fragments from the carrier had floated off downstream prior to recovery, there was never a logical explanation for the loss of 18 lead sample bottles as it might have been expected that a maximum of 12 would have been lost in the blast.

It was known that conditions in the building appeared to be normal. The area was seen to be clean and the internal temperature of the building had been recorded by Raby on an earlier visit as a comfortable 21°C. One of the witnesses, Mr Cuckow, the assistant foreman of the nitro-glycerine section, reported that he had visited the affected building only minutes before the incident. Although, in line with standing practice, he had not entered the building, he stated that all appeared normal and that he believed they had just completed pouring-on and that

Keene was clearing up as Lewis and Galvin had started to mix. It was circumstantial evidence, but it might be expected that samples would be taken at this time. This, and the relative positions of the bodies and debris, suggested the possibility that the primary reason for the presence of Monk and Raby near to the Mixing House was not accidental after all.

It was suggested that Raby had gone to the Mixing House and left the sample carrier in the porch. Calling Keene, Raby had then walked out, clear of the building, and towards the cut to speak with Monk whilst awaiting the call to return and pick up the samples for testing. Unfortunately, neither man was far enough away from the building when it inexplicably blew up. Whilst considering that there was an equal possibility that gun-cotton dust on the floor might have been set off by having a bag dropped onto or dragged across it, the most likely cause appeared to be that Keene had dropped one of the sample bottles as he took them to the porch.

In their report, completed on May 20, the Court settled on blaming Keene for the accident and then sought to put recommendations for remedial action to stop such an accident occurring in the future. However, these ideas were so wide ranging that it was clear that there was little real idea of the true cause. It was suggested that the very need for sampling within the Mixing Houses should either be removed altogether or, alternatively, the keeping of sample bottles should be further restricted in number. The Court were also not happy with the use of the lead bottles as their opacity hid the extent of the contents. Foreign bodies in the mix were not wholly ruled out either, recommendations to further reduce the incidence of these also being made.

In addition, the report drew further attention to the design of the steam heating radiator, although it had been examined again and again as a source of potential problems. As a measure designed to improve the supervision of unskilled workers, it suggested that the buildings be entered when visited, although this measure would require a radical change in the rules governing the number of men allowed in the building at any one time. Further thought was also given to the building of a completely new nitro-glycerine section within the factory, which would remove the situation whereby the whole production capability was halted by the loss of a single building.



The same view is today virtually unrecognisable due to subsequent rebuilding. In the background, beyond the re-instated mound, is the aqueduct alongside which Monk and Raby met their deaths. The new No. 2 Mixing House was rebuilt in 1941 off to the left as Building 46R. On the extreme right is the ornate sluice gate filling Newton's Pool where underwater experimentation took place.

The inquest for the April incident did not take place until Friday, June 7, and it was reported in a fairly muted manner in the inside pages of *The Enfield Gazette and Observer* on the following Friday. In spite of censorship, the paper was allowed to print a quote from Mrs Keene given at the inquest that, prior to his death, her husband had complained to her that 'there was too much speeding up at the factory and there would be another explosion before long'. Giving evidence, she stated that her husband was distressed at the conditions created by the speeding up of the dangerous processes. Keene had been a shop steward for the nitro section and it was known that on two occasions he had brought this to the notice of the authorities without success.

William Lewis, the brother of David, had travelled from the family home in Wales to the inquest. He confirmed that David had expressed similar disquiet. Lewis had regularly given vent to his complaints about the pressure to produce more and yet more and, a few weeks before his death, he had been hauled up in front of the foreman. He achieved a move within the factory but, ultimately, it had failed to remove him from the danger. The Court of Inquiry had been told of a number of instances where three individuals had requested moves on various grounds but with 3,000 workers on site this



The pathway where Monk and Raby were killed was photographed for the record. At this point, an aqueduct (on the left) is carried in an iron trough over the waterway running below it at right-angles.



Left: The iron of the one-time aqueduct (Bridge 20) is now smashed and no longer carries water although the canal which runs below still feeds Newton's Pool. However, from the



relative levels, it is clear that the waterway beneath was not intended to be navigable. Right: The footpath can still be discerned.

was not considered significant. On the other hand, Mrs Maude Galvin did not support the allegations of speeding up from her own knowledge of her husband's work.

The two local men pulled from the water were buried in Waltham Abbey New Cemetery in Sewardstone Road. Norman Monk was buried in Plot 53A and Leslie Raby, only married a matter of months before his death, was laid to rest just one grave space away. Raby's parents, Alfred and Minnie, lived all their married lives in a house in Denny Avenue overlooking the cemetery. Devastated at their loss, they were also separated from their son in death, their own final resting place being in Section D right near the back of the house they once occupied.

Bryn and Ray seek out the graves of Harry Monk (behind) and Leslie Raby (in the foreground) in the cemetery on Sewardstone Road. (Three of their colleagues who survived, Hugh Burns, Edward Sollis and W. T. J. West, were awarded the British Empire Medal for their devotion to duty.)



Not far away, the scant remains of the other three men were buried in a single casket on Monday, June 10, in plots 123/124/137/138 of Section O. This spot was right alongside the communal grave of three of the employees who had been killed in the January explosion. However, unlike the deaths occurring in the Royal Gunpowder Factory in the Victorian era, no stone was ever placed to mark either grave, and it was not until *After the Battle* made its initial enquiries that all members of the long-serving cemetery staff were made aware that the area of grass over the graves was the final resting place for six men killed at the RGPF.

After this second explosion, there were renewed efforts to rebuild the damaged buildings. No. 2 Mixing House, already completely rebuilt after the January explosion, was resited a little way to the east on spare ground beside Newton's Pool, the underwater testing facility. Here it was hoped that the ill-fated No. 2 might be far enough away to survive a third disaster!

In the event, there were to be no more serious explosions at the Waltham Abbey factory. The site received its fair share of attention from the Luftwaffe in the ensuing Blitz and, being in the south-east close to London, was clearly placed in an awkward strategic position. It was long held that a well-placed stick of bombs would destroy not only the factory but, with collateral explosions, the whole of the surrounding town as well and, in time, production was moved to other sites, locations hopefully beyond the range of all but specific attacks. A number of incendiary bomb fires were started on the site, but never the big one.

In 1943, the site changed from its rôle of explosive production to that of an experimental station. At the end of the war, the old name of the Royal Gunpowder Factory passed into the history books and the first of a number of relatively short-lasting titles substituted, these name changes reflecting a changing rôle in the modern world. Finally, it undertook the task of rocket propellant testing. Whilst the amounts of explosive required were thus reduced dramatically, the contamination of the site was such that it was never again a safe place to work. Until the end, there were to be more small on-site explosions as continued disposal activities on the burning ground took the same dramatic turn that had occurred in February 1940. Fortunately, however, there were no further deaths.



Looking south, towards the M25 motorway overbridge on Sewardstone Road, no marker or memorial indicates the last resting place for six men. Only the well-tended area of grass between the block paving and the war graves marks the spot where the scant human remains were buried from the two major wartime disasters at the Royal Gunpowder Factory.

Remaining a secret place to the end, it retained its position in the front line of development. At the time of the 1982 Falklands War, activities included the final testing of the engine for the British Aerospace Sea Skua air-launched anti-ship missile. Untried in battle and with these trials still incomplete, the military flew helicopters into the site, often during the dead of night, to take every test round available for onward transmission to the South Atlantic battleground. The Sea Skua undertook, and passed with flying colours, its final firing trials in the hands of the men off the Falklands. As if that were not all, much of the specialised explosive and other equipment required by the Special Forces was in such short supply that they too moved in and requisitioned all they could lay their hands on.

During the early 1980s, the government privatised and then sold off the sprawling South Site. Subsequently, after Royal Ordnance was sold to British Aerospace, the site

was progressively closed. At the time it was thought that, in spite of the known contamination, the site could be quickly turned around and sold off as prime building land but the underlying contamination was found to be far more extensive and a speedy sell off was not to be.

Both sites of the former gunpowder factory were finally closed for all explosive-related activities on June 30, 1991. The 190 acres of North Site, where the 1940 explosions took place, remained in government hands as the Royal Armament Research & Development Establishment but plans were soon proposed to investigate the possibility of turning it into a museum telling the story of the explosive industry. The Ministry of Defence placed the site and its future form in the hands of agents, Civix Ltd., and a locally formed Trust Steering Committee, but at the time of writing (May 1996) its future remains in the balance and it is currently closed to public access.

One of the many dry canal beds excavated in the decontamination process of the former RGPF. This is the one that encircled the site of the C.E. Store No. 4 and the disused Gunpowder Store. Should the proposed Gunpowder Museum project go ahead, it is envisaged that this and the other waterways would be filled with water once again and be plied by electric-powered replicas of the original canal boats.





CLASS OF SERVICE		WESTERN UNION		1208	SYMBOLS	
This is a full-rate Telegram or Cable (am unless its deferred character is indicated by a suitable symbol above or preceding the address.		A. N. WILLIAMS PRESIDENT		(50)	DL = Day Letter	
					NL = Night Letter	
					LC = Deferred Cable	
					NLT = Cable Night Letter	
					S = Radio Gram	

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is 9:45 AM EST at point of destination.

BRH150 44 GOVT= WASHINGTON DC 5 7 02P

MRS ANNA SITO=

2324 FLEET ST BALTO=

THE SECRETARY OF WAR DESIRES ME TO EXPRESS HIS DEEP REGRET THAT YOUR SON PRIVATE FIRST CLASS ALPHONSE M SITO HAS BEEN REPORTED MISSING IN ACTION SINCE EIGHTEEN DECEMBER IN BELGIUM IF FURTHER DETAILS OR OTHER INFORMATION ARE RECEIVED YOU WILL BE PROMPTLY NOTIFIED=

DUNLOP ACTING THE ADJUTANT GENERAL BATTLE.

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

THE 99th DIVISION 'MISSING IN ACTION' SEARCH TEAM

By William C. Cavanagh

On December 19, 1945, Mr. and Mrs. John Sito of 2324 Fleet Street, Baltimore, Maryland, received a letter from Major General Edward F. Witsell, Acting Adjutant General, United States Army, concerning their son Alphonse, stating that 'as twelve months have now expired without the receipt of evidence to support a continued presumption of survival, the War Department must terminate such absence by a presumptive finding of death'.

Regretting the necessity for this message, but trusting that the ending of a long period of uncertainty may give at least some small measure of consolation, officialdom closed this uncertainty by recording an official finding of death 'under the provisions of Public Law 490, 77th Congress, approved March 7, 1942, as amended'. Alphonse M. Sito had now joined the ranks of nearly 80,000 Americans listed officially as 'Missing in Action — Presumed Dead'.

Others, more fortunate, returned home to build new lives in the post-war prosperity of the United States, among them, men of the 99th Infantry Division, including Sergeant Richard H. Byers who had received a battlefield commission and came home as a 2nd lieutenant. With the passage of time, some things slipped from memory, yet like most of his buddies, 'Dick' Byers never forgot his momentous trip to Europe in World War II. Eventually becoming active in his divisional veterans' association, Byers formed the '99th MIA Search Team' enlisting the co-operation of William C. Warnock, Will Cavanagh, Jean-Phillipe Speder and Jean-Louis Seel, all of the post-war generation, yet deeply interested in those far-off days of the Second World War. They set out on the long and complicated task of seeing what could be done about locating, recovering and identifying some of the missing from the Battle of the Bulge and, more specifically, the 99th Infantry Division. Thus began the lengthy and time-consuming search for witnesses and documentation relating to cases such as that of Alphonse M. Sito.

At the western exit of the Losheim Gap, on the Belgo-German border stand the Losheimergraben crossroads, from where the main road, N632, leads west into Belgium. In November 1944, troops of the US 9th Infantry Division, who had nicknamed the crossroads area 'Creepy Corner', turned over their front-line rifle company positions

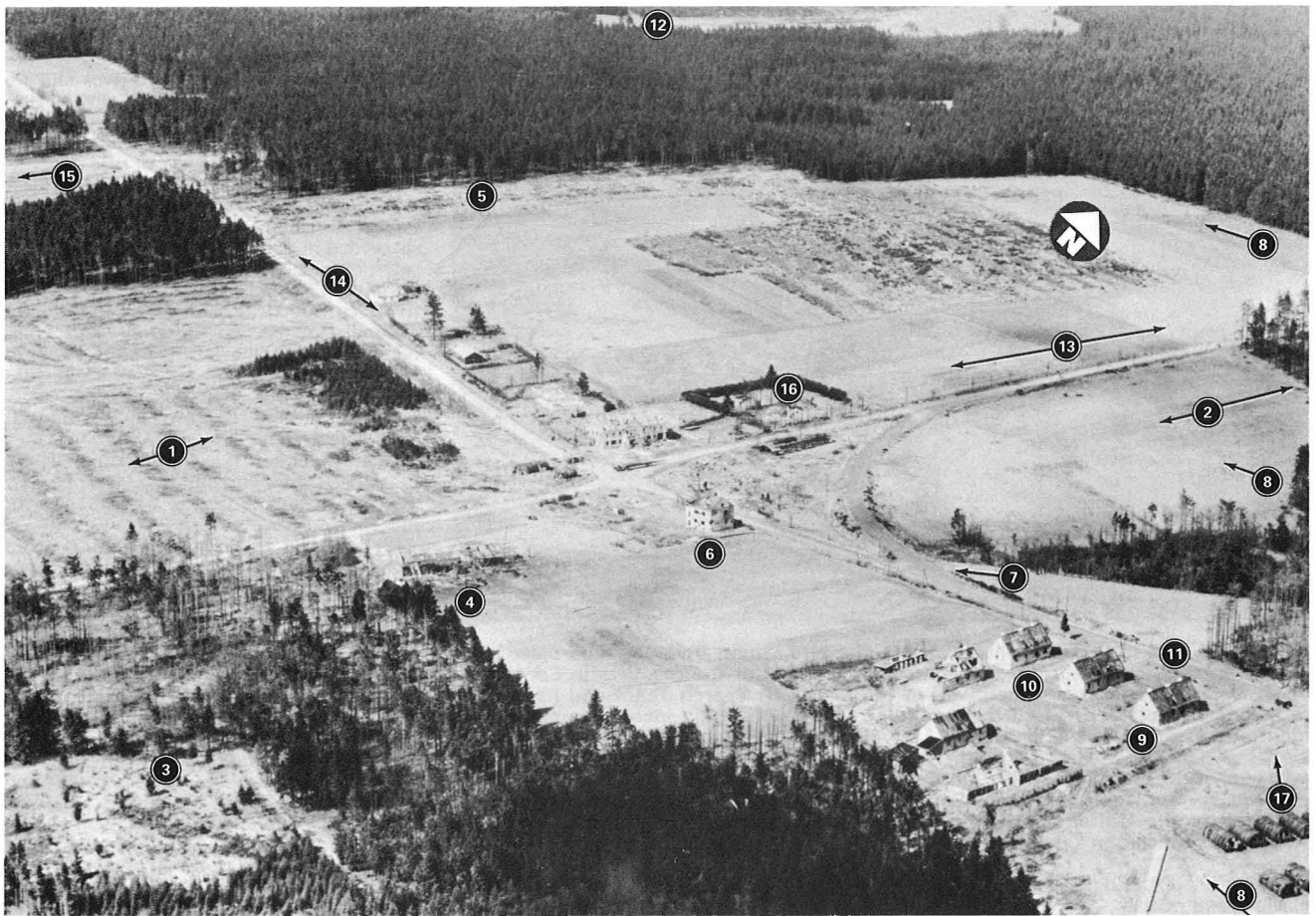
to the incoming soldiers of 1st Battalion, 394th Infantry of the 99th Infantry Division under the command of Lieutenant Colonel Robert H. Douglas. As his men settled into their foxholes, Douglas remembers making 'a night reconnaissance for the location of defensive positions within our sector of responsibility'. Little did they know it, but he and the men of 'Danzig Red' (the unit code-name) were to occupy a 'ringside seat' in Adolf Hitler's forthcoming attack through eastern Belgium and northern Luxembourg.

With their army being assigned the spearhead rôle in this attack, the planners of Oberstgruppenführer Sepp Dietrich's 6. Panzerarmee designated five attack routes,

referred to as 'Rollbahn' A-E, in the zone of their 1. SS-Panzerkorps. Four of these routes (A-D) ran through the newly established 99th Division front lines. As the main hard-surfaced road leading into Belgium at Losheimergraben, 'Rollbahn C' became top priority in the list of Dietrich's objectives. Once the crossroads had been captured by the infantry, tanks of the 12. SS-Panzer-Division would pass through and start the advance. The scene was set for what noted historian Martin Blumenson would years later refer to as 'the climactic battle in the West'.



Oberstleutnant Wilhelm Osterhold (left) and our author, Will Cavanagh, visit the Losheimergraben area to discuss the events of the winter of 1944. Osterhold's Grenadier-Regiment 48, and its running mate Fusilier-Regiment 27, paid dearly in their attack to capture Losheimergraben on December 16 and 17. A defending American sniper killed Major Klaus Breger, one of Osterhold's battalion commanders, and Major Siegfried Moldenhauer, commanding the 1. Bataillon was severely wounded when he and his men were shelled by their own supporting artillery in error. It was during the battle for the important crossroad junction that Pfc Alphonse Sito (top) was killed two days later, his body lying undiscovered for over 40 years.



The battle for the border crossing. The Losheimergraben crossroads lay on the frontier between Belgium and Germany, the houses at the bottom of this 1947 picture being former housing for German customs officers who used to man the post. The international highway [13] runs south to Lanzerath and north to Hollerath. The battle on December 16-17, 1944 was between the 1st Battalion, 394th Infantry, and Grenadier-Regiment 48. [1] Co.A/394 bivouac area. Trees felled after battle. [2] South flank of Co.B/394 area. Co.C beyond. [3] Co.D/394 mortars. [4] Co.D/394 command post. [5] Co.D/394 mortars' 2nd position. [6] Sergeants Hilliard and Trent's Co.C and Co.B platoons occupy house and fight from windows. [7] Co.B survivors emerge from draw followed by Volksgrenadiers. [8] General direction of attacks by Grenadier-Regiment 48. [9] House used

by Cannon Co./394, 'A' Battery 371st Field Artillery Bn, and 'C' Battery 371st Field Artillery Bn forward observation parties prior to the attack. First House occupied by the Germans and from which Oberstleutnant Osterhold shouted surrender terms. [10] Houses occupied as fall-back fighting positions by Anti-Tank Co./394 and remnants of 1st Bn/394 before surrendering to Osterhold. [11] German Sturmgeschütz assault gun knocked out with bazooka from this house by Sergeants Weidner and Kirkbride. [12] Cannon Co./394 gun position. [14] Rollbahn C to Losheim (east) and Büllingen (west). [15] Road to Buchholz and 3rd Bn./394 area. [16] 'Buffalo Bill' bar. [17] Temporary German cemetery with some American bodies. (Hatlem Collection, US Army Military History Institute. Coding and key by R. H. Byers 'C' Battery/371 and 99th MIA Search Team.)

Private Alphonse M. Sito, a native of Baltimore, Maryland, was born on November 16, 1924. He spent his 20th birthday, like his buddies, trying to keep warm in the damp cold forest dominating the western exit from the Losheim Gap and 'Rollbahn C'. Staff Sergeant George M. Ballinger was the machine gun section leader of the Weapons Platoon, Company B, 394th Infantry, in which Sito served as a machine gunner: 'Sito was one of the finest young men and one of the best soldiers that I had the pleasure of serving with. The section consisted of two squads, each of which had one .30 light machine gun, the gun in Sito's squad having been damaged a few days before the 'Bulge' began.'

Oberstleutnant Wilhelm Osterhold, at age 30, was the youngest regimental commander in the Wehrmacht in December 1944. A veteran of the Russian front, he had been awarded the prestigious Knight's Cross, (the Oak Leaves were added in February 1945) as well as three 'Tank Hunting' badges, awarded for his having knocked out three T-34 Russian tanks single-handedly at close quarters. He commanded Grenadier-Regiment 48 of Generalmajor Gerhard Engel's 12. Volksgrenadier-Division, the immediate objective of which was the capture of Losheimergraben as the point of departure

for the westward drive along 'Rollbahn C'. In conversation with the author and Dick Byers, ex-Oberstleutnant Osterhold said of the preparations for the German attack against the 1st Battalion, 394th Infantry: 'I had no idea where the Americans were. We weren't told. We weren't even allowed to make some reconnaissance. We had to stay in Kronenburg until it was night, then we were told to attack in the direction of Losheimergraben. Nothing else. It was the worst preparation for an attack that I ever experienced!'

The first thunderclap of the massed German guns and 'Nebelwerfer' rocket launchers at 5.30 a.m. on December 16 was heard by the outposts of the 394th Infantry as 'outgoing mail', fire from friendly guns. Pfc Ralph Gamber, a member of the 2nd Mortar Squad, 4th Platoon of Company B, well remembers that opening barrage: 'Barrages of all calibers of mortars, artillery and multi-barrelled rocket projectors plastered the entire regimental front! Men who had served in North Africa, Sicily and Normandy later said it was the heaviest attack they ever experienced. It lasted with a few lulls until daylight. When a shell exploded very close it seemed as if my body was being compressed and my vision distorted as if my very eyes were being squeezed out! We had few cas-

ualties but our platoon leader, 2nd Lieutenant Charles E. Butler, was killed and several others wounded by a direct hit on their shelter.'

George Ballinger's machine gun section occupied foxholes on the extreme left of the Company B position: 'We were facing a ravine that extended from the road down to our position. I think it may have been five or six hundred yards or more. There was a long gap between Company B and Company C on our left. A few minutes after the shelling had stopped the Germans, who had moved up quite close, began yelling very loudly and in unison, probably to make us think there were more of them than there really were. When they stopped yelling it became very quiet and we wondered what they were going to do. Shortly, to our left front, a German scout appeared from behind a tree and looked in our direction for a full minute. We kept quiet and did not move. The scout went back behind the tree and we now thought they would attack for sure.'

'It was a cold, damp, misty morning with heavy snow on the ground, there was absolute silence as we waited for the attack to come. It came, but not the way we expected. From behind the tree the scout had come, there came six German soldiers. They were walking very slowly toward us in the



Jean-Louis Seel and Jean-Phillipe Speder, the two young Belgians who discovered Sito's remains. This photograph was taken shortly after the recovery in September 1988. Seel and Speder are members of the 99th MIA Search Team and have since repeated a similar operation in November 1990, when they located remains later identified as those of 2nd Lieutenant L. O. Holloway also from the 99th Infantry Division, just south of Rollbahn A on the west bank of the Olefbach. They did so with the approval of the local authorities, since combing battlefields in search of matériel from the war is now forbidden under Belgian law. Lieutenant Holloway's remains were returned to the United States, repatriation being the right of the next of kin of American servicemen killed abroad.

exact center of the field of fire of the one machine gun we had.

'George Boggs was the gunner. He wanted to begin firing right away but I could see that there were others coming, so I told Boggs to wait until I told him to fire. Those in the rear caught up with the first six and they stood in a close group talking to each other. They seemed to be unaware of us. Finally, one of them placed a machine gun on the ground, they were 60 yards or less away, and one of them dropped to the ground behind the machine gun so I told Boggs to fire.

'He fired a long burst and all the Germans fell. That seemed to be the signal for everyone in the area to fire, for now the noise of the machine-gun and rifle fire was deafening. The Germans had taken cover in the ravine and were laying down heavy fire from there.

'Alphonse Sito who was to the right of our dugout was telling us that most of the German fire was coming from our right. Our machine gun was not positioned to fire that far right. There was a BAR (Browning Automatic Rifle) team filling in for the missing gun covering that area. After a while, Sito told us that the Germans had broken through and were getting behind us. Then he told us that the BAR team had been wiped out.'

Pfc Robert L. Muyres was the first scout in a rifle squad of Company B: 'When the Germans attacked, I was in a very shallow foxhole with the assistant squad leader, Staff Sergeant Ernest Davidson. When Sito was killed (a bullet in the forehead) I wasn't more than three to four metres away. When you see a lot of people killed it's hard to remember details but his death I remember, maybe because it was so quick — it was instant. Our foxhole was hit by a burst of machine-gun fire. Davidson was killed and I was hit slightly in the arm and severely in the upper leg, breaking it. Shortly after that, I was knocked unconscious by an explosion (probably a shell burst). When I regained consciousness, it was getting dark and I was bleeding slightly from the eyes, nose and ears. My left arm was bleeding a lot more

and my leg hardly at all. Davidson's body was outside the hole and a German soldier was with me. He was very badly wounded in the chest and stomach and in bad shape.'

Those who survived the initial onslaught on Losheimergraben fought valiantly against the attacking Germans throughout the rest of that first day. Given the severity of the attacks against Company B, Captain Jim Graham of Company C sent two platoons south to reinforce the defence of the actual crossroads and ultimately, on the evening of the 16th, under two non-commissioned officers, Sergeants John C. Trent and John W. Hilliard, the 3rd Platoon moved into the basement of a house just east of the crossroads. There, they were joined by about 20 survivors from Company B who had escaped the vicious attack on their position that morning and had hidden in the forest until dark.

As the next day dawned, from the trees just east of the crossroads the enemy addressed the defenders in fluent English, using a megaphone: 'Attention soldiers of America. Please listen to me. You are cut off and there is no way to escape. Superior armoured units have surrounded all your regiments, you are alone and no one is left to



Sito's metal 'dogtags' stamped with his serial number (33728517), the dates of his tetanus jabs 1943/44 and his blood group 'B'. Normally, one tag would be left on the body while the other was sent to the Graves Registration Unit. Sito's buddies asked their captors if they could lift his body out of the hole in which he died. The Germans said that they would take care of it but evidently did not do so, hence the discovery of his remains 44 years later.

break through and get you out. You have fought well and you have done more than your country could expect of you. We are aware of your desire to save lives and we value lives also; save your lives and surrender!' The speaker offered the defenders five minutes in which to surrender but all he got in reply were several volleys of rifle fire.

During the night of December 16/17, Obersturmbannführer Jochen Peiper's 1. SS-Panzer-Regiment (Kampfgruppe Peiper) succeeded in penetrating the American lines south of Losheimergraben and by the morning of the 17th had captured Büllingen, effectively cutting 'Rollbahn C' to the rear of Colonel Douglas' 1st Battalion. This, combined with the deteriorating situation elsewhere, obliged the Americans to begin withdrawing toward the Elsenborn Ridge, leaving a token defense in position at Losheimergraben.

The attacking Germans pounded the crossroads and surrounding area heavily after which they moved in with infantry for the 'coup de grace'.

Yelling and screaming grenadiers arose from the snow and attacked the position in strength. Those in the front were dressed in white snow camouflage suits as they came in from all directions. Machine-gun fire from the surrounding woods supported the attackers; bullets sprayed through the windows of the building defended by the men under Sergeants Trent and Hilliard. To Hilliard, the attackers looked young, clean-cut and strong — just like most of his men. Under the continued pounding of German artillery and mortars, one of the Company B men who had joined Trent and Hilliard's men, put the muzzle of his rifle under his chin and pulled the trigger with his last round of ammunition. This may have served to end his misery, but it made the rest of the men sick. A Bf 109 flew over the area strafing and bombing the crossroads. Trent and Hilliard's mixed band of men braced themselves for the worst as the Germans started their ultimate assault against the building. As the Germans threw concussion grenades through the windows, Hilliard lunged at a nearby German with his bayonet and the lights went out — someone had knocked him out with a rifle butt. Upon re-gaining consciousness, Hilliard was lifted to his feet by two Germans and taken to another building. Losheimergraben had fallen.

The following day, December 18, Robert Muyres and the wounded German were still in the hole at the Company B position and could hear the distant sounds of small-arms fire. Four Germans eventually found them and took the wounded German away saying that they would return for Muyres: 'I think the German died, because after a few minutes (no more than 20) they came back to get me. They carried me a long way through the woods which were destroyed. The snow was very deep and the "ride" was painful, I fell off the litter several times. I still feel today what those four Germans did was outstanding.'



Pilgrimage to Europe. Richard Sito, accompanied by his wife, follows in his brother's footsteps to the long-lost grave.

Alphonse Sito's body lay exactly where he had been killed and in early January, 1945, his parents received the dreaded telegram: 'The Secretary of War desires me to express his deep regret that your son, Private First Class Alphonse M. Sito has been reported missing in action since eighteen December in Belgium [actually Germany]. If further details or other information are received you will be promptly notified. Signed Dunlop, Acting The Adjutant General Battle.'

A few days later, they received the standard letter stating that 'the term "Missing In Action" is used only to indicate that the whereabouts or status of an individual is not immediately known. It is not intended to convey the impression that the case is closed. I wish to emphasise that every effort is exerted continuously to clear up the status of our personnel. Under war conditions this is a difficult task as you must readily realise. Experience has shown that many persons reported missing in action are subsequently reported as prisoners-of-war, but as this information is furnished by countries with which we are at war, the War Department is helpless to expedite such reports.'



Sito's helmet is now displayed in the 99th Division section of the Soldiers' and Sailors' Memorial Hall in Pittsburg, Pennsylvania, the original home base of the division.



Ceremonial burial for 2nd Lieutenant Holloway at Fort Sam Houston in San Antonio, Texas, on September 7, 1991. He was commanding a mortar section in Company K of the 393rd Infantry and was listed as 'missing in action' on December 17, 1944. Today, thanks to the efforts of the 99th MIA Search Team, that designation has been changed to 'killed in action'.

On Thursday, September 29, 1988, Jean-Phillipe Speder and Jean-Louis Seel of the 99th MIA Search Team discovered human remains at the former Company B position east of Losheimergraben. Via the then-superintendent of the US Military Cemetery at Neuville-en-Condroz, they informed the Supervisor of US Memorial Affairs Activity Europe of their findings and arranged a preliminary meeting at the site.

Satisfied that this find constituted the remains of a Second World War US serviceman, the supervisor, Mr. Michael C. Tocchetti, labelled the case: 'Search and Recovery 5161 (X-9463)'. In a statement he declared: 'On 20 October 1988, a team of four (4) Military members and I went to the area, Search and Recovery #5161 (S&R 5161) (X-9463). The remains were recovered from a foxhole in a wood area of pines on a side hill overlooking a valley in what is now the town of Losheimergraben, Germany. The dog-tag marked with name "Alphonse M. Sito 33728517 T 43 44 B and C" was found around vertebrae; also a small St Christopher medal was on the chain. In the wallet, the other dog-tag with his information and the information of "Anna Sito, 2324 Fleet Street, Baltimore, MD" was found.'

Tocchetti's team then took the remains and artefacts to their laboratory in Frankfurt, Germany, from where they were then sent to the US Army Central Identification Laboratory at Fort Shafter, Hawaii (see *After the Battle* No. 66, page 47).

The list of items found with the remains included combat boots, rubber stamps, a toothbrush, penknife, rosary beads, wallet, St Christopher medal, plastic crucifix, comb and a piece of cloth marked 'S 8517'. (It was common practice for GIs to mark equipment with the first letter of their name and the last four digits of their serial number.)

On March 10, 1989, a board of officers appointed by the commander of the US Army Personnel Command, after considering all data presented, and the absence of any contradictory evidence, duly approved the identification of the remains as those of Private First Class Alphonse M. Sito. Forty-five years and one day after being killed in action at Losheimergraben, Sito was given a family burial in Saint Stanislaus cemetery in Baltimore, Maryland. On October 13, 1991, his brother Richard, accompanied by his wife, their son and his wife and child, visited Losheimergraben to see where Alphonse had been found.









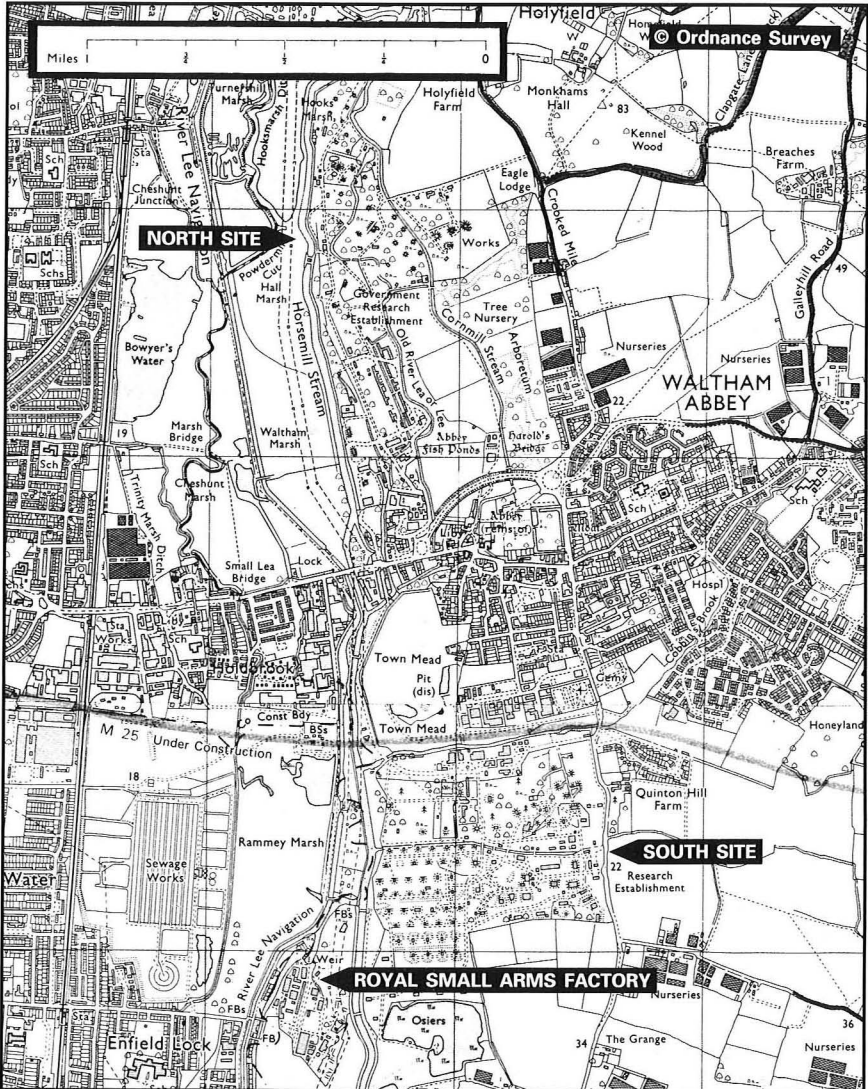
Miles 1 2 3 4 5 6 7 8 9 10

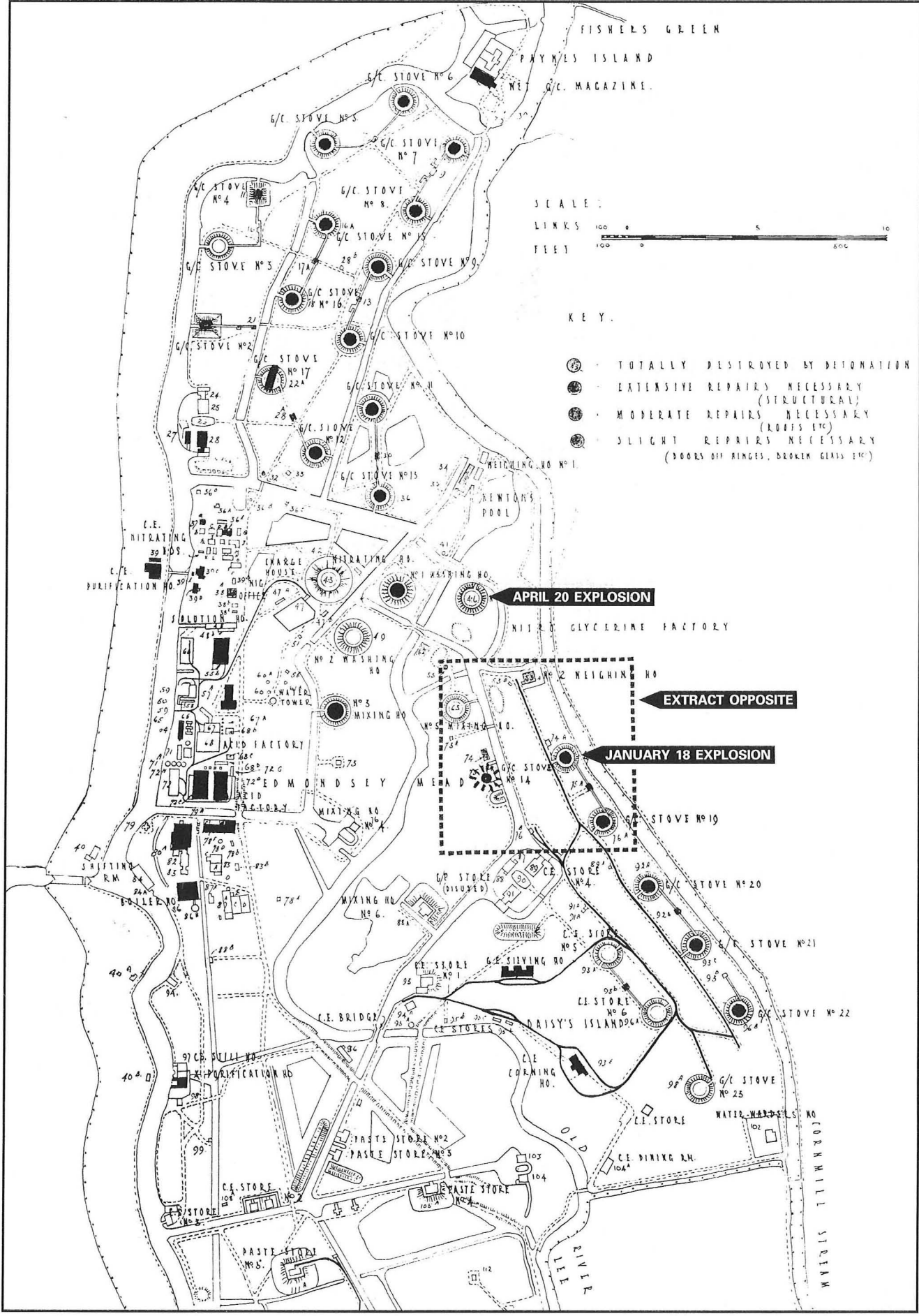
© Ordnance Survey

NORTH SITE

SOUTH SITE

ROYAL SMALL ARMS FACTORY





SCALE:
 LINKS 100 0 5
 FEET 100 0 500

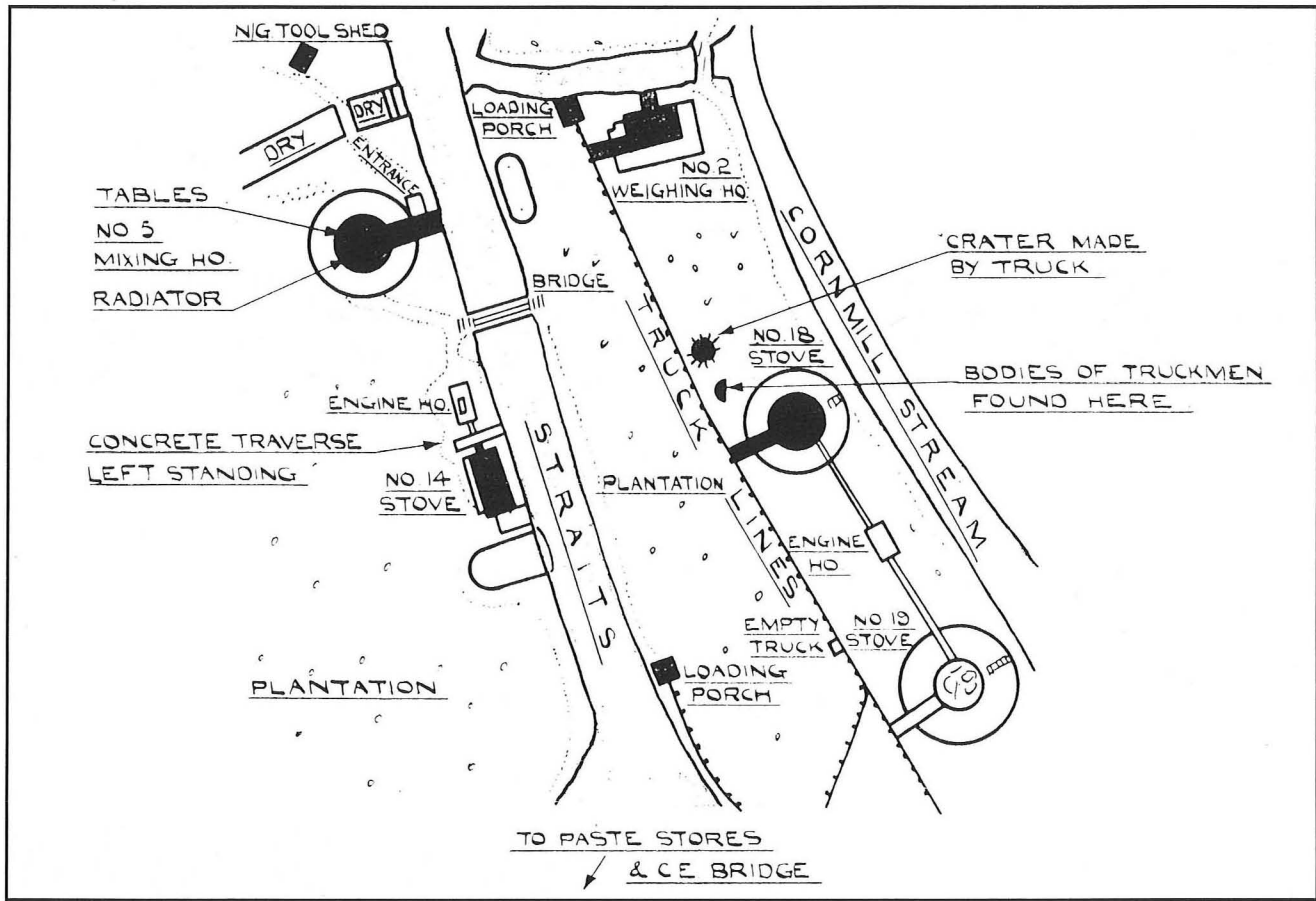
- KEY:
- - TOTALLY DESTROYED BY DETONATION
 - - EXTENSIVE REPAIRS NECESSARY (STRUCTURAL)
 - - MODERATE REPAIRS NECESSARY (ROOFS ETC)
 - - SLIGHT REPAIRS NECESSARY (DOORS OFF RINGERS, BROKEN GLASS ETC)

APRIL 20 EXPLOSION

EXTRACT OPPOSITE

JANUARY 18 EXPLOSION

The explosions which are described in this article took place on North Site where nitro-glycerine was manufactured.

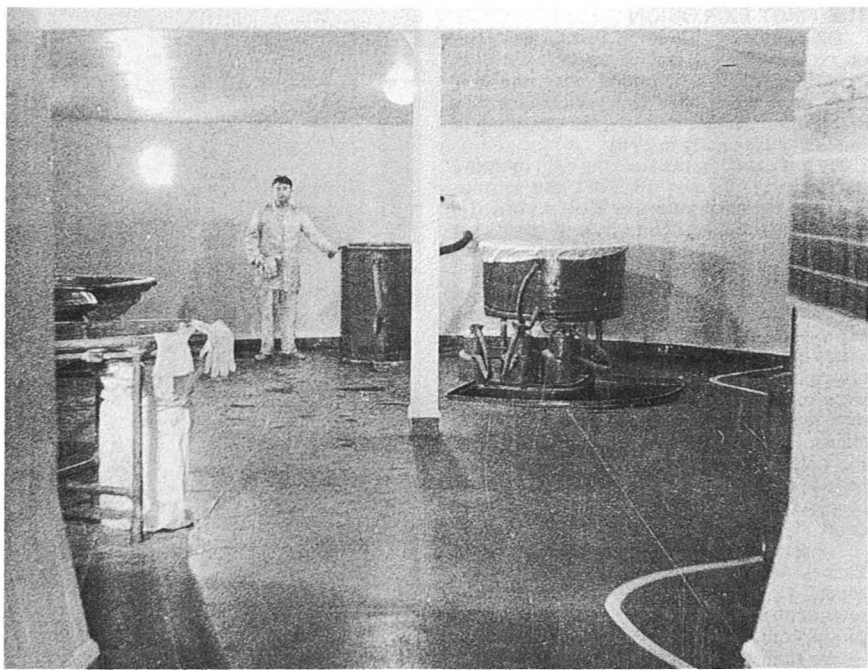


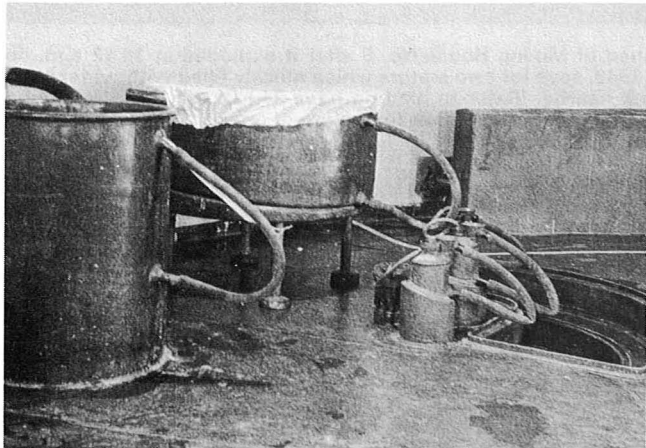
The plan of the North Site opposite was produced to illustrate the explosion on April 20, this enlargement being to cover the

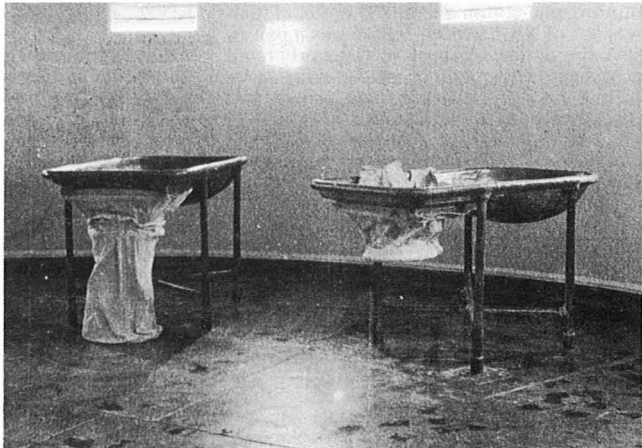
earlier accident on January 18. In both cases, they formed part of the Court of Inquiry findings as do the photographs. (PRO)

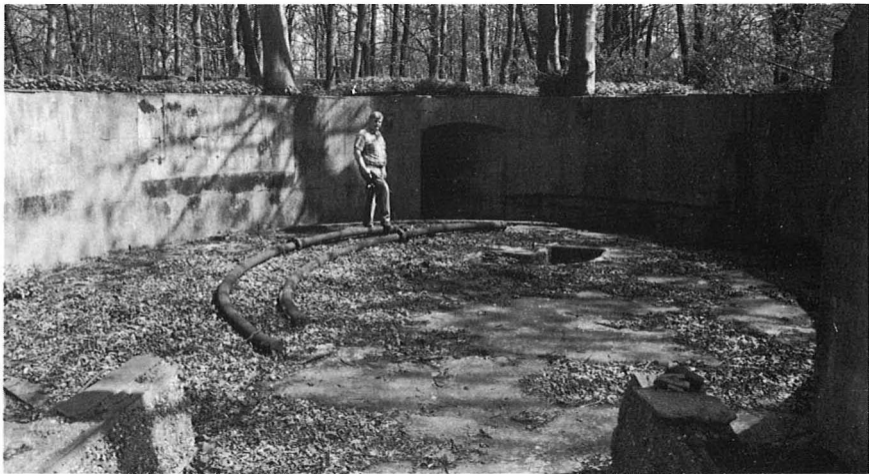






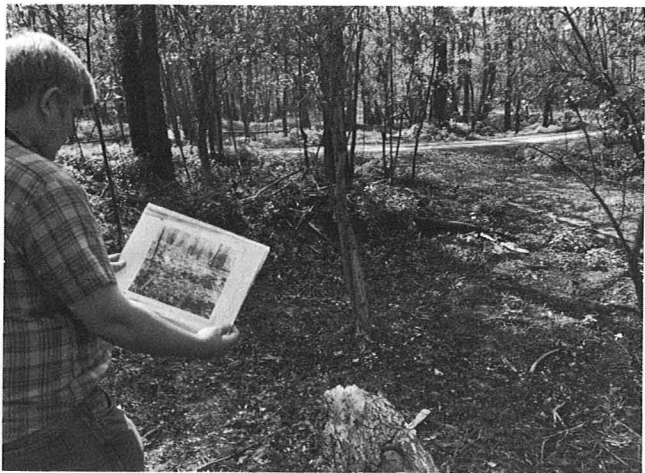




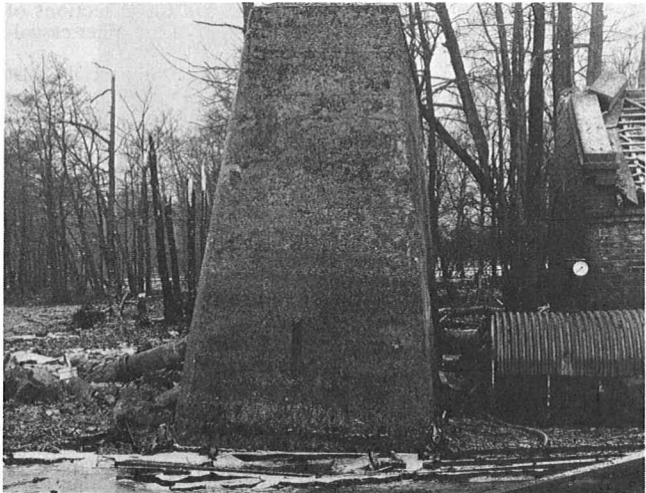
































































AFTER THE BATTLE



NORDHAUSEN

SINKING OF THE *BLÜCHER* Number 101



£3.10

AFTER THE BATTLE

NUMBER 101

Editor-in-Chief: Winston G. Ramsey

Editor: Karel Margry

Published by

Battle of Britain International Ltd.,
Church House, Church Street,
London E15 3JA, England

Telephone: 0181-534 8833

Fax: 0181-555 7567

E-mail: afterthebattle@mcmail.com

Printed in Great Britain by
Trafford Print Colour Ltd.,
Shaw Wood Way, Doncaster DN2 5TB.

© Copyright 1998

After the Battle is published quarterly on the 15th of February, May, August and November.

United Kingdom Newsagent Distribution:
Seymour Press Ltd., Windsor House, 1270 London Road, Norbury, London SW16 4DH.
Telephone: 0181-679 1899

United States Distribution and Subscriptions:
RZM Imports, PO Box 995, Southbury, CT, 06488
Telephone: 1-203-264-0774

Canadian Distribution and Subscriptions:
Vanwell Publishing Ltd., 1 Northrup Crescent, St. Catharines, Ontario L2M 6P5.
Telephone: (905) 937 3100 Fax: (905) 937 1760

Australian Subscriptions and Back Issues:
Technical Book and Magazine Company, Pty, Ltd., 289-299 Swanston Street, Melbourne, Victoria 3000.
Telephone: 663 3951

New Zealand Distribution:
South Pacific Books (Imports) Ltd., 6 King Street, Grey Lynn, Auckland 2. Telephone: 762-142

Italian Distribution:
Tuttostoria, Casella Postale 395, 1-43100 Parma.
Telephone: 0521 290 387, Telex 532274 EDIALB I

Dutch Language Edition:
Quo Vadis, Postbus 3121, 3760 DC Soest.
Telephone: 035 6018641

CONTENTS

NORDHAUSEN	2
IT HAPPENED HERE	
The Sinking of the <i>Blücher</i>	44
UNITED KINGDOM	
Royal Gunpowder Factory Sequel	49
FROM YOUR NEW EDITOR	52

Front Cover: The former underground V2 facility at Nordhausen reveals its secrets. (Deutsches Technik-Museum, Berlin)

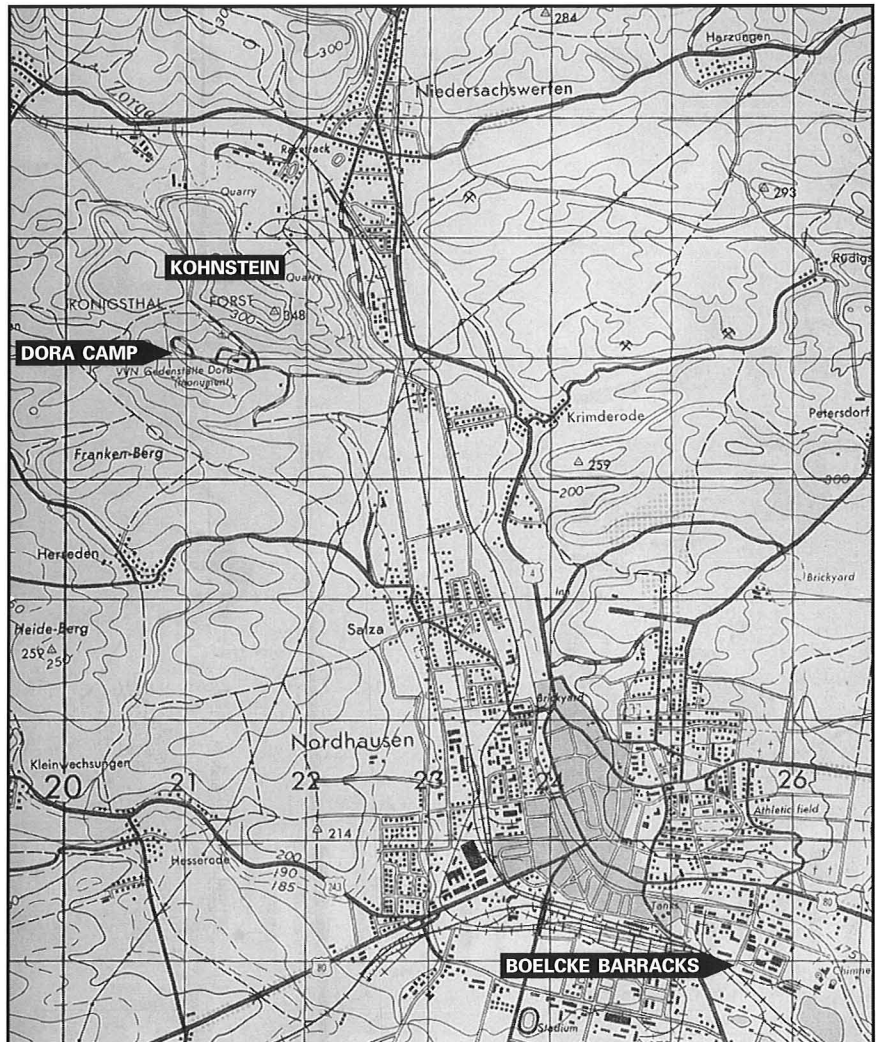
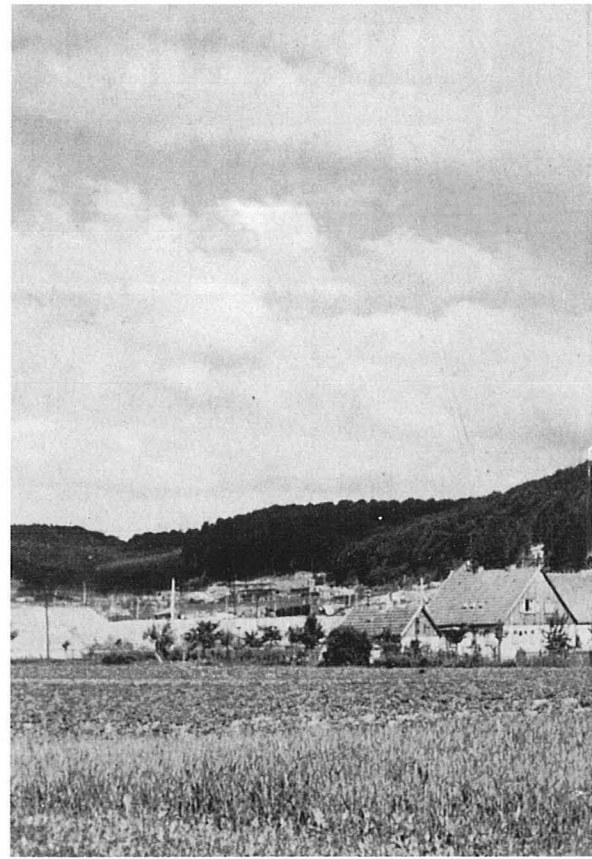
Centre Pages: *Left:* The sealed-up entrance to Tunnel A. *Right top:* The 'Dora' camp crematorium; *Bottom:* Camp hut reconstructed from parts of three surviving original buildings. (Karel Margry)

Back Cover: *After the Battle* authors, contributors and guests at the celebration to mark the publication of the 100th issue. (Steve Casely)

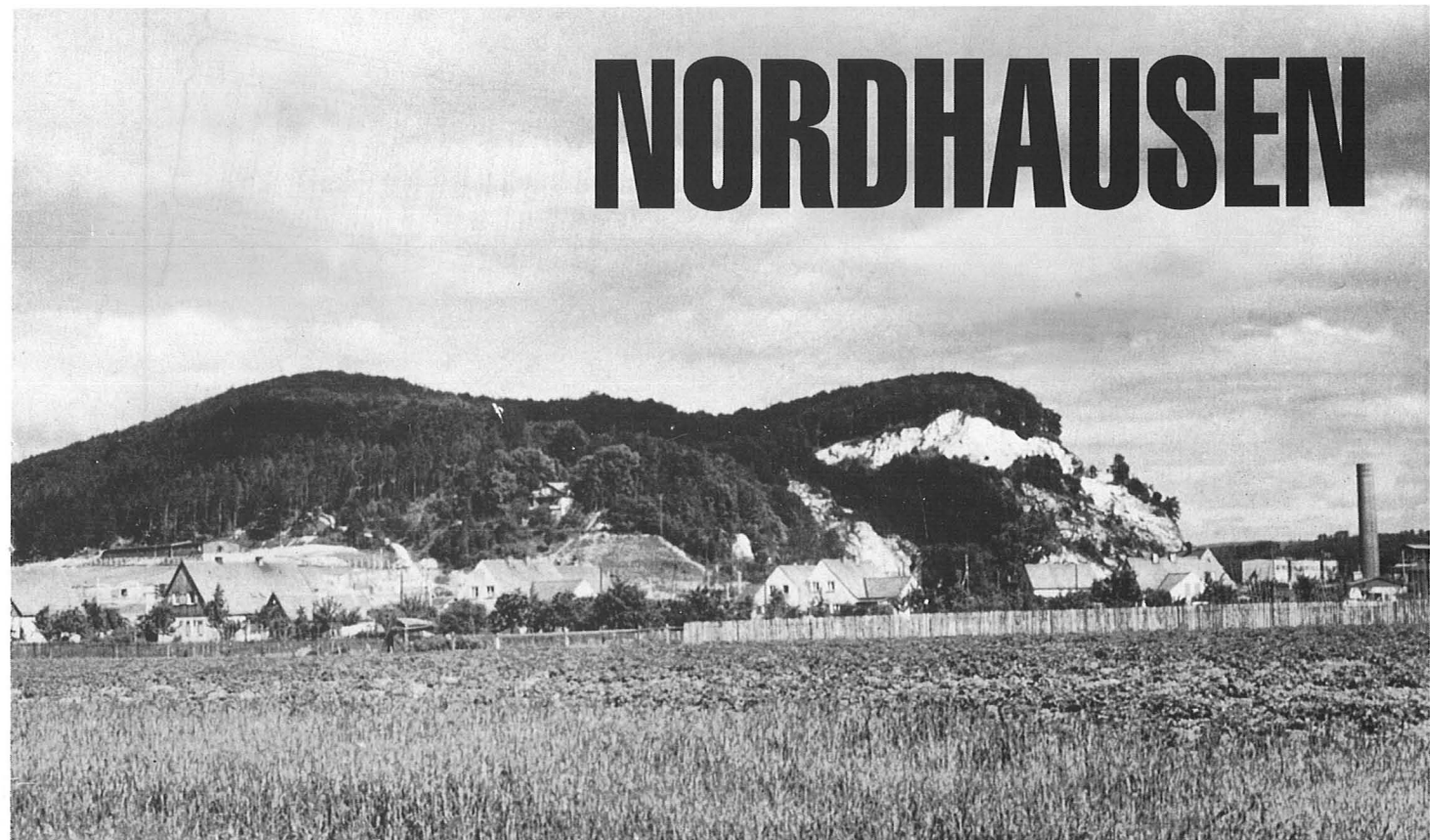
Acknowledgements: For help with the Nordhausen story, Karel Margry would like to thank Dr. Cornelia Klose, director; Herr Torsten Hess, historian; and Frau Christine Janischefski, archivist, of the Gedenkstätte Mittelbau-Dora; Manfred Bornemann and Fred Dittmann for permission to use the excellent maps drawn by them; and Percy Upton for the loan of photographs. Our very special thanks go to Alvin Gilens for allowing us to use the pictures he took inside the Kohnstein mountain.

Photo Credits: BA — Bundesarchiv. GSMD — Gedenkstätte Mittelbau-Dora. IWM — Imperial War Museum, London. RIOD — Rijksinstituut voor Oorlogsdocumentatie, Amsterdam. USNA — US National Archives.

In the history of Nazi concentration camps, and particularly labour camps, there is probably no place that bears the same stigma of wretchedness as 'Dora-Mittelbau' at Nordhausen. Nordhausen lies in the southern Harz mountains in central Germany. From 1943, when the Allied bombing offensive threatened to bring Germany's above-ground industrial production to a standstill, it became the centre of a whole complex of underground factories, the most important of which was the Mittelwerk in the Kohnstein mountain, which produced three of Germany's best-known secret weapons: the V1 flying bomb, the V2 rocket and jet engines for the Me 262 and Ar 234 fighter. With over 20 kilometres of underground galleries, it was the largest underground factory in the world. Some 20,000 slave workers were driven to extinction here to implement some of Germany's greatest wartime scientific experiments, but they laboured late and in vain, for the products they yielded had little impact on the war. The V1 and V2 are the only weapons which cost more lives in production than in deployment. Captured intact by the Americans in April 1945, the underground factory was handed over to the Soviets who proceeded to strip it clean and then, in 1948, sealed it by blowing up the entrances. After the war, former camp 'Dora' became an East German memorial site, but for nearly 50 years the underground galleries in the Kohnstein remained inaccessible. Now, with Germany re-unified, the Gedenkstätte has found a new life, and visitors can actually enter the tunnel system.



NORDHAUSEN



The Kohnstein lies just north-west of Nordhausen, and is actually closer to the village of Niedersachswerfen, which lies along its eastern face. A gypsum quarry was established here in the late 19th century, and decades of open-air mining had already radically altered the shape of the mountain by the time the secret underground factory moved in in 1943. This is how the

mountain looked from the south in early 1945. Niedersachswerfen is on the right, and the southern entrances to the tunnel system and camp 'Dora' can be seen below the tree line on the far left. (This picture was taken by the British scientific research team which surveyed the Mittelwerk after its capture by the Allies in April 1945.) (BA)

When in August 1943, the German rocket development centre at Peenemünde on the Baltic coast was destroyed by British bombers (see *After the Battle* No. 74), the transfer of V2 rocket series production to underground factories became acute. However, the decision to go underground had already been taken earlier.

Ten months before, on October 3, 1942,

the V2 (also known as Aggregat 4, or A4) had made its first successful launch at the Heeresversuchsanstalt (HVA — Army Experimental Station) Peenemünde. On December 22, Hitler approved a plan submitted by Albert Speer, his Minister for Armament and Ammunition, for the setting up of an experimental series production of 500 V2s to be produced at Peenemünde and

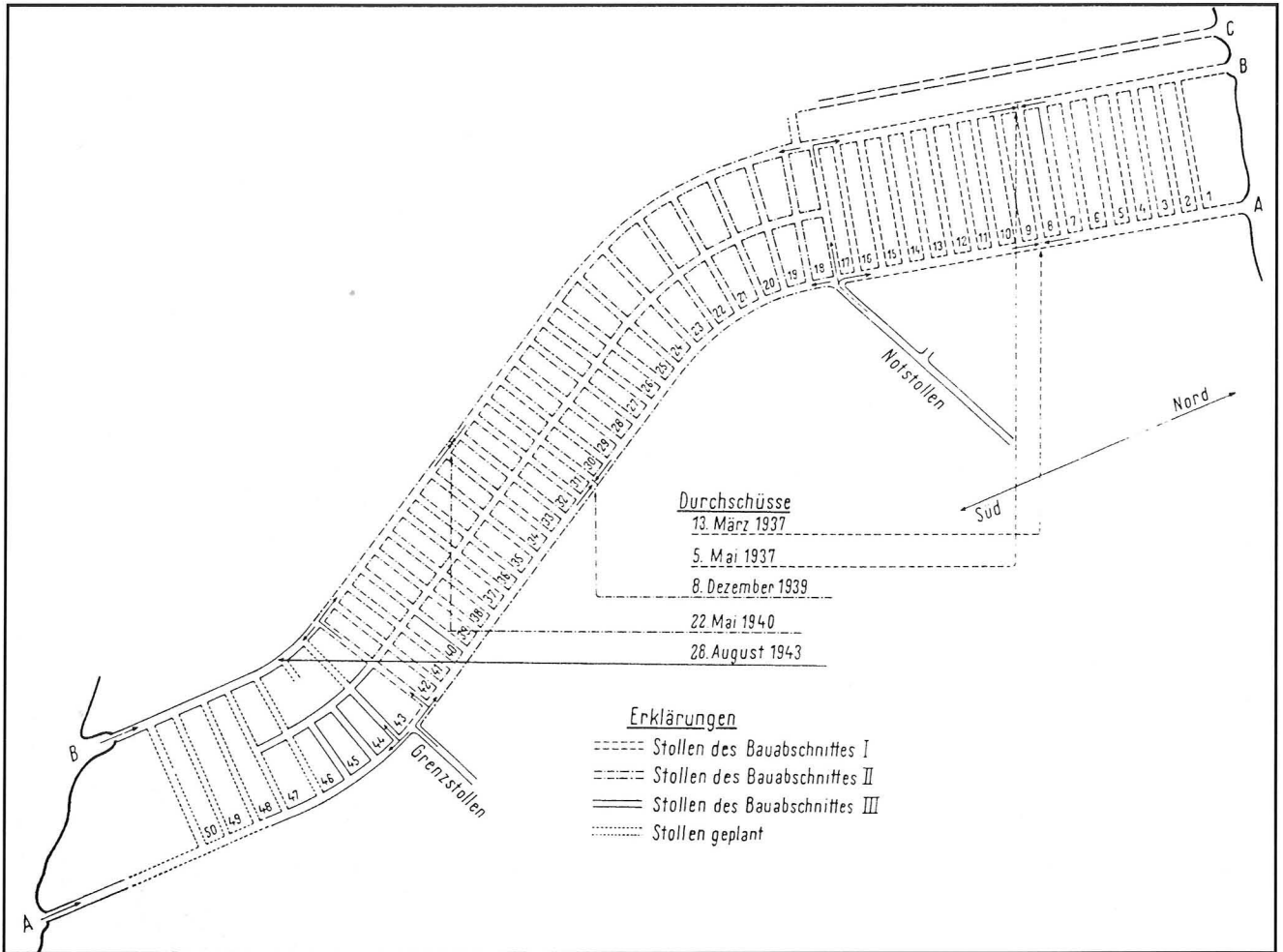
By Karel Margry

at the Zeppelin works at Friedrichshafen. On January 15, 1943, Speer appointed Gerd Degenkolb, an energetic manager who had proved his mettle in locomotive production, to head a Sonder-Ausschuss A4 (A4 Special Committee) to carry out this order.



The photographer stood just outside the hamlet of Krimderode, about halfway between Nordhausen and the mountain, near where the village road crosses the Harz-Querbahn (the narrow-gauge railway which runs right across the

Harz mountains from Nordhausen 60 kilometres north to Wernigerode). Note that the mountain has seen spectacular further changes in the decades since 1945, the entire eastern (right) half having now fallen victim to continued quarrying.



Within his Special Committee, Degenkolb created several 'working committees' each charged with taking care of a specific part of the task at hand, and coordinating the efforts of the Peenemünde technicians and the supply industry. There were seven logistical and supply committees: Raw Materials, Oxygen, Workforce, Deliveries, Transport, Building Projects, and Installations & Assets; two rocket technical committees: Fuselages and Electrical Equipment; and one Production Planning committee. The latter, led by Detmar Stahlknecht, was based at Peenemünde, Raw Materials was in the Ruhr area, all others had their headquarters in Berlin.

Oberst Walter Dornberger, the chief of the Rocket Development Section in the Heereswaffenamt (Army Ordnance Department) who had led the Army's rocket programme since 1933, soon grew unhappy with the new set-up as he thought the rocket production could best remain under complete Army control and, furthermore, could only succeed if given a top priority status. But he had no choice but to go along.

In April, Degenkolb raised the V2 production target from 600 a month at two production sites (Stahlknecht Programme) to 900 a month in three places: at Peenemünde, at Friedrichshafen, and at the Rax locomotive factories in Wiener-Neustadt (Degenkolb Programme). The reason for spreading production was to make it less vulnerable to air attacks, but Degenkolb already realised that the best solution was to create underground factories. Feverishly, his Special Committee, the Heereswaffenamt and the HVA Peenemünde began scouting Germany and occupied Europe for a suitable site for such a factory. The risk of above-ground production was brought home on June 22, when the RAF bombed the Friedrichshafen works, paralysing V2 production there.

What later became the V-weapon underground factory was initially designed as a secret storage facility for Germany's strategic oil and lubricants reserve. Planning on the ladder-shaped complex was begun in 1934 by a state-controlled company named the Wirtschaftliche Forschungsgesellschaft (Wifo), and tunnelling proceeded in three phases. The first phase (1936-37) saw completion of the first 18 galleries; the second (1937-40) brought it as deep as Gallery 42; and the third (1941-43) had only reached Gallery 45 when, in July 1943, the Wifo was forced to evacuate the fuel depot to make room for production of the V2. (Map drawn by Manfred Bornemann.)

Two days before, on June 20, Hitler had stipulated to Speer that the V2 programme was now more urgent than all other armament programmes, a top priority which was confirmed after Dornberger (newly promoted to Generalmajor) and his chief engineer, Wernher von Braun, had presented the new weapon in a personal interview with Hitler at the Wolfsschanze on July 7. Finally, all industrial resources of the Reich would become available for rocket production.

Until now, rockets had been a concern of the armed forces and the armaments ministry. However, on July 10, Reichsführer-SS Heinrich Himmler, who for a long time had been looking for an opportunity to get a finger into the rocket programme, convinced Hitler that he should be put in charge of security against espionage and sabotage of the V2 project. It was the first step in a development that would eventually give the SS complete control of the whole rocket programme.

Meanwhile, the search for underground facilities continued. Then, around the middle of July, Paul Figge, chief of the Deliveries Committee, heard in Kassel about a giant underground oil depot in the Kohnstein mountain at Niedersachswerfen near Nordhausen in the southern Harz region in central Germany. Figge at once travelled to Nordhausen to inspect the facilities, and immediately saw that it was exactly what the rocket planners had been looking for.

Lying north-west of Nordhausen and west of Niedersachswerfen and rising steeply from the countryside, the Kohnstein is composed almost entirely of limestone (anhydride) and gypsum (calcium sulphite), soft stone which lends itself to mining easily. On its northern and eastern sides, vertical white cliffs rise 120 metres high. On top of the limestone lies a thin layer of the harder dolomite, which in turn is covered by loam. Several forest-covered tops crown the mountain: the Kohnsteinkopf (332m), Hoher Kopf (348m), Gängerkopf (316m) and Birkenkopf (300m). Three valleys — the Höllental, Gängertal and Siebental — cut it steep flanks.

Quarrying at the Kohnstein had begun as early as the 1870s. Gypsum is a prime component for the production of synthetic ammonia, which itself is a prime component for the production of nitrogenous fertilizer and, more important in wartime, nitrogenous explosive. In 1916-17, the Badische Anilin- & Soda-Fabrik established a gypsum factory at Niedersachswerfen to supply its newly-built ammonia factory at Merseburg. Open-cast mining was begun, deliveries being some 32,000 tons in 1918, rising to 82,000 the following year.

After World War I, with the complete fusion of the eight major paint-producing factories in Germany into the huge IG Farben GmbH in 1925, the Gipswerk Niedersachswerfen factory became part of that concern. Production rose steadily, reaching

1,244,000 tons in 1928, but dropping dramatically after 1930 to about a third of that as a result of the economic depression. The quarry never regained the high production volumes of the 1920s, for ammonia-based fertilizers were increasingly replaced by other types of fertilizers. By 1935, some 11 million tons of lime and gypsum, and 2 million tons of waste, had been mined, representing a total of 4.3 million cubic metres of earth moved. The waste had been dumped in the Gängertal, completely filling up the valley and changing the north-eastern face of the Kohnstein massif.

In 1934, one year after the Nazis came to power, the IG Farben and the Deutsche Gesellschaft für öffentliche Arbeiten (German Company for Public Works — an organisation of the Ministry of Economics) jointly founded the Wirtschaftliche Forschungsgesellschaft (Economic Research Company — Wifo) as an organisation to secure the supply of strategic raw materials in case of war. One of its projects was the creation of an underground central fuel depot (Zentrales Kraftstoff-Lager). Looking for a suitable site, the IG Farben proposed to the Wifo to dig tunnels into the Kohnstein. The geological conditions made tunnelling easy, the site was well connected to the German traffic system, and the project was financially advantageous to both parties: sharing the cost of tunnelling, the Merseburg factory would get its lime cheap, and the Wifo its underground depot at a lower cost. The new depot was named the Wifo-Aussenstelle (sub-works) Niedersachswerfen.

All that existed at that time at the Kohnstein quarry was an emergency gallery (Not-Stollen) and a boundary gallery (Grenz-Stollen) further east. Initial Wifo plans called for two galleries to be dug parallel, with a single storage gallery to connect the two. In August 1936, the Wifo engineer appointed to direct the project, Karl Wilhelm Neu, proposed a much larger scheme: to deepen the two parallel tunnels enough to create 18 connecting galleries — the tunnels would serve as transport roads, the galleries as the fuel storage rooms. Digging would proceed from two directions, both from the tunnel entrances and from the deep end of the emergency gallery.

Work began in June 1936. Using a workforce of 400 miners, it progressed smoothly, the eastern main gallery (Tunnel A) being shot through on March 13, 1937, and the western one (Tunnel B) on May 5. Lateral galleries were blown through as the tunnels proceeded. All galleries were rectangular, 9 metres wide and 7 metres high. In all, 260,000 cubic metres of stone (780,000 tons of limestone) were removed.

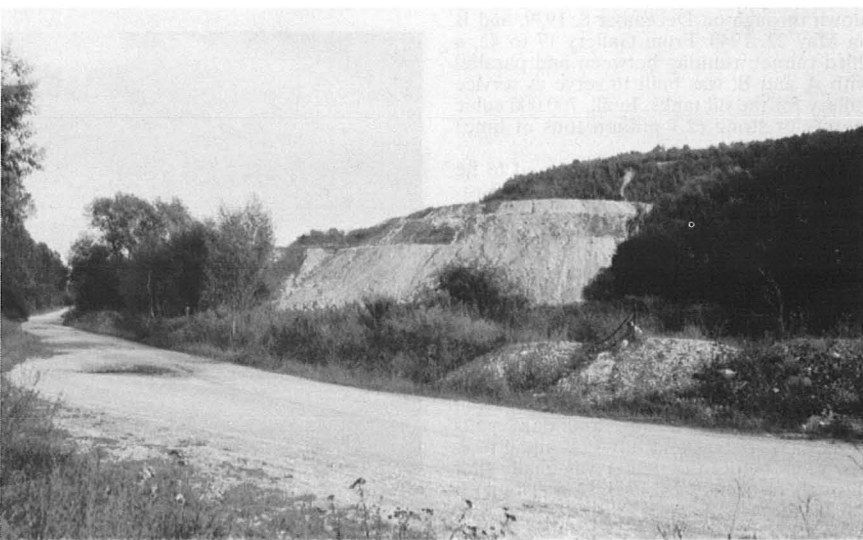
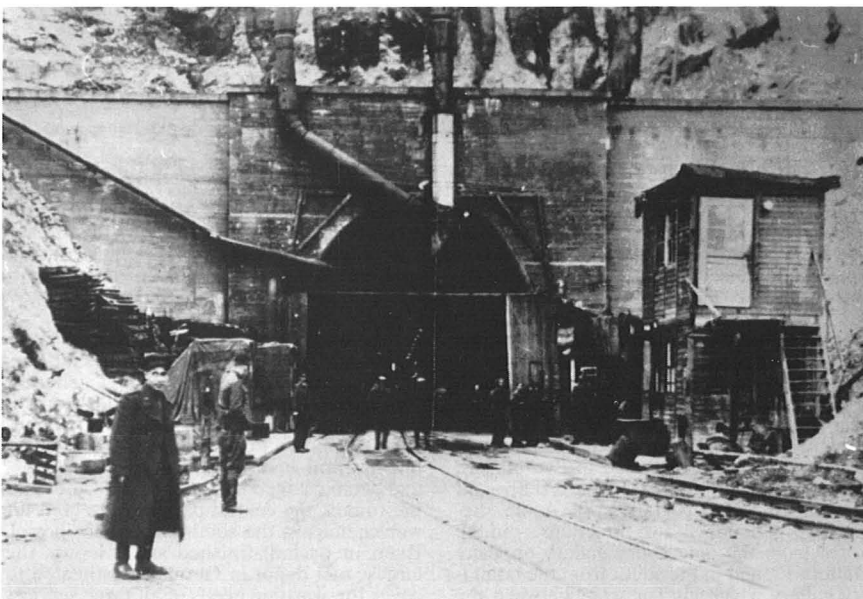
To preclude condensation, it proved necessary to install ventilation equipment. Fresh air from three ventilation shafts was first dried in a six-furnace central heating installed in Gallery 1 before being blown into the tunnels. An air outlet shaft was installed at the deep end. On completion, Galleries 2-18 soon became filled with thousands of oil drums containing the fuel reserve of the Third Reich.

A double-track railway was built into the tunnels to connect the fuel depot with the main rail system. To create office space and housing for its personnel, the Wifo built a small settlement of two office blocks and, by 1943, 20 houses just outside Niedersachswerfen. Another Wifo project at Niedersachswerfen was a cement factory, built in 1940 on the east side of the Kohnstein, between the mountain and the main railway.

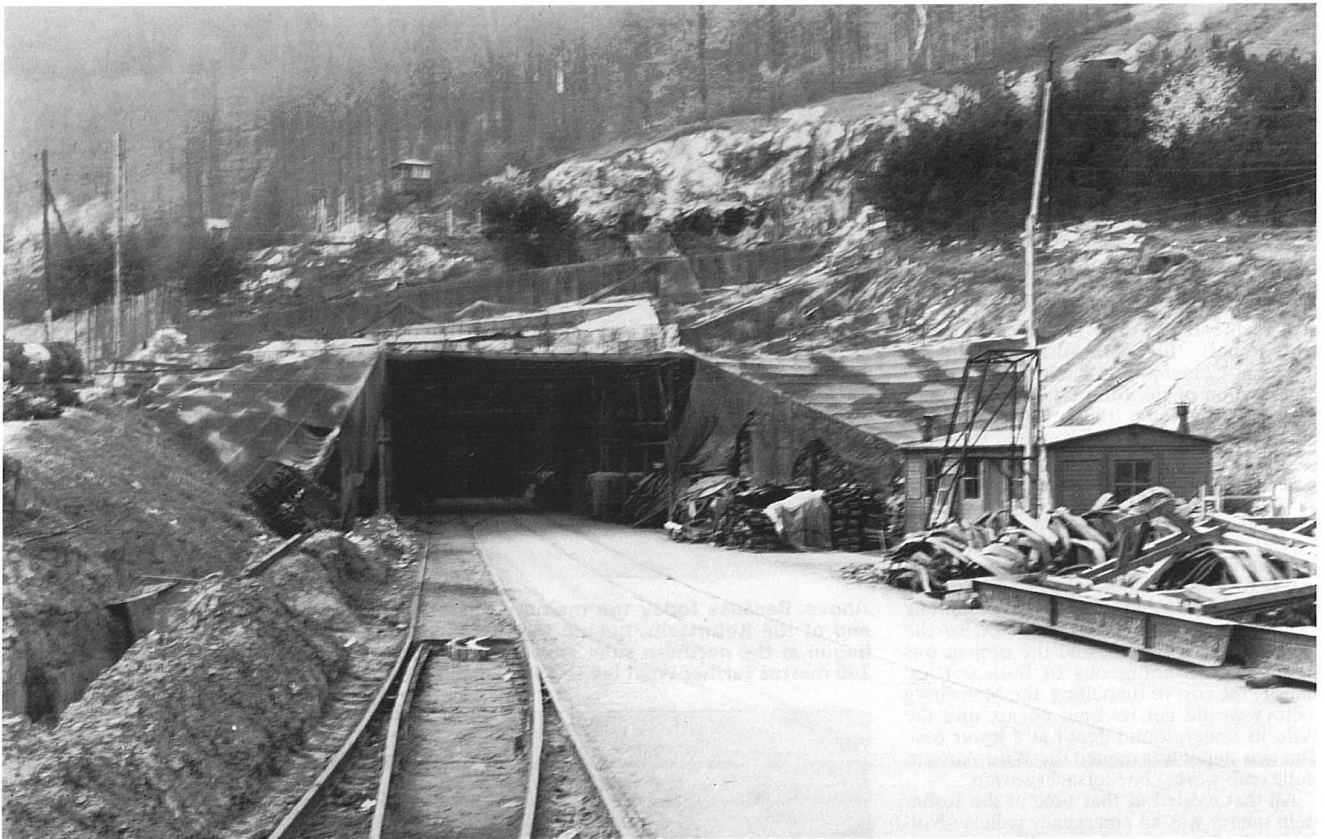
Even before the drum depot (Wifo I) was ready, plans were made to extend the tunnel complex right through to the southern end of the mountain. The two parallel main tunnels, both some 1,800 metres long and running in a soft 'S' form, would have a total of 50 lateral galleries, each between 150-200 metres long.



Above: Because today the memory of Dora-Mittelbau is kept alive at the southern end of the Kohnstein, people tend to forget that the tunnel complex was initially begun at the northern side. This is the northern entrance to Tunnel A. *Below:* Some 200 metres further west lay the entrance to Tunnel B. (GSMD)



Today, both northern tunnel entrances have completely disappeared under a wall of waste stone dumped here by the Niedersachswerfen gypsum quarry.



The first tunnel to run all the way through the mountain was Tunnel B, and it was only pushed through on August 28, 1943 — just when the Wifo fuel depot was moving out and the Mittelwerk V2 factory moving in. It then became the tunnel where the V2 production line (which ran from north to south) was set up. This is how the southern entrance of B looked at the end of the war. (The railway points in the foreground help to differen-

tiate this tunnel from Tunnel A — compare with plan on page 12-13) Camouflage has been put up to hide the tunnel from observation from the air. The small hut on the right was the sick bay for the slave workers in the early months of the Mittelwerk, at the time when these unfortunates were working (and living) underground and before the camp hospital was ready. Note the watchtowers on the slope above. (USNA)

Instead of the stacks of oil drums in Galleries 2-18, the new galleries would each hold two huge 80-metre-long oil containers, each with a capacity of one million litres. To encompass the tanks, the galleries would be circular, with a diameter of 11 metres.

The extension proceeded in two phases, named Wifo II and Wifo III. Wifo II brought the tunnels as far as Gallery 42. Again, digging proceeded from two directions — in the north from the emergency gallery opposite Gallery 17, and in the south from the boundary gallery which hit Tunnel A between the planned Galleries 42 and 43. Tunnel A was blown through on December 8, 1939, and B on May 22, 1940. From Gallery 17 to 42, a third tunnel, running between and parallel with A and B, was built to serve as service gallery for the oil tanks. In all, 700,000 cubic metres of stone (2.1 million tons of lime) were removed.

The final stretch, Wifo III, proved to be the most difficult. The geological composition at the southern end of the Kohnstein made the risk of collapse much greater, and the Wifo had to call in a specialist firm to do the work. Tunnelling could now only proceed using scaffolding and wood lining, and galleries had to be secured with concrete walls. They would have a vaulted profile of 9 metres wide and 6.5 metres high. Because of the risk it was decided to begin with completing one tunnel, Tunnel B, again digging from two sides. It was a slow and dangerous process. Work began in July 1941 and it took two years before the tunnel was finally shot through, on August 28, 1943. Now, Tunnel B ran all the way through the mountain, with entrances on both sides.

By then, Tunnel A had progressed as far as Gallery 45; a southern entrance for it had been begun; the service tunnel running

parallel with A and B had advanced as far as Gallery 47; and the eastern half of Galleries 43-45 been completed. Of the 42 galleries, Nos. 2 to 16 contained some 15,000 tons of oil and lubricants in barrels (i.e. over 15 million litres); two huge tanks, each containing one million litre of hydrogen-superoxide, had been installed in Gallery 17. Further into the tunnel, the central part was reserved for war chemicals, the southern part for petrol. Even in its half-finished state, it was the largest fuel depot in Germany, estimated to cover the wartime needs of all three services for two years.

This then was the situation when Paul Figge discovered the Wifo complex in July 1943. (The man who had first told him about it was probably company director Radtke of the Nordhausen steel firm of MABAG; Radtke was a member of the Armaments Committee in Berlin and he knew the Wifo depot because his firm had installed the underframes for the oil drums there.) Soon after, Figge brought Degenkolb and his executive Heinz Kunze to see for themselves. Shortly after, Dornberger also inspected the site. At first, both the Armaments Ministry and the Heereswaffenamt independently



Blown up by the Soviet Army in 1948, this is what the southern entrance to Tunnel B looks like today.



Although its southern entrance was already begun in 1941, Tunnel A was not finally opened all the way through until January 1944, the last 300 or so yards having been dug, under undescrivable misery and hardship and virtually with their bare hands, by concentration camp slaves. After August 1944,

this end of Tunnel A became the exit for the V1 factory which had been set up in the galleries closest to it, Nos. 43-47. This explains the pile of typical V1 wire-wound compressed-air bottles on the left, and the wooden V1 trolley in the foreground. (USNA)

tried to take over the depot for rocket production, Speer's ministry even going so far as to attempt to completely buy up the Wifo. The Wifo resisted strongly, pointing out the strategic importance of the fuel depot. They enlisted Reichsmarschall Hermann Göring who, in his capacity as President of the Reich Research Council, intervened willingly on their behalf, because he was jealous of the priority which Speer's projects got over those of the Luftwaffe.

However, in late July, Hitler decided that the Wifo was to evacuate the depot and that the tunnel complex be made available for V2 production. A contract was soon negotiated, the Armaments Ministry renting the com-

plex for RM 1 million a month (later lowered to RM 500,000), and taking over equipment and personnel at a fixed price per day.

To organise the move to Nordhausen and set up the production line there, Degenkolb created two new working committees: Transfer (a subordinate of Figge's Deliveries Committee), and Series Production, the latter led by Albin Sawatzki, an engineer from the Henschel works who had proved his worth in series production of the Tiger tank.

That same month, July 1943, Karl Otto Saur, leader of the Technical Department in Speer's ministry and Degenkolb's chief, suddenly and to everyone's consternation announced that instead of Degenkolb's plan

to produce 900 V2s a month, the target would be raised to 2,000 a month to be produced at Peenemünde, Friedrichshafen, Wiener-Neustadt and Nordhausen (Saur Programme). In addition, he wanted a monthly production of 20,000 to 25,000 V1 flying bombs (officially known as the Fi 103). All involved judged this plan far too ambitious.

However, this grandiose scheme was soon overtaken by events. On August 13, American bombers severely damaged the Rax works at Wiener-Neustadt (they were to have bombed the nearby Messerschmitt aircraft factories, but hit the more conspicuous Rax buildings instead). Five days later, on the night of August 17/18, the RAF hit Peenemünde. Although neither the V2 development section nor the V2 assembly lines (where series production was planned to start in September) were decisively hit, the raid made clear that the enemy had discovered the secret of Peenemünde. With all three above-ground production sites now bombed, and probably kept under close surveillance by the enemy, the move to underground factories had become a matter of utmost urgency.

On August 19, one day after the Peenemünde raid, Speer reported to Hitler at his Wolfsschanze FHQ to report on the damage done by the raid and discuss plans to move production to Nordhausen. The conferences on this lasted until the 22nd. Himmler and Saur were present and when Speer mentioned that a major handicap was the lack of sufficient labour to set up the underground factory, Himmler saw his chance to really get into the V2 programme. He offered to supply the workforce from concentration camp inmates, and to use them both to get the underground factory ready in minimum time and for series production itself. He guaranteed complete secrecy since the prisoners



Like its twin, Tunnel A was closed by demolition by the Soviets in 1948.

would be completely shut off from all contact with the outside world. Hitler approved.

Efforts between the A4 Special Committee and the SS-Wirtschafts- und Verwaltungshauptamt (SS Main Department for Economic Administration — the authority administering the concentration camps) were quickly coordinated. Degenkolb charged SS-Brigadeführer Hans Kammler, the young and ruthless chief of the WVHA's Amtsgruppe C (Building Construction), with carrying out the order. Already on August 27, just one week after Hitler's decision, the first group of 107 camp inmates was sent from Buchenwald to Nordhausen, followed by a second of 1,223 on September 2.

On September 21, within a month of the FHQ conference, Speer's ministry (newly renamed the Reich Ministry for Armament and War Production), and Kammler formally founded the Mittelwerk GmbH (Central Works Ltd) as the company running the underground factory. Appointed managing director was Dr Kurt Kettler who, like Degenkolb, had made his name in locomotive production.

The contract signed between the Wifo and the Mittelwerk on September 6 stipulated that the actual work, i.e. the completion of the underground facilities, would continue to be directed by the Wifo staff, since they already possessed the technical knowledge and experience for this specialist work, and using the same civil industrial and mining firms. The only change was that the orders would now come from the Mittelwerk GmbH, and that the majority of the workforce would now be composed of concentration camp inmates. The jobs at hand were: completion of the Wifo phase III tunnels; removal of the Wifo dump from the Kohnstein; transformation of the tunnel complex to a production-line factory; construction of road and railway connections; building of a huted camp for the labour force.

Detailed plans were drawn up listing exact requirements for the factory as regards electrical power, heating, ventilation, supply of water and compressed air; the precise division of the 97,400 square metres of underground floor space and the specific function assigned to each underground gallery; the number of workers needed (planned at 2,000 Germans and 16,000 slave workers).

The actual V2 assembly line, 1,502 metres long, would be set up in Tunnel B, with component parts being produced in workshops installed in the side galleries. Tunnel A would serve as supply street for the workshops and factory, a roadway and a double-track railway traversing the whole length of the tunnel.

Though both were huge operations in every aspect, the transfer to the new location, and the new underground factory itself were to be kept totally secret, and so a large number of code-names, false addresses and nondescript field post numbers were created to conceal the location and purpose of the new factory. The company name 'Mittelwerk' (Central Works) reflected the factory's location in central Germany (there were also plans for a Nordwerk and an Ostwerk), but did not give a clue as to its activities. The company's mail went via a post office box at Halle/Saale, 60 miles distant. 'Mittelraum' was the code-name given to the area around Nordhausen where the company deployed its activities. 'Mittelbau' was the term for the construction projects undertaken in the Mittelraum (in time, it also came to be used as an alternative to Mittelraum, i.e. a geographical designation). 'Dora' was the name for the main camp housing the slave labourers for the Mittelraum projects. In charge of security measures, and also appointed camp commander of 'Dora', was SS-Sturmbannführer Otto Förschner (as of October 5, he was also nominated Mittelwerk managing director on a par with Kettler).



The monastery buildings at Ilfeld, three miles north of the Kohnstein, where both the A4 Special Committee and the Mittelwerk company set up their headquarters.

On August 21, Hitler had stipulated that the three original V2 factories should continue to produce rockets while the underground factory was being built up; the target was to manufacture 900 a month above-ground and 900 underground. Then, in early September, he changed his mind and decided that all 1,800 should be produced at Nordhausen. All personnel and machines of the other factories were to be transferred to Nordhausen forthwith so as to speed up completion of the factory there. However, on October 8, at a conference between the Heereswaffenamt, the A4 Special Committee and the Mittelwerk, the production target was lowered to the much more realistic figure of 900 a month, and this was the figure mentioned in the top-secret formal rocket production order issued by the Oberkommando des Heeres (Army Supreme Command) on October 19. The OKH order commissioned the Mittelwerk to produce a total of 12,000 rockets, with a monthly delivery of 900 at RM 40,000 a piece (total price RM 480 million). By the same order, the Mittelwerk took over all the rights, obligations, and outstanding orders of the factories which had been involved in rocket production until then. (In the autumn of 1944, the Mittelwerk would also formally absorb the Wifo-Aussenstelle.) Although the precise financial details remained to be worked out, this did not hamper the start of production, both because of the project's top priority and because the Armaments Ministry guaranteed payments.

One by one, the various organisations involved moved to the Nordhausen area. First to open office, on September 1, in a hut next to the tunnel entrance, was Sawatzki's Series Production Committee (Sawatzki was nominated the Mittelwerk's Technical Director). Other committees found space in requisitioned inns and cafes in Niedersachswerfen and Wernigerode. The Mittelwerk commercial section took over the offices of the Wifo housing settlement. The former monastery complex at Ilfeld, just three miles to the north, which since 1940 had housed the Napola (National Socialist Cadre School) Ilfeld, was taken over to become the Mittelwerk company headquarters and seat of the A4 Special Committee. The huge complex also served as billets and reception centre for German civilian personnel. (In early 1944, the Special Committee would move to Rübeland in the central Harz, the commercial section moving to take over its offices at Ilfeld.)

However, little care was given to accommodating the slave labourers. As long as the huted camp was not yet ready, they were to live in the underground complex itself, deep inside the mountain — which meant that those inmates assigned to work in the tunnels would not get to see any daylight at all, and this sometimes for weeks on end. At first, the prisoners were assigned to Gallery 39, a room covering an area of 1,800 square metres. All they were given were a few carbide lamps, latrine buckets, and straw and blankets to sleep on. From October, a prisoner carpentry squad was ordered to build multi-storied wooden bunks in the newly-shot-through Galleries 43 to 46. With some 6,000 prisoners cramped into them, these four rooms — 120 metres long by 12 metres wide and 9 metres high; dark, damp, cold, and separated from the main tunnels by wooden and canvas walls — became a veritable hell on earth. Even with men from night and day shifts alternating a bunk, there was not nearly enough space for everyone. The three- and four-storied bunks could hardly carry the weight and sometimes collapsed, killing many inmates. The only lighting came from weak lamps hung widely apart. Beyond Gallery 18 no ventilation, water or heating had yet been installed, and the atmosphere in the galleries was decidedly unhealthy. Every explosion set off by the tunnellers at work almost next door filled the whole rooms with a blinding, suffocating dust. Sanitation was catastrophic. The prisoners had to use improvised latrines, made up of halved oil drums with a plank on top. Set up in Tunnel A in alcoves opposite the galleries, they filled the deeper tunnels with a terrible stench and were a source of deadly infections. Every evening, a prisoner squad had to load the barrels on train wagons and empty them outside. There was no washing or drinking water, and prisoners quenched their thirst with moist on the walls or water lapped up from mud; some used urine to wash the dust off their bodies. As food, the prisoners only received Ersatz coffee and bread, with an occasional slice of sausage or margarine added to it, in the morning and thin soup in the afternoon and evening. Dysentery, tuberculosis and other diseases ran rampant.

The work itself was exhausting and dangerous. Driven on by SS guards and Kapos (prisoners with authority over fellow inmates), constantly beaten and kicked, many were soon reduced to living wrecks. Some went mad. Most work was done



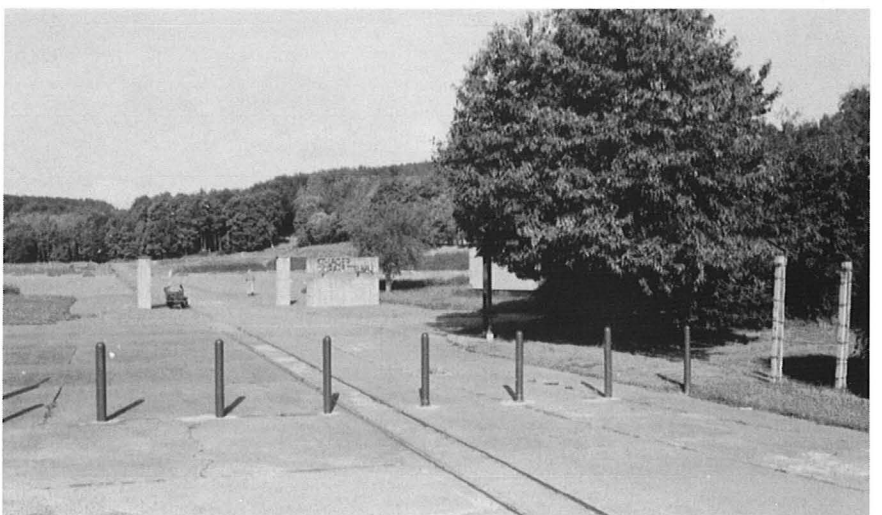
Another part dug by the slave prisoners was Gallery 46 or, to be more exact, the eastern half of it (the western half was never begun). This was one of the four galleries (Nos. 43-46) used, between October 1943 and June 1944, as living quarters for the prisoners — where thousands squatted in semi-dark-

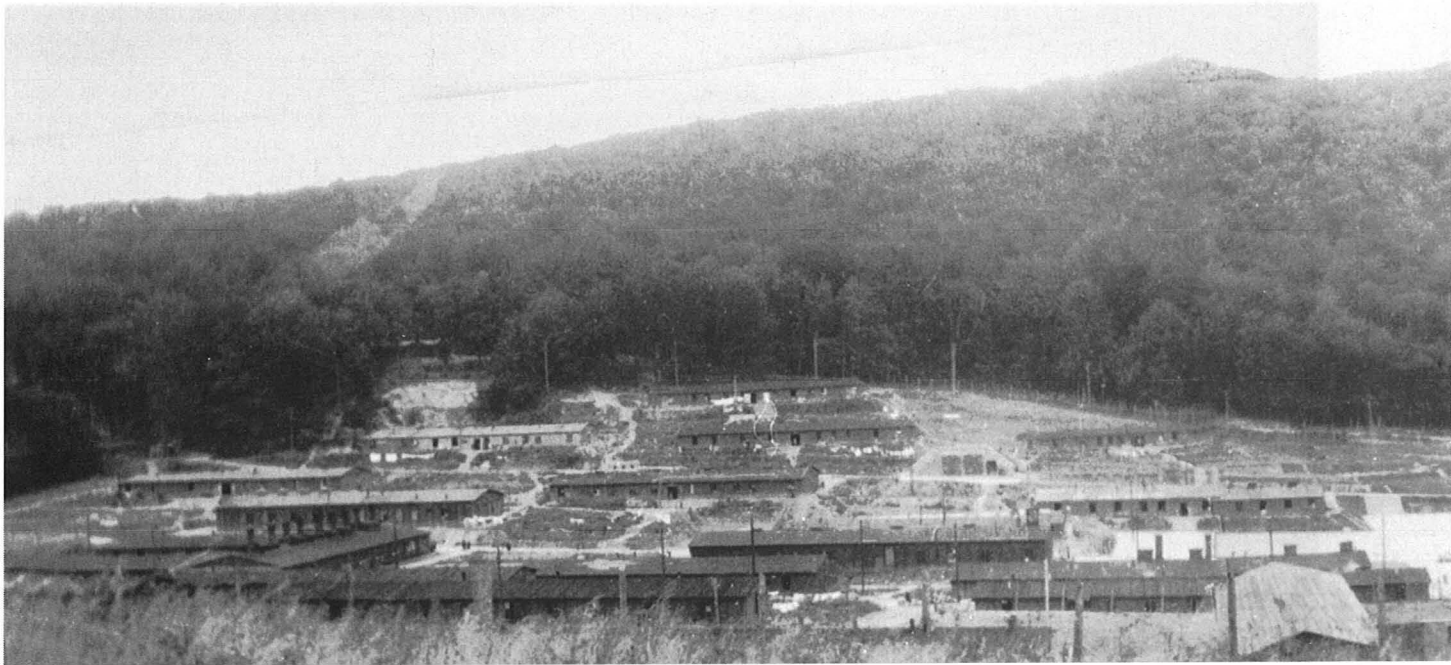
ness in overcrowded, four-tiered bunks which reached as high as the ceiling, and scenes of unimaginable suffering and dying took place. Later, Gallery 46 became one of the five where V1 series production took place. Today, it is one of those that can be viewed by visitors of the Mittelbau-Dora Memorial.

manually. Even the rocks broken loose by blasting were removed by hand. Mining accidents were frequent.

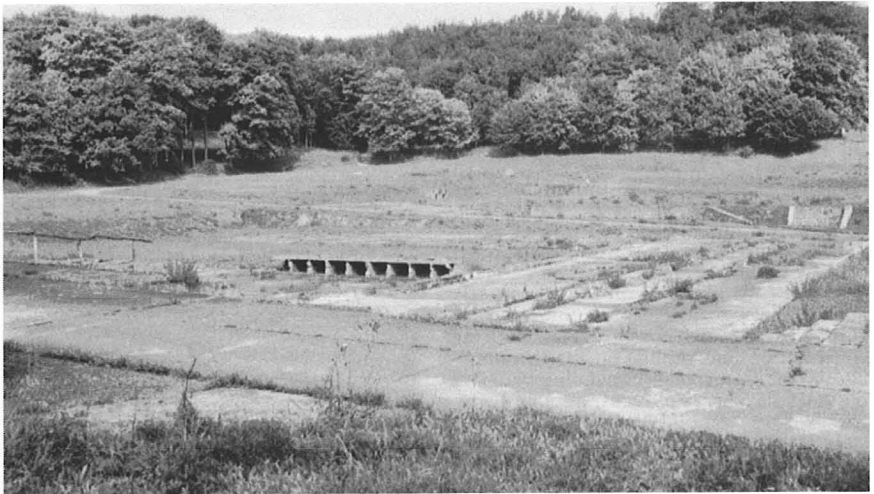
In 12-hour shifts, the slave workers, overseen by civilian engineers, worked on many different jobs: pushing through Tunnel A and galleries beyond No. 42; levelling the circular galleries 25-42 with debris; pouring concrete; drilling ventilation shafts; removing the oil barrels and dismantling the giant oil tanks; laying train tracks; installing electric wiring, pipe systems, transformer stations, water pumps, and machinery; camouflaging the tunnel entrances and creating phoney rail complexes for deception at both mountain sides; building office huts at the site, and billet huts at Ilfeld and Harzungen (40 huts in all); and a thousand other jobs.

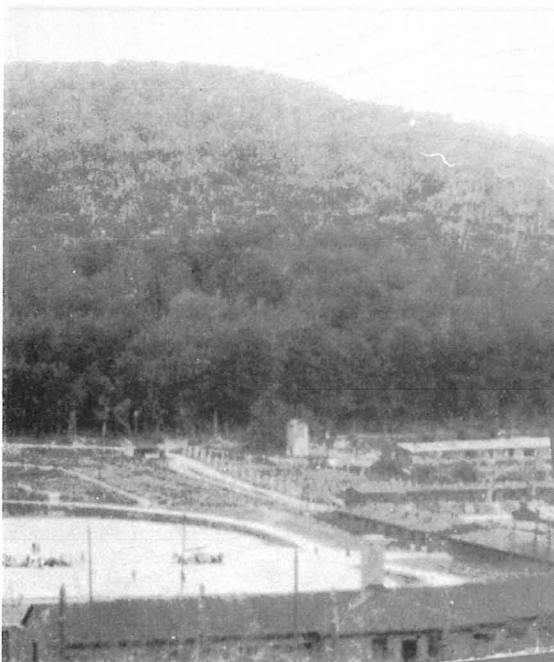
Right: Simultaneously with the work on the tunnels, the slave workers had to build their own concentration camp on the southern slopes of the Kohnstein. Named 'Dora', it was originally a sub-camp of Buchenwald, but in October 1944 it became an independent main camp. 'Dora' was the last of the large concentration camps created by Nazi Germany. The early camps built in the 1930s, like Dachau, Buchenwald (see *After the Battle* Nos. 27 and 93) or Sachsenhausen, were all given big, stone gate-buildings, all of similar design and meant to impress both inmates and public opinion. However, by 1943, the SS no longer bothered about these, and camps like Belsen (see *After the Battle* No. 89) and 'Dora' were built without one. Moreover, 'Dora' was a totally secret camp, not meant to be seen by anyone not involved in the Mittelwerk project, so there was no need for an imposing gate-house. Its entrance was merely flanked by two wooden huts, the one seen here (Block 29) housing the Gestapo section, and the one opposite (Block 1) the SS camp administration. (GSMD) *Below right:* Today, only the rail track — which connected the camp with the nearby goods-train station — remains.





Above: The camp as seen from the southern slope of the valley in which it lay. The two gate huts seen in the previous picture are on the far right, with the Appellplatz (roll-call square) adjoining them, and the various camp blocks stretching out to the left. The low building visible in the right foreground is the camp prison. The crematorium can be seen hidden in the woods on the far slope on the left. (GSMD) **Below:** The same panorama today. **Right:** After the war, the camp was virtually razed to the ground, stone buildings being demolished and wooden huts being removed. In GDR times, only the central part of the camp — the open space from the Appellplatz to the coal shed (Block 19) — was made into a memorial site, the rest being made inaccessible to visitors. Of the foundations that were thus left to be seen, the largest was that of the U-shaped camp kitchen (Block 10).





In addition, the slave labourers built their own concentration camp. Located less than a kilometre from the southern exit of Tunnel B on the sloping edge of a valley, in its final form it comprised 56 living huts, 3 administrative huts, 12 economic huts, 2 bath houses, a hospital area of 10 huts, a crematorium and a prison block ('the bunker'); improvements in the summer of 1944 included a water cistern, canteen, cinema, sports ground, and even for a while a prisoners' bordello, the latter frequented mainly by Kapos and foremen. The entire compound was surrounded by an electrified wire fence and 18 guard towers. The SS compound of 25 buildings included a Kommandantur and administrative block, 6 barrack blocks for 900 guards, 5 living blocks for SS personnel, 4 economic blocks, a hospital, horse stable, garage, canteen, and a bordello.

Also open to inspection in GDR times was one of the two water reservoirs.



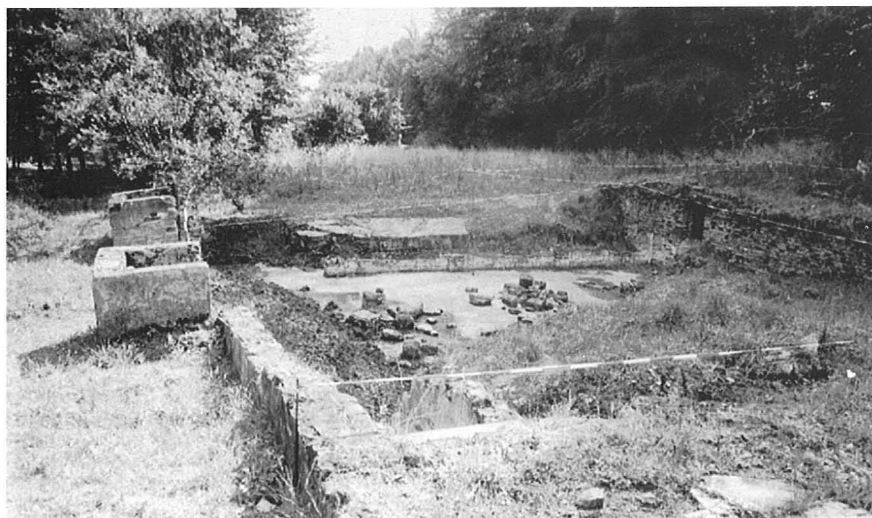
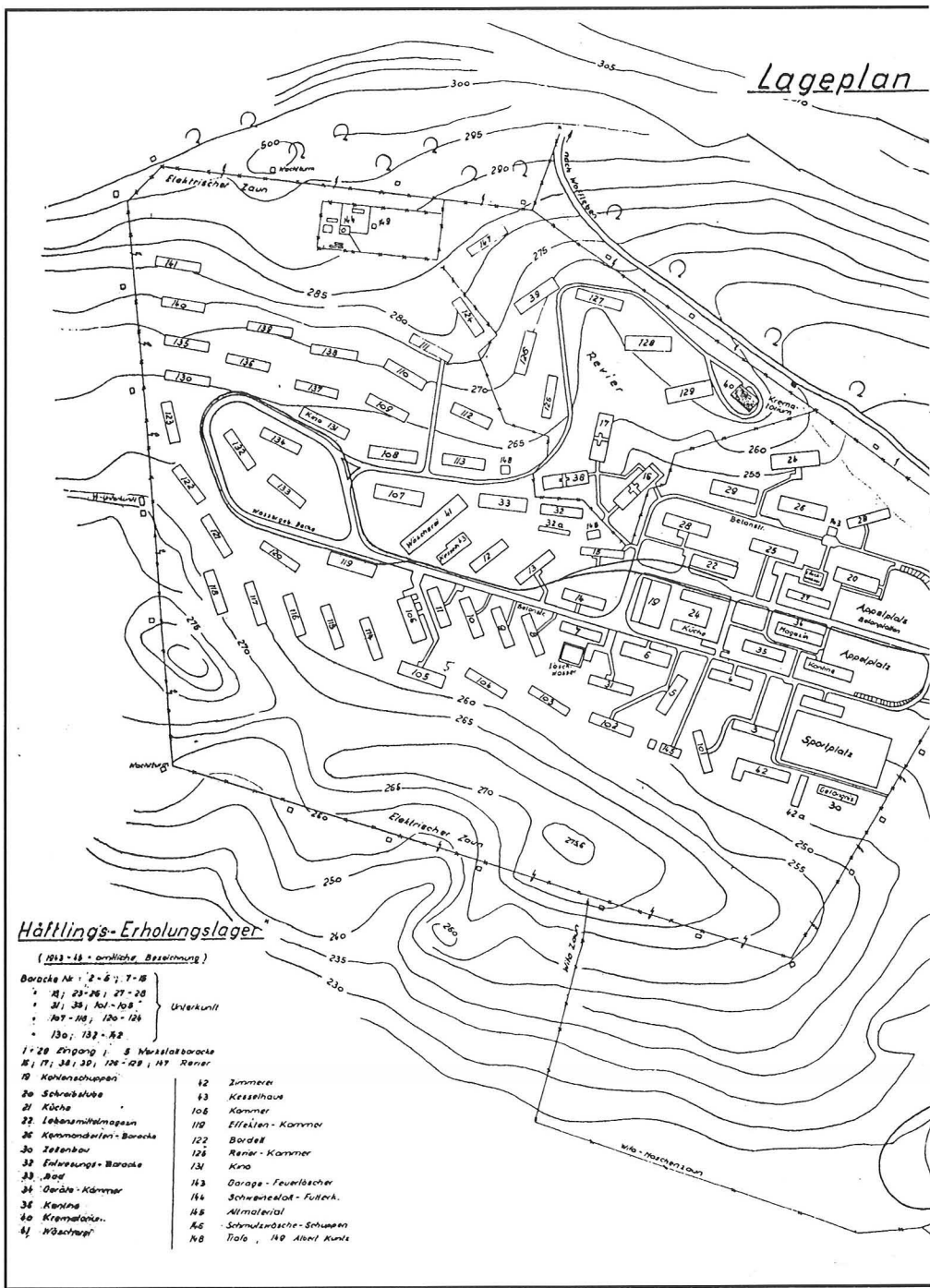
However, hidden under the trees and gradually disappearing under the undergrowth, remained the foundations of all the other buildings. Now, with the demise of the GDR, the Memorial staff have been able to change this too. Since 1991, with the help of youth volunteer camps, one by one the remains of huts and buildings are being excavated and laid bare again. This is the camp laundry (Block 41).



The delousing station (Block 32). During a delousing action, prisoners had to hand in their clothes and wait outside naked, in all weathers, while these were being disinfected. If that was not bad enough, their garments would be returned still wet from the cleaning, making the risk of catching a cold or pneumonia even greater. Delousing was ineffective anyway, because inmates from disinfected huts worked together with occupants of huts which had not yet been treated.

Lay-out of the camp and the adjoining SS compound as it was in its final form in 1945 (Tunnels B and A are on the right). (GSMD)

Prisoners' Camp	
Living huts	Blocks 2-4, 7-15, 18, 23-25, 27-28, 31, 35, 101-105, 107-118, 120-124, 130, 132-142
Hospital	Blocks 16-17, 38-39, 125-129, 147
Camp administration	Block 1
Gestapo office	Block 29
Statistics office	Block 20
Workshops	Block 5
Coal shed	Block 19
Kitchen	Block 21
Tool shed	Block 22
Bordello	Block 26
Prison	Block 30
Delousing station	Block 32
Baths	Block 33
Storehouse	Block 34
Canteen	Block 36
Crematorium	Block 40
Laundry	Block 41
Carpenter's workshop	Block 42
Metal workshop	Block 42a
Boiler-house	Block 43
Clothes storage	Block 106
Storage	Block 119
Cinema	Block 131
Fire-brigade	Block 143
Pigsty/Fodder store	Block 144
Re-usable materials	Block 145
Dirty laundry shed	Block 146
Transformer-station	Block 148
SS Camp	
Kommandantur	Block 65
Camp command	Block 75
Administration	Block 54
Officers' quarters	Block 59
NCOs' quarters	Block 58
Other ranks' quarters	Blocks 51, 53, 56-57, 63-64
Sick-bay	Block 52
Clothes storage	Block 55
Storehouse	Block 60a-60b
Mess	Block 60c
Drivers	Block 61a
Garages	Block 61b
Stables	Block 61c
Gardener	Block 61d
Greenhouse	Block 61e
Transformer-station	Block 62
Baths	Block 66
Kitchen	Block 69
Guard dogs	Blocks 70-71
Bordello	Block 73



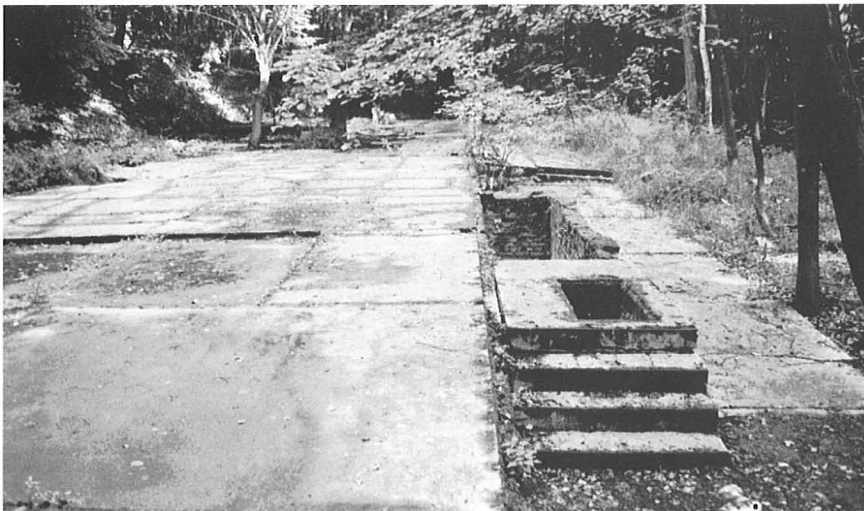
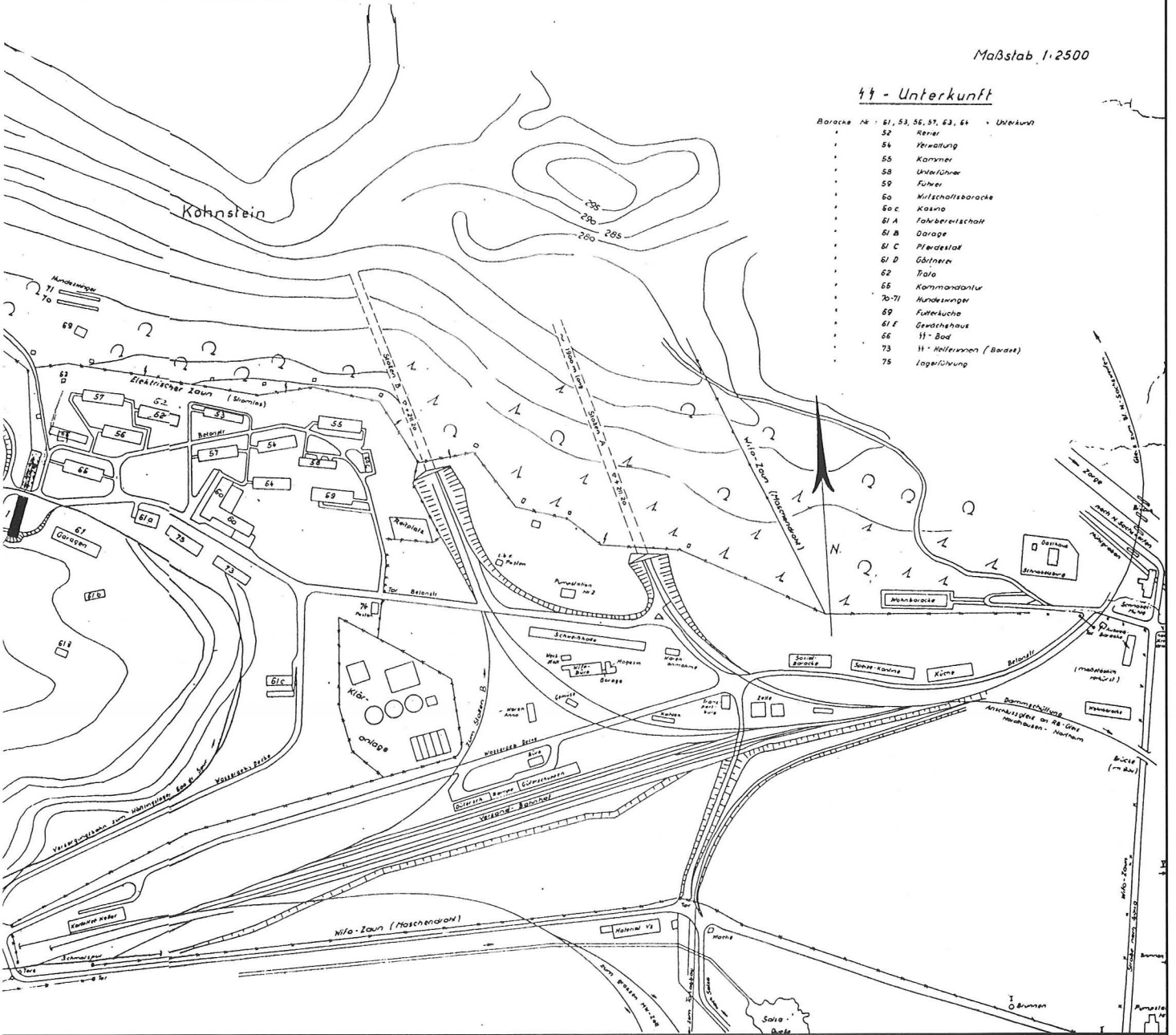
Left: Block 119, the Effektenkammer (storage building). On arrival at 'Dora', prisoners had to hand in all their personal possessions which were then stored here. However, most inmates had been at Buchenwald before and already been robbed clean there, so the majority arrived with very little of their own. Prisoners assigned to the Effektenkammer-Kommando had therefore relatively little to do, and were thus considered lucky. Right: Block 125, one of the camp's ten hospital huts (and one of the few camp huts with a basement). Originally, Dora's Krankenrevier (sick-bay area) was small but, as the number of sick and injured inmates rose, it expanded, eventually encompassing a special section of ten huts, separated from the rest of the camp by a barbed-wire fence. Since the SS, for fear of contagious diseases, tended to avoid the hospital area, it was able to become a centre of the prisoners' resistance organisation.

über das ehem. Konzentrationslager „Dora“

Maßstab 1:2500

44 - Unterkunft

- Baracke Nr. 51, 53, 55, 57, 63, 64 - Unterkunft
- 52 Keller
- 54 Verköllung
- 55 Kammer
- 58 Unterführer
- 59 Fuhrer
- 60 Milchschloßbaracke
- 60c Kasino
- 61 A Fahrbereitschaft
- 61 B Garage
- 61 C Pferdewerk
- 61 D Gärtnerei
- 62 Toilette
- 65 Kommandantur
- 70-71 Hundescheune
- 69 Futterkuche
- 61 F Gewächshaus
- 66 St-Bad
- 73 St-Helferinnen (Baracke)
- 75 Lagerführung



Each unearthed foundation is now marked with a mirror plaque giving the block number.



Left: Block 131, the camp cinema. Built in the summer of 1944, it had 200 seats. At a ticket price of 30 Pfennig, prisoners could watch selected movies and newsreels here. However, from

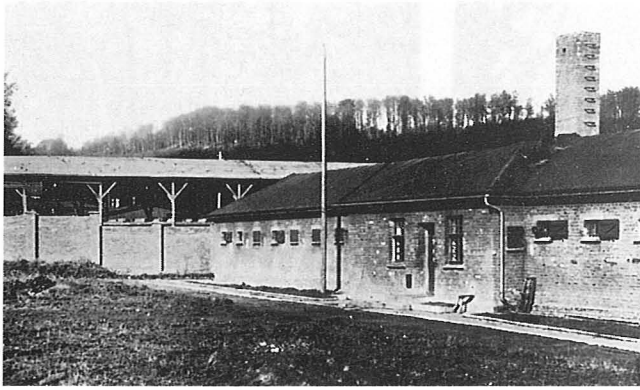


January 1945, the building was used to house prisoners evacuated from other camps, up to 1,200 being crammed into it. *Right:* The camp's second water cistern.

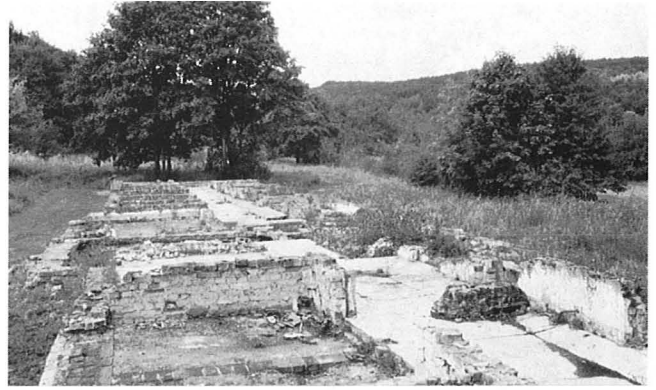


Above: In this picture, taken in 1946 (when the camp housed German refugees), the same reservoir can be seen in the lower right corner. The huts in the foreground are Blocks 7 and 8, with 13 in the middle distance, and 32 (the delousing block) and 33 (the bath-house) above that. Each prisoners' block divided into a sleeping compartment with a number of two-tiered bunks and an eating compartment with tables and stools. The huts were well supplied with heating appliances and sanitary facilities with running water. (GSMD) *Right:* Today, there is again a wartime hut on the grounds of the 'Dora' Memorial. This particular specimen was in fact constructed from the best-preserved parts of three original huts found surviving in different places in the region around Nordhausen (where they had been taken and used for various purposes after the war). Rebuilt in 1995 on one of the valley terraces, on the site of the former Block 28, it now houses the Memorial's new exhibition.

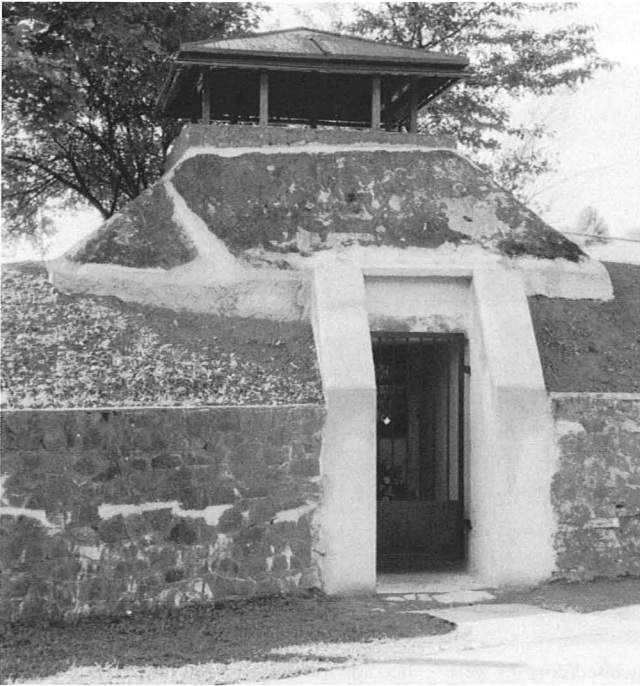




Left: The camp prison (Block 30), also known as 'the Bunker'. A stone building in a remote corner of the camp (note the wall hiding it from view), it contained some 30 cells of 2½ square metres each, in which sometimes up to 16 prisoners were confined at a time; an interrogation room, where prisoners were



beaten up and tortured; and a cellar which the camp SS used as an air-raid shelter. The large building in the background is Block 42a, the metal-workshop. (GSMD) *Right:* The remains of the prison, laid bare with the help of youth volunteers from various school educational projects in 1997.



Left: During the time when 'Dora' was a GDR memorial, the only other intact building, apart from the crematorium, said to be original was this concrete structure located in the south-east corner of the camp. For years it was known as the 'Steinbunker' (standing bunker), purportedly a one-man prison cell used for isolation punishment. However, since its use is not mentioned in any of the survivor accounts and because of its heavy construction, the present-day memorial staff think it



more likely that it is in fact a guard-tower with an air-raid shelter below. And since it is not marked on any of the original camp plans, they now assume it is a post-war reconstruction. *Right:* The entire camp complex was surrounded by a double electrified fence guarded by watchtowers at regular intervals. Though difficult to match today because of the dense tree growth there, this is almost certainly the part closing off the valley at the western end. (GSMD)

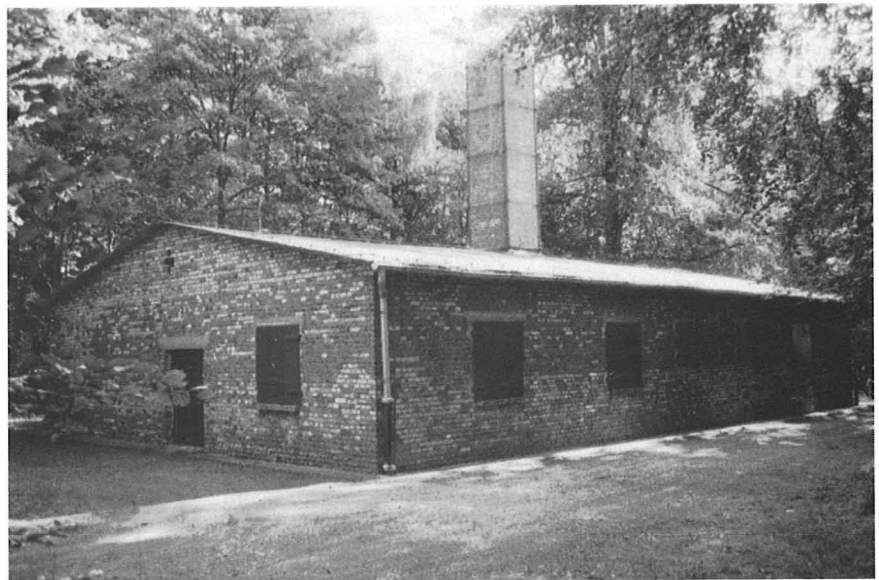
The number of prisoners sent from Buchenwald rose rapidly: by the end of September there were 3,000, one month later 6,000, by the end of the year 10,000 — mostly Russians, Poles and Frenchmen, with smaller groups of Germans, Belgians, Italian military internees, Dutchmen and nearly three dozen other nationalities. By December 31, only 5,500 of these were living in the open-air hutted camp, the others were still in the deadly tunnels. Gradually, as the camp was enlarged, the others were transferred to it as well, finally regaining the light of day and fresh air. The last unfortunates did not come out until June 1944.

However, there is one other original building still standing, an unobtrusive small structure overlooked by most visitors. This is Block 145, the Altmateriallager (storage building for re-usable materials), down a path off the southern camp road.





Above: The camp crematorium. Initially, prisoners who had died at 'Dora' were sent back to Buchenwald to be cremated there but, as the number of dead grew, it was decided to build a crematorium on site. Built up on the slope of the Kohnstein, under the trees and somewhat isolated from the rest of the camp, it was taken into use on March 30, 1944. A loop road through the sick-bay area led up to it (see the plan on pages 12-13). (GSMD) *Right:* About the only building not pulled down after the war, the crematorium became the centre of the memorial site in GDR times, an exhibition being set up inside and many wreath-laying ceremonies taking place outside. However, with a new flight of steps having been laid out leading up to it, most visitors to the memorial were unaware that they were in fact entering the crematorium through the back doors. What is today the building's rear, was originally its front. *Top right:* Another legacy of GDR times: the sculpture of five 'Dora' slave labourers by Jürgen von Woisky, dedicated in 1964.



Owing to their bad accommodation, starvation, hard work and maltreatment, the death rate among the slave workers was appalling. Of some 17,500 inmates that had been sent to 'Dora' by April 1944, some 3,000

had perished. Their emaciated corpses were sent back to Buchenwald to be cremated. (This became unnecessary when 'Dora' opened its own crematorium on March 30, 1944.) Another 3,000 prisoners which had

become too disabled or sick to be of any use were shipped off to other camps: 1,000 each to Maidanek on January 15 and February 8, and another 1,000 to Bergen-Belsen on April 8 (see *After the Battle* No. 89).



Left: The mortuary in the crematorium, as found by the Americans in April 1945. (GSMD) *Right:* To create space for their exhibition, the GDR authorities pulled down the dividing wall between the mortuary (on the left) and the adjoining room.

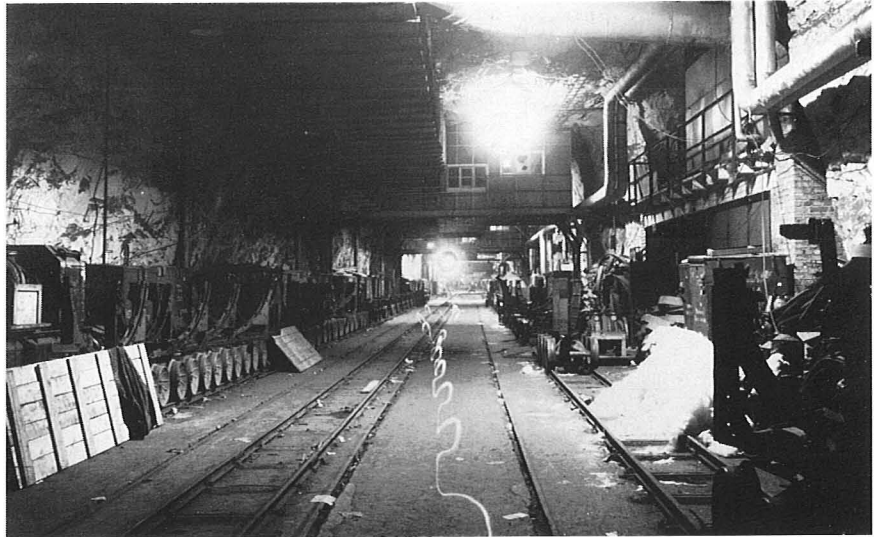


The crematorium had two ovens of a standard type seen in other concentration camps too (e.g. Dachau and Bergen-Belsen — see *After the Battle* Nos. 27 and 89). This picture was taken

on April 14, 1945, after the camp's liberation by American forces. A freed Polish inmate shows one of the ovens to Tech/5 John L. Lyndon of the US VII Corps. (USNA)



Simultaneously with the construction of the slave labour camp, the underground tunnels were being converted into a production-line factory for V2s. The ladder-like plan of the complex was ideal for series production: goods trains would bring in raw materials via Tunnel A and supply the workshops in the side galleries, which in turn would supply components and sub-assemblies to the assembly line in Tunnel B, the V2 being built up as it passed along the galleries towards the southern exit. *Right:* This is Tunnel B at the beginning of the V2 production line (which at the end of the war, when this picture was taken, began at Gallery 21, the stretch from 1 to 20 having been handed over to jet fighter engine production). Though Tunnel B had two standard-gauge railway tracks running through it, the special trolleys of the V2 assembly line ran on narrow-gauge tracks. In fact, the trolley line on the left is here partly covering one of the normal-width tracks. (BA)

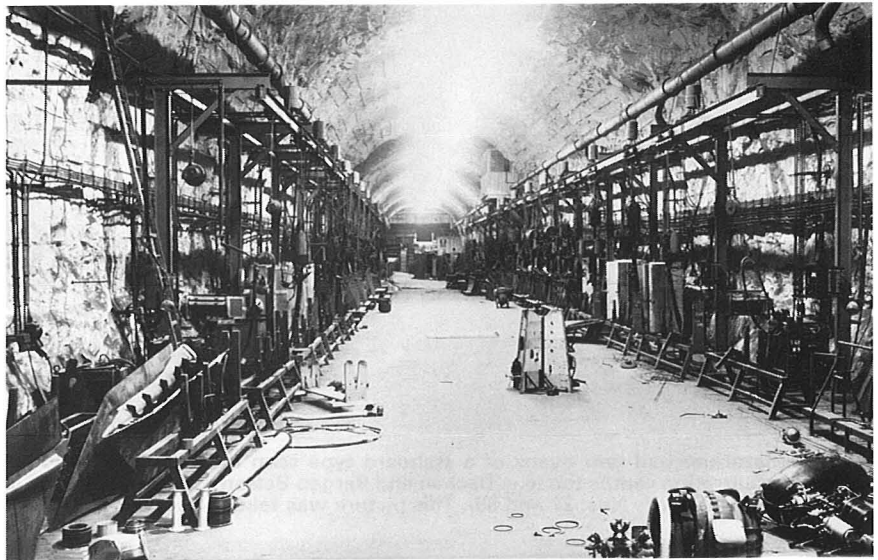


Meanwhile, the underground factory was rapidly taking shape. Tunnel A would soon reach its southern exit. Four more galleries, 43 to 46, had been shot through (Nos. 47 to 50 were never completed). In all, the slave labourers removed 125,000 cubic metres of stone, adding 12,600 square metres of floor to the existing 98,000. Every day, dozens of trains arrived bringing tons of building materials, tools and equipment. Starting on September 19, special trains carried the machines, equipment and personnel from the three V2 factory sites to Nordhausen.

On October 30, to ensure deliveries by the sub-contractors, Degenkolb created a special Führungsstab (Head Staff) under Hauptmann Dr Kühle, which had representatives with plenipotentiary powers at each of the major supplying firms. In December, this Führungsstab became even more important when it was given responsibility for the whole V2 contract.

On December 10, 1943, Speer, accompanied by Kammler and Degenkolb, came to Nordhausen for a personal inspection of the complex. He was impressed by the magnitude and speed of the whole project, but seems not to have been unduly moved by the misery of the slave workers, only worried lest they might lose too much of their effectiveness.

By now, the factory was ready to start tentative production. From early December, when the machines had been installed, all the prisoners, except for those building the camp outside, were employed at assembling rockets. The first three V2s rolled off the assembly line in Tunnel B on January 1, 1944. However, on arrival at Peenemünde, these three, Nos. 17001-17003, proved to have so many production faults that they could not be test-fired. When No. 17003 was finally launched on January 27, it failed and



Without proper captioning, identification of individual galleries within the Kohnstein mountain is not easy. Often, it is only from such clues as the type of V-weapon or components visible, the sort of machinery, the tunnel form, the height of the ceiling, the presence of railway tracks and other such details that one can determine which gallery one is in fact looking at. In this picture there are several clues. On the left is a jig for welding V2 fins; on the right lie a V2 turbo pump and a V2 hydrogen-peroxide ('T-Stoff') container, the latter complete with compressed-air bottles. Such components were made in Galleries 16-18 and 20-21. The circular ceiling indicates that it must be a gallery beyond No. 18 — so this could be either 20 (production of turbo pumps) or 21 (production of V2 parts). (BA)

One of the circular-type galleries as it looks today, pictured by American photographer Alvin Gilens. In 1994, Gilens extensively photographed the whole tunnel complex, the result of which was a photo exhibition and a photo book titled *Discovery and Despair. Dimensions of Dora*, published in 1995. When we visited the tunnel complex in September 1997, we could not get in as deep as we would have wished, owing to the fact that the Niedersachswerfen gypsum factory, who own the Kohnstein mountain, are now no longer prepared to accept the legal risk of outside visitors entering unsecured parts of the tunnels. We are therefore very pleased that Mr Gilens has agreed to let us use his photographs to illustrate the parts we could not visit. (Gilens)



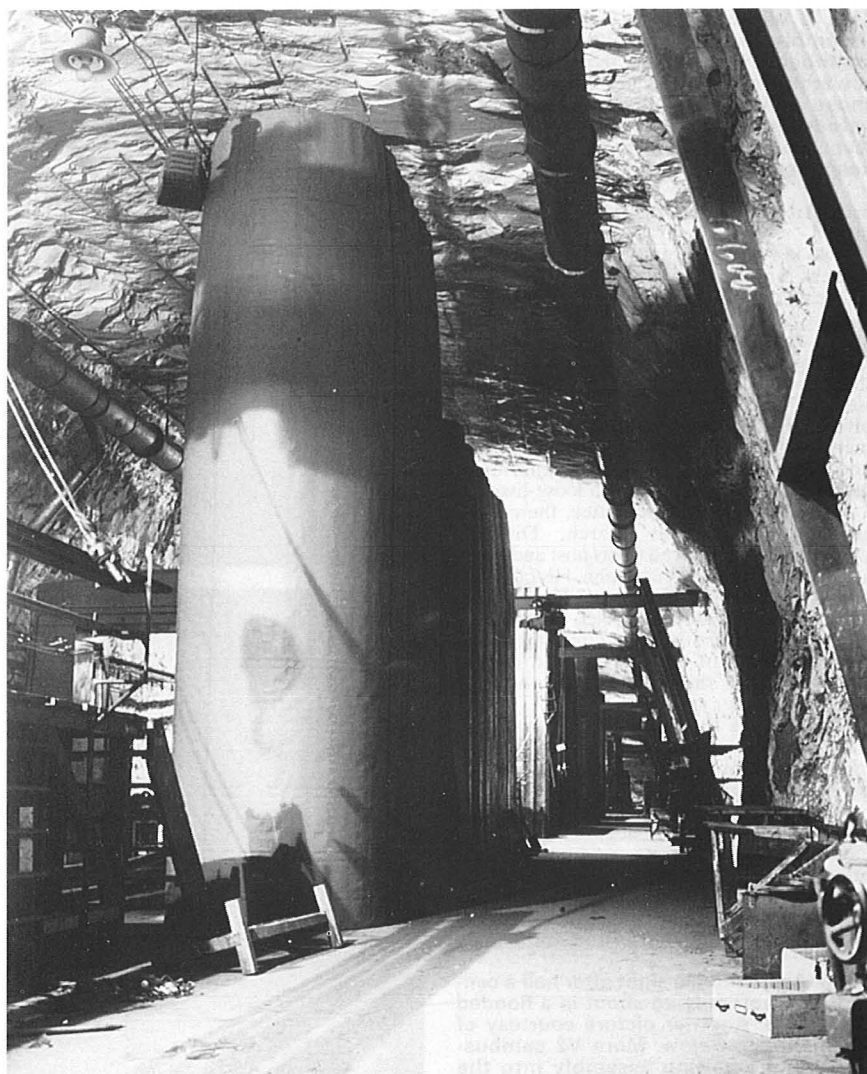
Right: At the start of the production line, in Galleries 23 or 24, were stored the big 6.15-metre-long half-sections of the V2 fuselage's middle part. In upright position, they almost touched the ceiling, and this probably explains why this picture has been captioned in some publications as showing 'concrete support pillars'! (BA)

exploded. Further test launches at the new, SS-controlled, rocket test site 'Heidelager' near Blizna (see *After the Battle* No. 85, pages 12-13) were equally disappointing, most of them exploding in the air or at the start, and only 10 to 20 per cent hitting the target area.

The many failures were caused both by the immense technical complexity of the rocket missile itself (a V2 consisted of 20,000 different components), and by the many possibilities for sabotage by the forced labourers. Measures to improve production quality were quickly taken. Countless directives and improvement proposals were sent from Peenemünde to Nordhausen (Von Braun himself visiting the factory on January 25). Simplifications found during production were introduced. Technically-trained prisoners were put in charge of and forced to oversee the work of fellow-inmates. Anti-sabotage measures were increased. Any negligence was now regarded as sabotage, and could lead to incarceration in the 'bunker' or death by hanging. One day (probably in March 1945), the guards hanged some 50 inmates in Gallery 41, tying a dozen at a time to a beam which was then pulled up by an electrical crane, and forcing the other prisoners to watch. To uncover resistance and sabotage groups, the Germans made extensive use of informers, both planted spies and prisoners betraying their fellow-inmates.

In the first month of production, January 1944, only 50 missiles were completed, i.e. less than two per day, but thereafter these figures rose steadily: 86 in February, 170 in March, 253 in April, 437 in May. Gradually, the rocket was improved. For example, the introduction in May of glass-wool insulation between the rocket's fuel container and the sheet-steel outer skin (which would get very hot from friction during flight) lessened premature explosions by half. Reinforcing the missile's nose with an inner skin further reduced failures.

The V2s produced at Nordhausen were delivered without warheads and, initially, also without electrical systems. Well-camouflaged, the finished missiles were transported by train to the Demag vehicle works at Falkensee near Berlin, which installed the wiring, and from there to one of the Army Ammunition Establishments to receive the

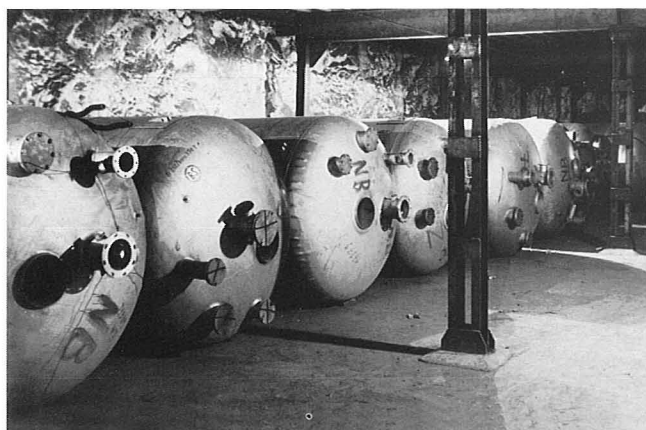


explosive warhead. From May, the installation of the electrical equipment was done in the Mittelwerk itself. For this, a special dust-free workshop had been built in the one of the underground galleries. Another special gallery was No 41: its floor had been deepened by an extra 50 feet so that rockets could be set upright for final testing and checking. An especially-dangerous place in the assembly line was the galvanising shop in Gallery 39; prisoners assigned here were inexorably poisoned by the build-up of toxic

fumes, the average life expectancy here being just one month.

April-May 1944 marked the end of the first phase of the 'Dora-Mittelbau' complex, with several changes both in the camp, the underground factory and the company organisation.

With all prisoners now housed above-ground in 'Dora' and the camp facilities gradually being improved, life for the inmates had become a little more bearable — although of course the hard work and



Left: This is either Gallery 25 or 26 — both were used to store the V2's mid-section fuel tanks, the ones in this picture being 'A-Stoff' (liquid-oxygen) containers. The V2's other main tank held a mixture of alcohol and water ('B-stoff'). Delivered from elsewhere, these tanks were only given a pressure test before



assembly into the V2. Note that this room has a second storey built in — a concrete floor standing on iron supports. This is a construction seen in many of the galleries. (BA) **Right:** Remains of a double storey survive in the underground darkness, this particular one being pictured in Gallery 45.

This is without doubt Gallery 29, the assembly line for the V2 combustion chamber. The view is from Tunnel A towards Tunnel B. Gallery 29 was one of those galleries which had been excavated deeper, to below ground-water level, so pumps had to be installed to keep them dry.

brutal treatment kept the toll in human lives high.

Also in April, the rapid growth of the Mittelwerk firm necessitated a revision of its internal organisation. Georg Rickhey, a Demag company director from the Ruhr area, was appointed General Managing Director, above all the other directors, and the various departments differently organised. (The new position had earlier been offered to Degenkolb and to Figge, but both men had refused.) The reorganisation was not welcomed by all managers, and many judged Rickhey a failure and a loose-liver.

In the A4 Special Committee, there were changes too. About March, Director Degenkolb was relieved of his post and given a new task with the Reichsbahn. His old position was left vacant, Kunze and Figge taking over their chief's duties. In fact, the committee and its various sub-committees had achieved most of their tasks, and in due course most of them were reorganised or assigned to other jobs.

But perhaps the major change was that from April the Mittelwerk no longer had exclusive use of the underground factory or the Mittelbau area.

While the V2 scientists had successfully lobbied for priority and acquired the Nordhausen complex for its production lines, other German war industries, notably the aircraft industry, were also looking to get their factories underground. In early March 1944, faced with the increasing enemy

Right: An incredible sight after half a century: V2 motors lying about in a flooded Gallery 29. Another picture courtesy of Alvin Gilens. Below: More V2 combustion units awaiting assembly into the rocket. The rail track shows that this is one of the main tunnels, probably off Gallery 29, and the absence of an assembly line suggests that it is Tunnel A rather than B. (BA)



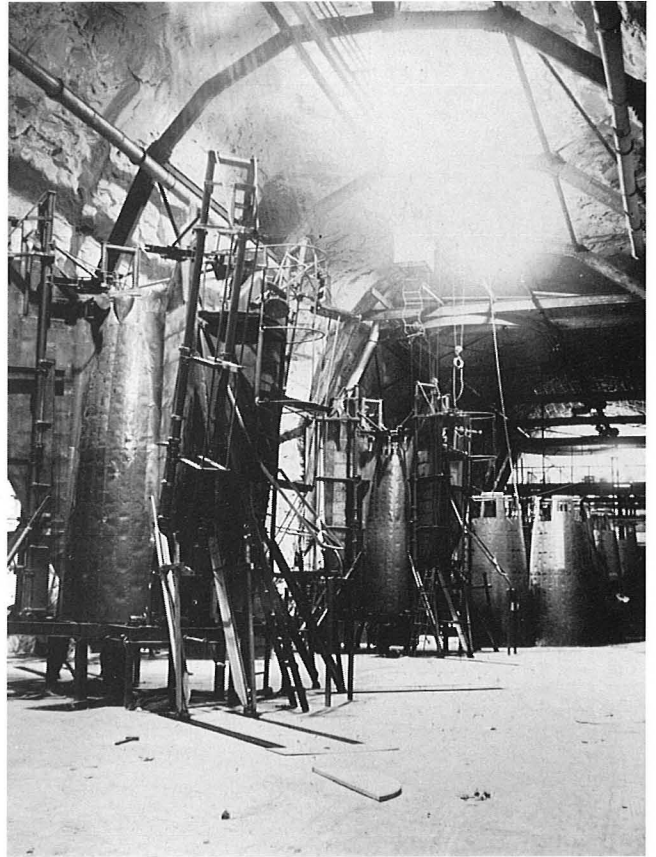
attacks on aircraft factories and catastrophic bomber raids on German cities, Armaments Minister Speer and Generalfeldmarschall Erhard Milch, deputy chief of the Reich Air Ministry, jointly created the so-called Jägerstab (Fighter Staff) as a special agency to



Gallery 29 can today only be reached using a dinghy, but the long haul through complete darkness produces eerie comparisons indeed. (Alvin Gilens)



Metal-press workshops were in both Gallery 32 and 33. The huge Weingarten hydraulic press in the foreground was 6½ metres high. Both galleries are today flooded, but divers have recently identified the presses' foundations. (BA)

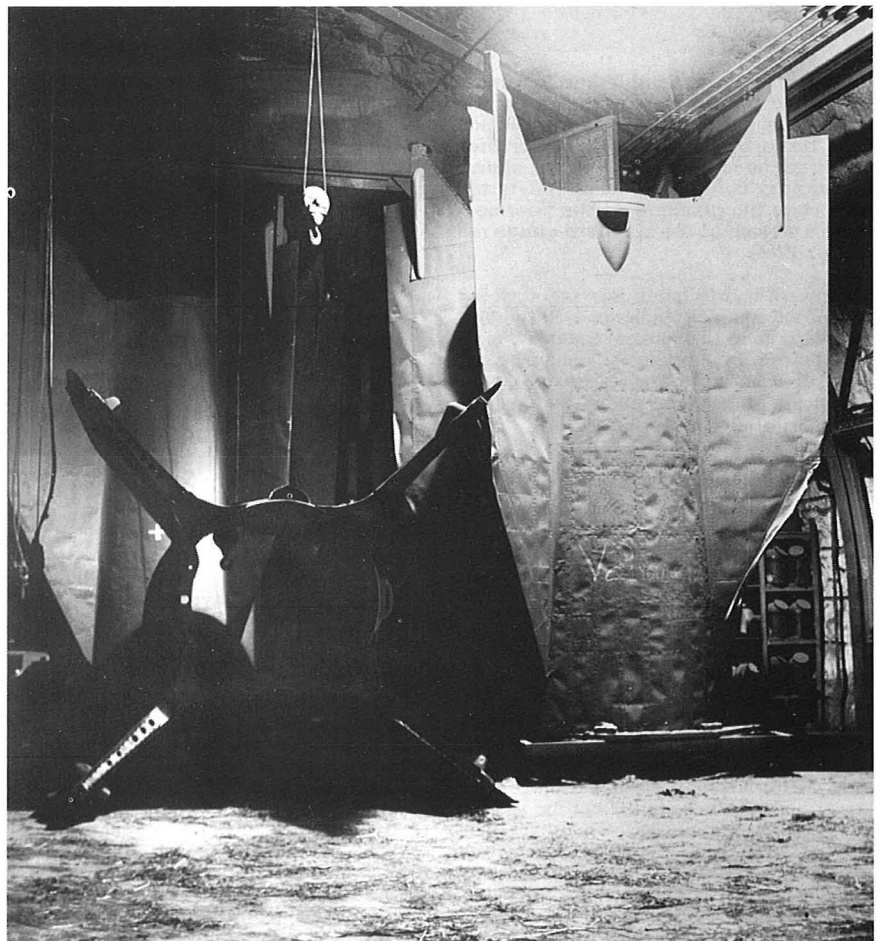


V2 tail units were assembled in Gallery 37. These are welding jigs for fitting the fins to the tail fuselage. With fins attached, the tail section stood nearly four metres (13 feet). The crooked roof beams are typical of the Wifo II galleries (Nos. 19-42).

organise the upkeep of fighter production. Appointed executive chief of the Jägerstab was Karl Otto Saur, who soon not only streamlined fighter production but also successfully campaigned for more underground facilities for aircraft factories. At a Führer conference on March 5, Hitler decreed the transfer of the whole aircraft industry to bomb-proof factories.

Criticism, notably from Luftwaffe circles, that the Army's V2 programme was taking up inordinate amounts of manpower, resources and underground factory space (at the expense of, for example, fighter production and the Luftwaffe's V1 flying bomb project) seems not have been without effect on Hitler. At the March 5 conference, he had demanded a comparative inquiry to see whether the Mittelwerk resources and underground floor space could not better be allocated to aircraft production. As a result, Hitler decreed that part of the Nordhausen underground factory was to be used for the production of jet fighter parts. In April, the

Right: Gallery 39 housed the 'Spritzerei', the dope-chamber where the V2 fuselage parts were galvanised and painted. This was one of most deadly galleries to work in, the toxic fumes from the varnish slowly poisoning those in the room. Workers assigned to this job would on average survive for a mere four weeks. Though the original caption to this picture described it as showing the dope-chamber, it cannot be the one in No. 39, since the configuration of that gallery is quite different and space there too confined for V2 tails to be set up like this. Probably this is an annexe to the main galvanising shop, perhaps in the adjoining Gallery 38. There is no means to check this, as No. 38 was completely blown up in 1945. (BA)

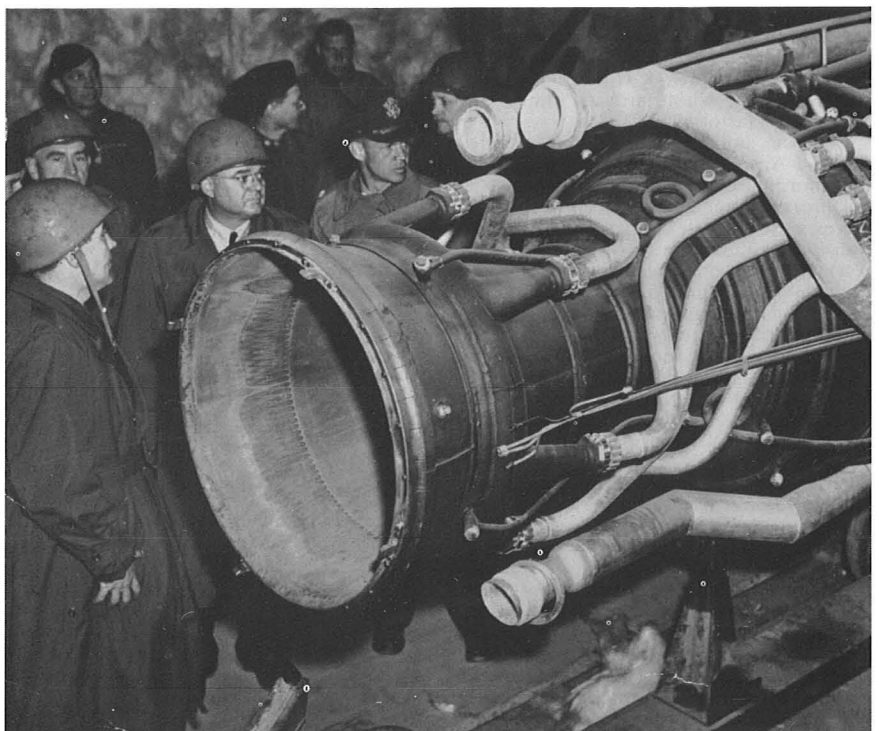




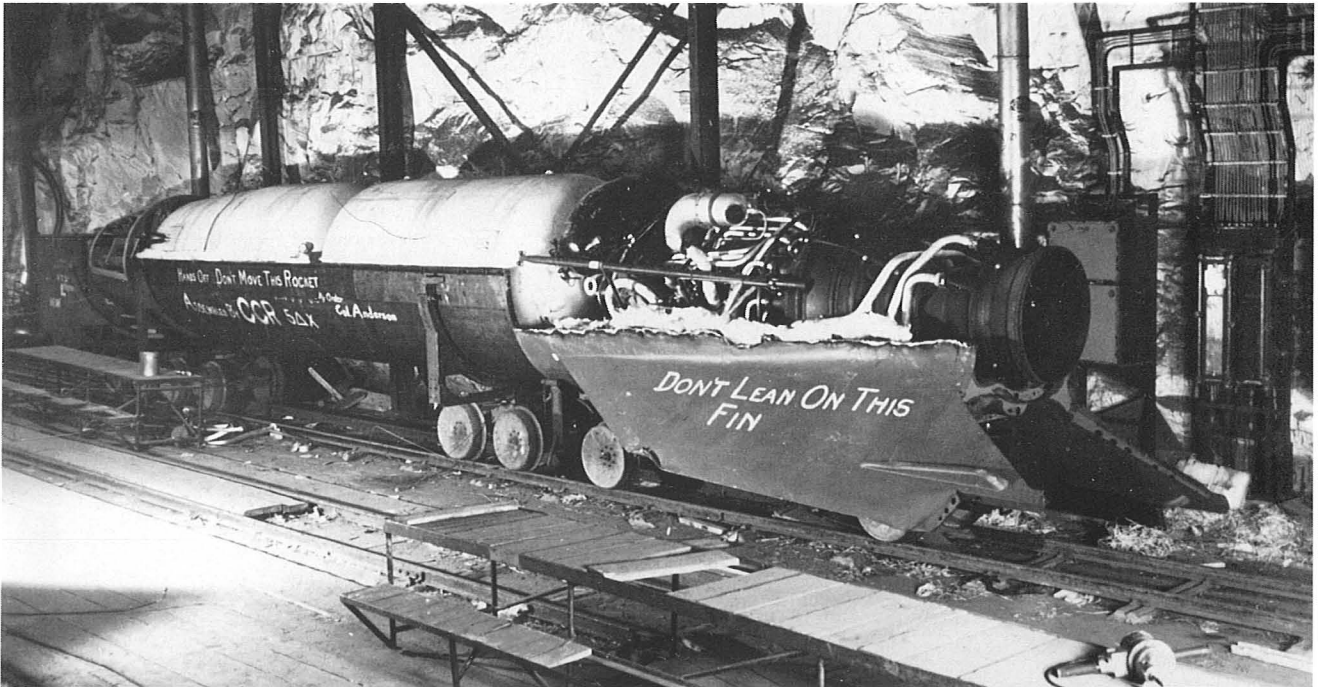
By the time the assembly line in Tunnel B reached this point, the rocket on the trolley was nearing completion. This picture, taken by the Americans after they captured the factory in April 1945, shows one that is complete except for its tail unit. Note the planking on the floor covering a stretch of the standard-gauge rail track. (IWM)

Mittelwerk had to hand over the northern part of the complex, Galleries 1-20 (the former Wifo I), to the Junkers company, moving its own V2 factory to the remaining galleries 21-46. Transferring its aircraft engine factories at Magdeburg, Köthen and Leipzig, Junkers installed an assembly line for jet engines (code-name 'Nordwerk'). The workforce consisted of some 500 German specialists and 5,000 foreign workers. The latter, mostly Poles and Russians, were not concentration camp prisoners (they received wages, lived in requisitioned billets and did not wear the striped camp garments), and special measures were taken to ensure that they would not get in close contact with the 'Dora' inmates, though such contacts could not really be prevented when people had to work together.

Then, around the middle of June (no doubt influenced by the start of the V1 offensive against London on June 13), Hitler decided that V2 production be drastically reduced, to 150 pieces a month, and the manpower and resources thus freed be used to increase production of V1s and also jet fighters. Thus, the Army's rocket programme was trimmed in favour of two Luftwaffe programmes. As a consequence, V2 production fell from 437 in May to 132 in June and 86 in July.



The same missile being inspected by members of a US Congressional Committee which visited 'Dora' camp and the underground factory on May 1, 1945, as part of their investigation into Nazi atrocities. Left to right are Representatives John M. Vorys (Republican of Ohio) and Ed V. Izac (Democrat of California); Senator C. Wayland Brooks (Republican of Illinois); and Lieutenant Colonel J. K. Reeson and Brigadier General John M. Weir of the US War Department. (USNA)



Above: Just a few yards further on, on the outer assembly track, stood another V2. The chalking on it tells us that this particular missile was assembled by Combat Command R, 5th Armored Division, by order of Colonel Glen B. Anderson (the CCR commander). (Though captured by the 3rd Armored of US First Army, Nordhausen later came under control of the 5th Armored of Ninth Army.) Judging by the half-cut-away tail unit, it appears the CCR engineers intended this as a worked-out specimen to show the various internal parts of the rocket. (BA) Right: An abandoned V2 fuselage half, pictured by Alvin Gilens in 1994.



Left: At the end of the assembly line, the V2 would reach Gallery 41, where, by means of a mobile crane, it would be put upright for final testing. No. 41 was the only tunnel sufficiently high to encompass for the 14-metre (47-foot) missile, its extra-deepened floor giving it a ceiling height of 15 metres. Note the pools of ground water. Above: In the underground world of the Kohnstein today, only the top of the test stand sticks out of the water. Too deep in the mountain for us to be allowed to photograph it, this spectacular picture was taken especially for us by Alvin Gilens in March 1998.



Beyond Gallery 42 began the section of the underground factory where, from August 1944 onwards, V1s were produced. This is most probably Gallery 43 (the upside-down chalking on the ceiling beam reads 'Stollen' [Gallery] and a half-hidden figure ending with '3'), and the sign at top left explains what was

done here: 'Checking of construction and assembly (altitude steering unit)'. Note the different type of conveyor belt as compared to the V2. Gallery 43 was a deep-floor one and, instead of the more-common two storeys, it had three — this being the bottom floor. (USNA)

Inevitably, the question arose whether production of V1s, until now concentrated at the Volkswagen factory at Fallersleben (see *After the Battle* No. 10), should not also be moved underground. The A4 Special Committee — now renamed the Sonder-Ausschuss z.b.V. (Special Committee for Special Purposes) — negotiated with the Volkswagen board and, in spite of strong opposition from VW director Anton Piëch, a decision was reached to transfer part of the V1 production to the Mittelwerk GmbH. Again, the V2 factory had to make room for a competitor, Galleries 43-46 being handed over to V1 manufacture in August 1944. From now on, the Mittelwerk housed the production of three different secret weapons: jet engines in Galleries 1-20 ('Nordwerk'), V2s in Galleries 21-42 ('Werk I'), and V1s in Galleries 43-46 ('Werk II').

The Junkers factory in the 'Nordwerk' produced two types of jet engines, the Jumo 004 B-1 and Jumo 004 B-4 for Me262 and Ar 234 jet fighters respectively. In all, some 1,463 were delivered before war's end. In addition, in August, it received an order for 8,930 of the well-proven Jumo 213 engine. Production did not start until late 1944 and, by war's end, only some 800 had been completed.

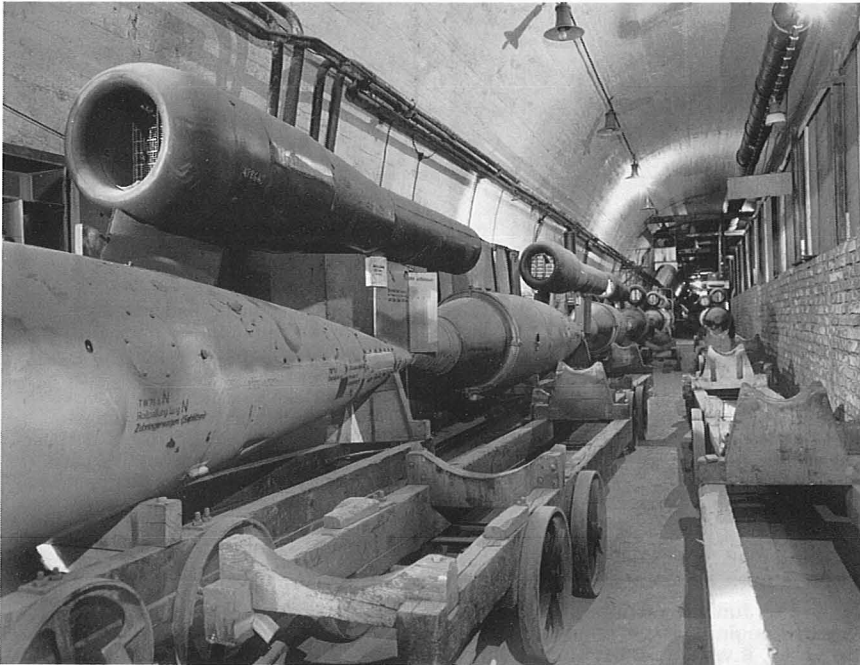
The V2 factory in 'Werk I', though now reduced to 22 galleries, reached a steady production of about 600 missiles a month: 374 in August, 629 in September, 628 in October, 662 in November, 613 in December, 690 in January 1945, 617 in February and 362 in March. By the end of the war, a total of some 5,940 V2s had been made here.

The V1 factory in 'Werk II' was initially ordered to start production with 400 pieces in September, rising to 1,000 the following month and to reach a steady production of 3,000 by December. Delivery had hardly begun when, in October, a new decree ordered the Mittelwerk to wind down V1

production until further notice, and only 238 were produced in November. However, the V1 soon regained its priority: in December production had risen again to 1,161, followed by 1,401 in January 1945, 2,275 in February, and 831 in March. In all, 'Werk II' produced over 7,500 V1s.

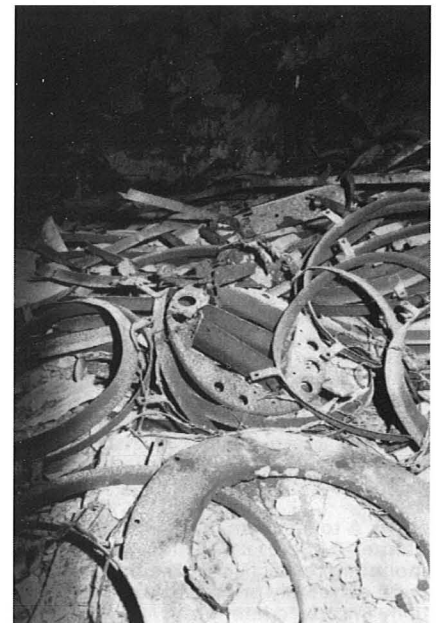


A different gallery, but still a nice comparison. This is Gallery 45.



Rusted V1 hulls piled up in a corner of Gallery 45.

Above: Completed V1s in main Tunnel A, south of Gallery 46. Tunnel A at this point had been divided in two by a brick wall, visible on the right. Note the specially-designed wooden trolleys for the V1. (IWM) *Below:* Ghosts from the past: the hull of a half-finished V1 in the nearby Gallery 45. As every visitor will agree, to walk through the damp tunnels of the former underground factory, the darkness pierced only by the beam of a miner's lamp, among the rusted remains of Hitler's wonder weapons, is a very strange and eerie experience.



Heaps of V1 parts lying about in Gallery 45. As a result of the 1948 Soviet demolitions, many of the double floors collapsed, causing the parts stored there to spill out on the bottom floor.



Left: A heap of spherical holders for the V1 magnetic gyro compass and *(right)* a V1 fuel tank.



In April 1944, Galleries 1-20 were handed over to the Junkers company for the production of Jumo jet engines. Judging by the aircraft engine parts visible, this picture most likely shows one of their workshops. However, if we go by the chalk number visible on the machine on the right — A40 — this could equally well be Gallery 40, part of which was used from October 1944 for jet production too. (BA)

In October 1944, the Mittelwerk received orders to prepare a production line for the He 162 jet fighter, the so-called Volksjäger. This plane — cheap and simple, but very effective — was then still being developed by the Heinkel works (its first test flight was only on December 6), but time was now so short that series production was begun parallel with construction and testing. The Mittelwerk was both to manufacture the plane's body and BMW 003 engine and assemble complete planes (under the project code-name 'Schildkröte'). Since space was now extremely scarce, He 162 production had to be divided over various sites inside the mountain (Werk I's part of Tunnel B; alcoves 17 to 27 in Tunnel A, and parts of Galleries 27, 31, 32, 37 and 40) and outside (notably the paper factory at Ilfeld). Only a few hundred He 162s were produced here before war's end.

Right: A toilet room, built into the side of Tunnel A. Sanitary facilities inside the mountain, especially in the first months, were extremely primitive, but were gradually improved later on.



In one of the side rooms of Tunnel A, the Dora Memorial staff have set up a collection of interesting finds from the tunnels. With the stable air and temperature conditions inside the mountain, artifacts are best conserved by leaving them underground.

USE OF GALLERIES AND TUNNELS, APRIL 1945

'Nordwerk' (Jumo jet engine production)

- 1 Hospital
- 2 Jumo barrels and rods
- 3 Crankshafts, prop shafts
- 4 Machining miscellaneous parts
- 5 Storage miscellaneous parts
- 6 Machine-grindery
- 7-8 Jumo connecting rods
- 9 Jumo outer nose
- 10 Machining crankcases
- 11 Machining cylinder heads
- 12 Assembly Jumo engine
- 13 Machining Jumo parts
- 14 Storage V1 parts
- 15 Machining Jumo crankcases
- 16 Machining V2 turbo pumps
- 17 Machining V2 parts
- 18 Machining Jumo and V2 parts
- 19 Machining Jumo cylinder blocks
- 20 Machining V2 turbo pumps

'Werk I' (V2 production)

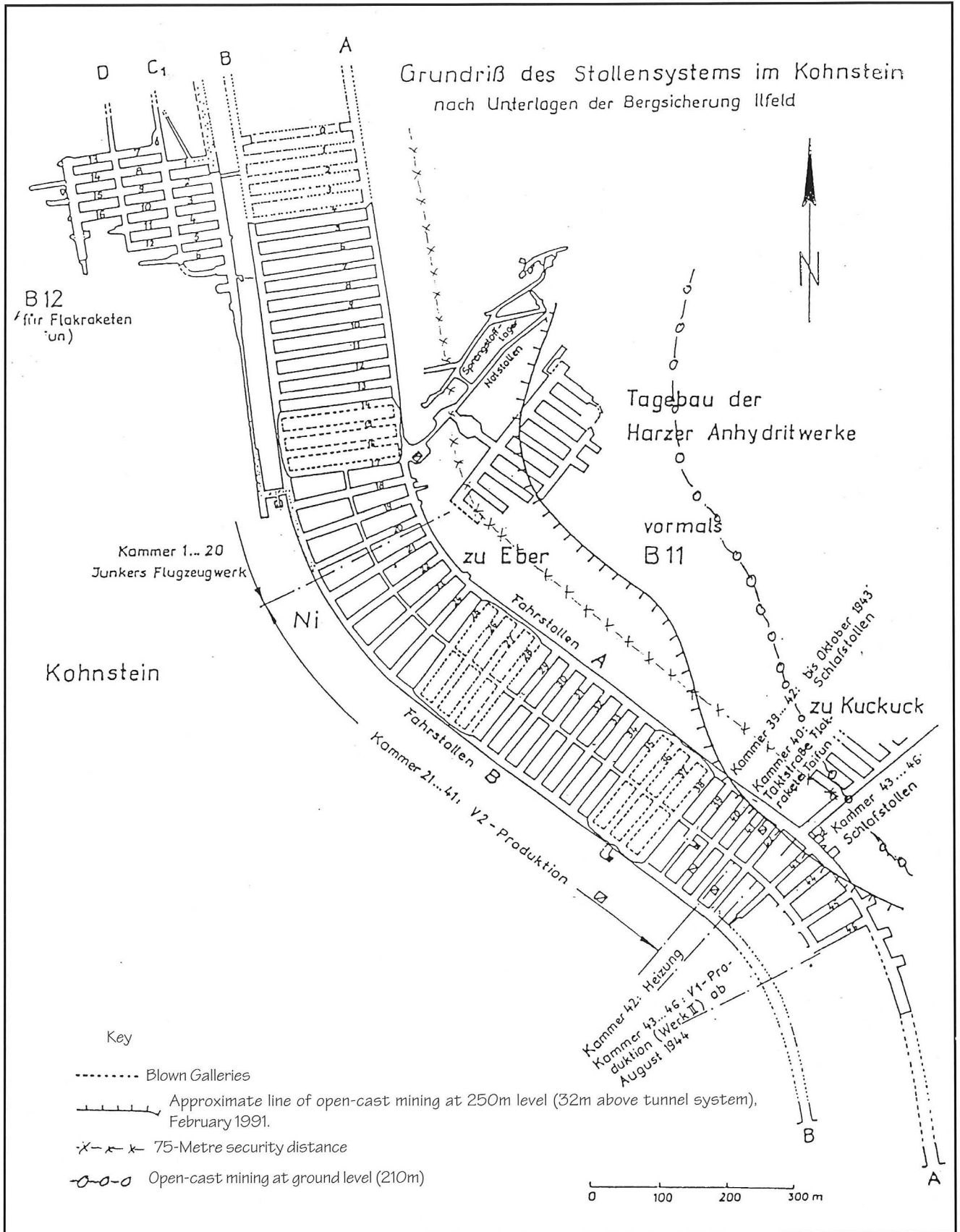
- 21 Machining V2 parts
- 22 Main stock and tool room
- 23 Sheet metal storage
- 24 Welding V2 centre section
- 25-26 Storage V2 tanks
- 27 Setting new machines
- 28 Assembly V2 nose
- 29 Assembly V2 power unit
- 30 Welding V2 centre section
- 31 Storage miscellaneous parts
- 32 Presses V2 parts
- 33 Presses V2 controls
- 34 Storage V2 metal
- 35 Storage V2 tails
- 36 Storage V2 parts
- 37 Assembly V2 tail
- 38 Storage V2 centre sections
- 39 V2 paint and galvanising shop
- 40 Machinery being set
- 41 Upright testing V2
- 42 Heating and vent machinery

'Werk II' (V1 production)

- 43-44 Machining V1 parts
- 45 Welding V1 skins
- 46 Welding and storage V1s
- 47 Sub-assembly V1 parts

- Tunnel A Galleries 1-26:
Transport and supply railways
Galleries 27-41:
V1 assembly line
- Tunnel B Galleries 1-20:
Machining Jumo engines
Galleries 21-41:
V2 assembly line

Oddly enough, there still exists some uncertainty today as to the exact number of side galleries completed inside the Kohnstein, the question being whether there were 46 or 47 (of the 50 planned). Almost none of the sketch plans published after the war agree on the number of galleries completed or the numbering system used. Part of the confusion is caused by the fact that chief engineer Sawatzki, when planning the tunnels in 1943, out of some personal superstition did not want a gallery numbered 16; instead, the first gallery was given the number 0, the first 16 galleries thus becoming 0-15, and the next one after that 17. However, it is unknown whether this strange system was actually used inside the mountain. Solving the question today is thwarted by the fact that the whole northern end of the tunnel complex (from Gallery 4 backwards) has collapsed under the Soviet demolitions, making it impossible to count how many galleries are hidden under the debris there. At the other end of the tunnel, in the last two galleries but one, the original painted numbers '44' and '45' can still be seen on the wall, which would suggest a total of 46. However, the US Strategic Bombing Survey, who documented the complex before it was blown, produced a sketch which clearly shows 47 galleries. The simple solution that what the Americans called Nos. 1-47 was in fact the same as the German Nos. 0-46 does not hold out (even if the latter did include a No. 16), since the USSBS key to the use of galleries in many cases squares with what is known of the German one (e.g. they both have Gallery 29 as the room where V2 engines were assembled) whereas, if 1-47 was identical with 0-46, they should be one number different.

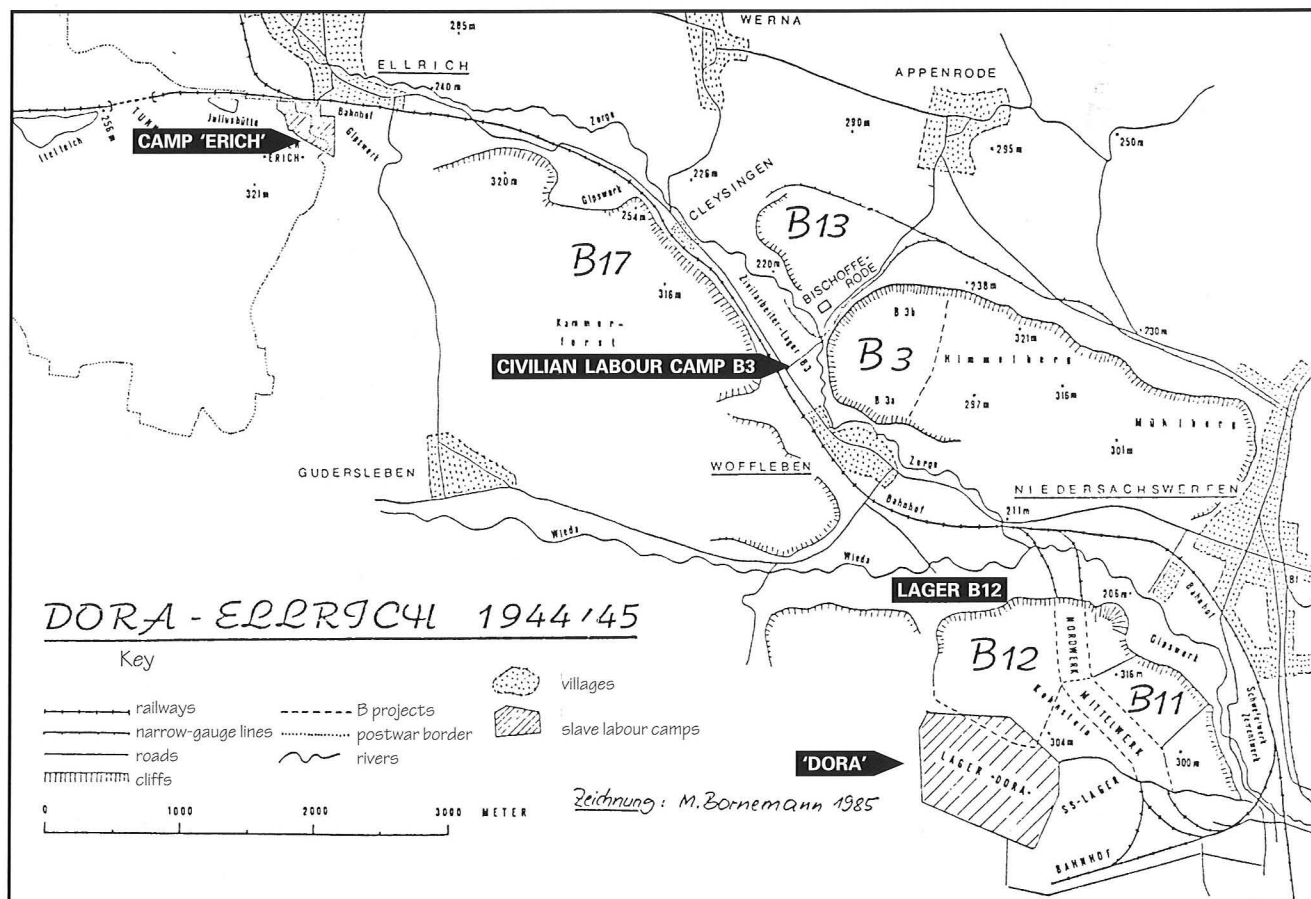


The Dora Memorial hopes to once and for all solve the question when they carry out a new survey of the mountain, including a careful measurement of the collapsed parts, in the near future. The best plan available now is the one (above) which was prepared by the Bergsicherung (Mountain Security Authority) Ilfeld in 1991. It shows which Mittelwerk galleries have collapsed as a result of the Soviet demolitions (the dotted parts), and also how much of the mountain has been eaten away by the Niedersachswerfen quarry on the east side. (Note that this

plan assumes the existence of a Gallery 0 and 16, and a total of 47 galleries.) The plan also indicates what is left of the adjoining B-11 and B-12 galleries. Now, with the tunnel system declared a protected site, the gypsum factory has to observe a 75-metre security distance at ground level and a 32-metre distance over the tunnels' ceiling. Though this will save the tunnel system, it means that continued quarrying will eventually (in a century or so) remove the whole of the Kohnstein's top and leave only a 'scalped' mountain. (GSMD)







Meanwhile, in addition to the V1 and jet factories now inserted in the Wifo tunnels, the construction of a large number of other underground factories was being undertaken in the immediate vicinity of the Mittelwerk. In March, Reichsmarschall Hermann Göring, chief of the Luftwaffe, had charged SS-Brigadeführer Hans Kammler — the same man who had so energetically provided the slave labour for the Mittelwerk — with carrying out the task of building the underground aircraft factories which Hitler had ordained. Since Kammler was an SS man, this of course gave his chief Himmler a perfect chance now also to gain power over the Reich's aircraft production (particularly the new jet fighters).

For his new task, Kammler created a Sonderstab (Special Staff), made up of specialists from his own SS-Amstgruppe C, the Wehrmacht and the Luftwaffe and divided into four Special Inspection Staffs, which drew up a list of construction projects to be carried out. These divided into A, B and S projects: 'A' projects were bomb-secure spaces to be built in already-existing underground complexes (caves, tunnels, mines, etc); 'B' projects were bomb-secure spaces to be newly built; and 'S' stood for 'Special' projects.

Projects in the Mittelbau area were planned and overseen by Special Inspection Staff II, led by SS-Hauptsturmführer Geissen, with headquarters at Halle. They included:

Project A-5: Eight miles west of Nordhausen, in the natural caves at Uftrungen near Rottleberode (a protected site since 1922), the Junkers factory at Schönebeck in April 1944 installed a production line for Jumo 004 B-4 engines. In all, 8,000 square metres of cave floor were used. A railway line connected the site with the main line at Rottleberode.

Project B-4: Near A-5, in the gypsum massif south of the village of Stempeda, five separate galleries were planned to be dug into the mountain face, totalling 3,000 square

metres. In the end, only three were started and, by war's end, only 592 square metres had been completed. The slave workers for both A-5 and B-4, some 900 on average, were housed in Lager 'Heinrich', a requisitioned porcelain factory on the northern edge of Rottleberode.

Project B-3a: In the 200-foot-high cliff of the Himmelberg massif at Woffleben, just north of the Kohnstein, a large number of galleries were started, three in the southern face and over 20 in the western, the plan being to create a grid of a few long galleries connected by many lateral ones to a total of 130,000 square metres. Unusual here was the presence of soldiers from the Wehrmacht engineer company from Holzminden, who used the project to try out experimental drilling equipment. Only about one-third (45,000 square metres) of the planned gallery space was actually completed, rocket missile production facilities (code-name 'Hydra') moving into the southern section in February 1945.

Project B-3b: Also in the Himmelberg, to the east of B-3a, near Appenrode, some ten galleries were started in the autumn of 1944, planned to be eventually linked to B3a by two galleries (total 100,000 square metres). In early 1945, the work here was abandoned in favour of another project, S-3 near Ohrdruf in Thuringia. The whole B-3 complex (code-name 'Anhydrit') was serviced by a system of narrow-gauge and normal railway tracks and linked to the main Reichsbahn system. Workshops, offices, transformer stations, pump-rooms, and billets for civilian personnel were in a hatted camp built between Woffleben and Bischofferode.

Slave labourers for both B-3a and B-3b were in hatted camps at Ellrich (camp

'Erich', around 8,000 inmates), Harzungen (camp 'Hans', 4,000 inmates) and Bischofferode (500 inmates), all sub-camps of Buchenwald, later of 'Dora'. The life of the prisoners here — mostly Russians, Poles, Hungarian Jews, gypsies, Frenchmen and Belgians — was made even more miserable because the camps were up to ten miles distant from the work sites, and they had walk there every morning and back in the evening, or travel in overfilled, open trains in all weathers.

Project B-11: In the Kohnstein, between the northern exits of the Mittelwerk complex and the gypsum quarry at Niedersachswerfen, a huge new tunnel complex (code-name 'Zinnstein') was started in May 1944, planned to produce 80,000 square metres of underground factory space. By September, a force of 2,000 civilians and 2,500 slave labourers (from 'Dora' and from the B-3 camps at Ellrich and Harzungen) were at work here. In the autumn, sub-contractors of the Mittelwerk GmbH installed a hydrating factory producing aircraft fuel here (code-name 'Kuckuck I'), using 30,000 of the 53,000 square metres of finished galleries. Also planned here, but partly outside the mountain, was a liquid oxygen factory ('Eber'), liquid oxygen being one of the two propellants for V2s. However, of the planned 15 aggregates and six reservoir containers, only six of the former and two of the latter had been installed by war's end, and no liquid oxygen was ever produced here.

Project B-12: Also in the Kohnstein, on its north side and immediately adjacent to the Mittelwerk tunnel complex, was to come a gigantic underground aircraft factory of over 600,000 square metres — larger than both the Mittelwerk and B-11 taken together — a project that would take years to complete

Projects B-3a and B-3b, in the Himmelberg north of Woffleben, were planned to eventually encompass 130,000 square metres of underground space. By war's end only about one-third of this (the parts drawn in black) had actually been completed and only B-3b taken into use. (Plan drawn by Fred Dittmann.)

(code-name 'Kaolin'). This was one of two giant sheltered aircraft factories ordered by Hitler on April 6, 1944, this one to house production lines of the Junkers company (the other factory was to be in a giant bunker). By the time work was halted in April 1945, the four main galleries — C, D, E and F — had only advanced some 300 metres into the mountain, and eight to ten lateral galleries had been completed, totalling some 30,000 square metres. Some 15,000 of these had been taken into use for production and assembly of He162 jets. Slave labourers for B-12 came from the B-3 camp at Ellrich, and from a smaller B-12 camp (1,600 inmates) set up at Woffleben in January 1945.

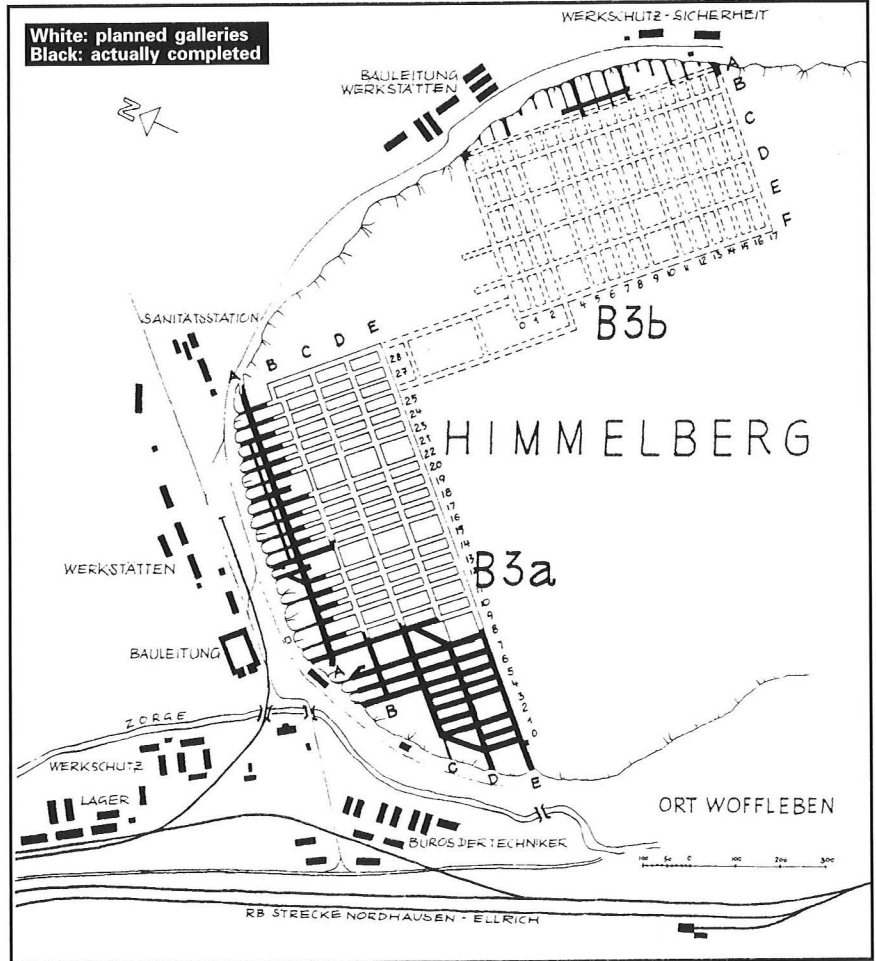
Project B-13: This was not an underground installation, but an umbrella term for the construction of the infrastructure (roads, railways, bridges, etc) for B-3, B-11, B-12 and B-17. A major project was the construction of a new Reichsbahn line through the Helme river valley between Nordhausen and Osterhagen to unburden the existing line from Nordhausen via Ellrich to Zornstein further north through the Zorge valley, now so heavily used for the war industry concentrating in this part of the Harz. The work was done by slave labourers organised in so-called SS-Bau-Brigaden (SS Construction Brigades), transferred here from cities in the Ruhr area and each composed of between 500 to 1,800 men. Bau-Brigaden 3 and 4 arrived in May 1944, Bau-Brigade 5 in August-September, and Eisenbahn-Bau-Brigade 1 in September. Brigade 5 was later split to form Bau-Brigade 1 and Eisenbahn-Brigaden 1 and 3. Several small camps for them were built: for BB3 at Wieda, Osterhagen, Mackenrode (some 300 inmates each) and Nüxei (150); for BB4 at Ellrich (some 500 inmates) and Günzerode (150); for BB1 at Sollstedt (450), EBB1 at Neusollstedt (550), EBB1 probably at Heringen (500) and EBB3 at Kelbra (number of inmates unknown).

Project B-15: Apart from that it was located near Ellrich, little else is known of this project.

Project B-17: In a closed-down quarry in the Kammerforst forest near Ellrich, two galleries totalling 2,000 square metres were dug to accommodate a filling station (code-name 'Kuckuck II') for the aircraft fuel factory in B-11.

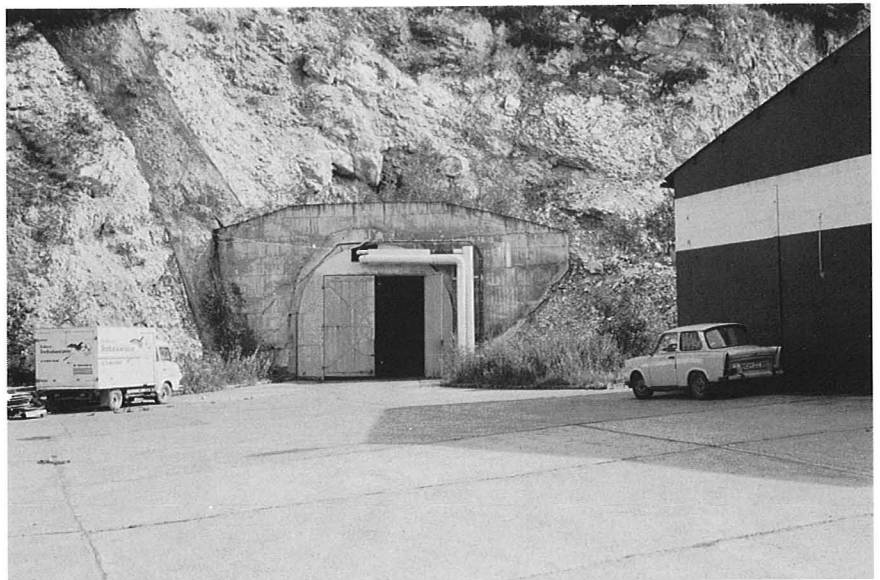
With more and more factories from all over the Reich transferring to central Germany, and concentrating in the Mittelbau region, this part of the Harz was rapidly becoming the industrial centre of the Reich, with the underground facilities of the Kohnstein as its heart. By war's end, the Mittelwerk company employed some 8,000 civilian workers and 25,000 slave labourers in the Nordhausen area.

With ever more slave labourers being sent to the Mittelbau region, and with new smaller camps springing up all over the area, the three main camps — 'Dora', Ellrich and Harzungen — were designated Mittelbau I (Dora), Mittelbau II (Ellrich) and Mittelbau III (Harzungen) on September 10, 1944. All were still Aussenlager (sub-camps) of Buchenwald. However, to reflect the growing importance of 'Dora', its status was changed. On October 1, 1944, it was made a Hauptlager (Main Camp), independent of Buchenwald, the camps in the region becoming its Aussenlager. On the day the new set-up came into effect, October 28, the number of inmates (all camps together) was 32,532.

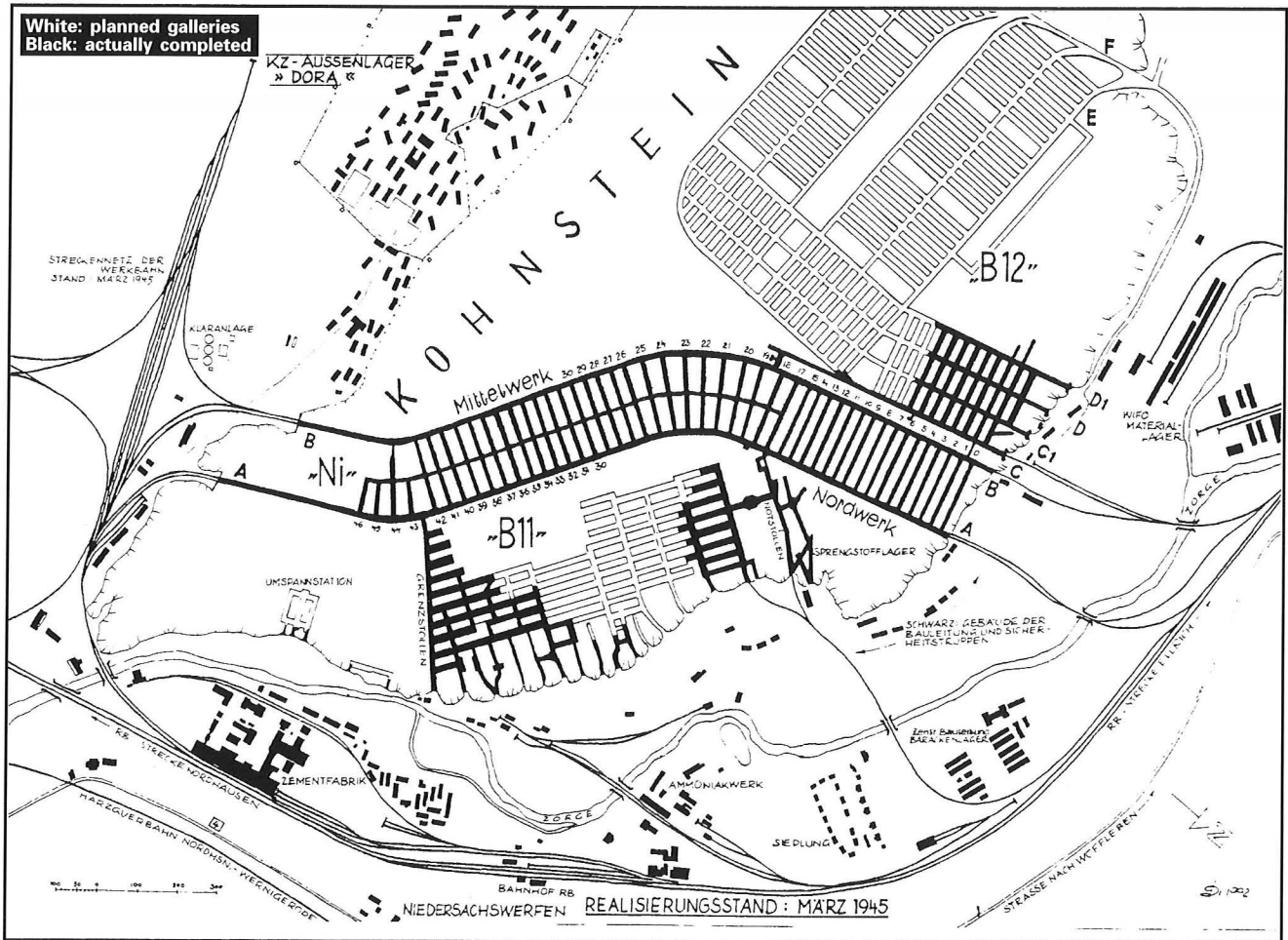


Meanwhile, Himmler had successfully continued his campaign to gain complete power over all of the Third Reich's secret weapons. In the aftermath of the July 20 attempt on Hitler, he had seized direction of the Army's armaments department and thus gained total control of Peenemünde and the rocket programme. In August, he appointed Kammler (promoted to SS-Gruppenführer) his Plenipotentiary for the A4 Programme. In November, Hitler put Kammler in charge of

various development projects for anti-aircraft rockets. But Himmler also wanted his SS to control the V1 and jet fighter programme. The first was achieved on January 31, 1945, when Kammler became commanding general of the Armee Korps z.b.V, responsible for deployment of all V-weapons; and the second in late February, when Kammler was in addition to all his other functions appointed General Plenipotentiary of the Führer for Jet Fighters.



Closed, like the Mittelwerk, by Soviet demolitions after the war, part of the B-3a tunnels was opened in the 1980s by the GDR authorities to install a mushroom nursery. The entrance to it was made through Tunnel 10 on the west side of the Himmelberg. Today, the underground farm has passed from collective to private ownership.



Even larger were the two projects planned on either side of the Mittelwerk complex in the Kohnstein, B-11 and B-12. Again, only a small part of the underground space planned was ever

completed (about 65 per cent of B-11 and only five per cent of B-12), and about half of that actually taken into use by the aircraft industry before war's end. (Plan by Fred Dittmann.)



B-11 has now almost completely disappeared by 50 years of quarrying. This is the view of the Kohnstein and the site of B-11

as seen from the Mühlberg. Niedersachswerfen and the gypsum factory are on the far left.

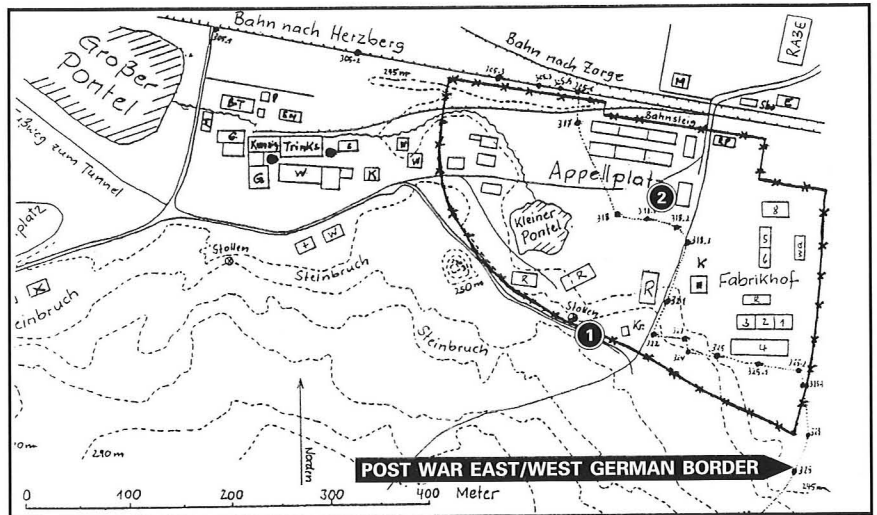


Left: The B-12 tunnels were reopened by the GDR authorities in 1965-66 and converted into a cold-storage warehouse for fruit, vegetables and tinned products for the surrounding region. This is the entrance to Tunnel C, opened in May 1965. Right: A deserted loading ramp hides the entrance to Tunnel D today.

In late January 1945, Kammler ordered a final concentration of all scientific, experimental and production capabilities in the Mittelbau area: a new Entwicklungsgemeinschaft (Development Association), headed by the scientist Alfred Buch, was to unite all firms and institutes involved in flak missile research, all of which were required to move to the Mittelbau area. Responsible for directing development and testing would be a new agency created by the Armaments Ministry, the Arbeitsstab (Work Staff) Dornberger, while production would be coordinated by the old Special Committee.

In early February, the Arbeitsstab Dornberger set up headquarters at Bad Sachsa, 12 miles north-west of Nordhausen. One by one, the development firms involved — the Electromechanische Werke GmbH (the old Heeresversuchsanstalt Peenemünde, now changed to a private firm), Ruhrstahl AG, Gyroskope AG, Walterwerke AG, the Henschel and Dornier aircraft works, etc — moved their establishments to the Nordhausen area.

Personnel and equipment from Peenemünde — moving by train, car, truck and river barge — settled down in Bleicherode, ten miles south-west of Nordhausen. (Traveling there by car in early March, von Braun



The slave workers for B-3, B-11 and B-12 were housed in camp 'Erich' at the village of Ellrich, three miles further west along the Zorge valley from Woffleben. Conditions in this sub-camp were at times more deadly than at 'Dora'. Key to buildings: [K] Kitchen, [X] Quarantine, [P] Stables, [R] Sick bay, [Kr] Crematorium, [RP] Guardhouse. The SS were billeted in the houses and factories around the camp. (Map by M. Bornemann.)

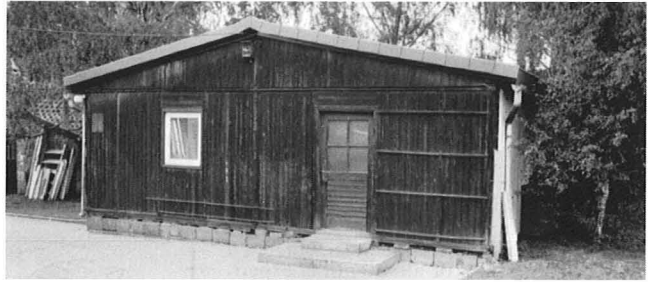
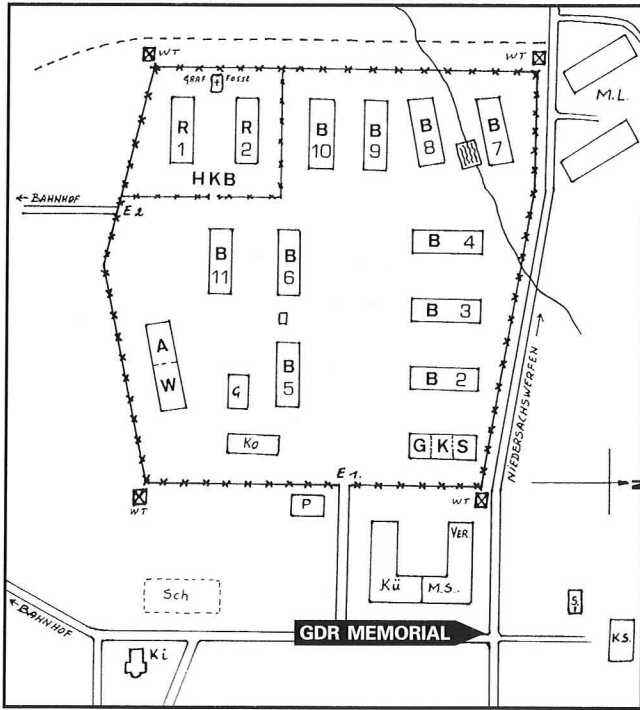


Left: After the war, Ellrich became an East-German border town, off-limits to everyone except local inhabitants and GDR border police. In fact, 'Erich' is probably unique in being the only former Nazi concentration camp cut through by the Iron Curtain — the East-German border security strip running right through the site where it had been. However, the high ground immediately overlooking it was West-German and, with access to the camp itself being impossible, a memorial stone ([1] on the plan) was set up here. Right: With the German reunification, the site finally became freely accessible again, and in May 1994 the Louvain branch of the Belgian camp survivors association erected a new memorial, this time on the actual spot ([2] on the plan).

was put out of action when he broke his arm in a car accident.) The research workshops and laboratories were provisionally set up in the nearby salt mines at Bleicherode, Neubleicherode and Sollstedt but, with the war obviously coming to its end, no serious work was ever done there.

Also in February, the Mittelwerk was ordered to take up series production of yet two more secret weapons, both small anti-aircraft rocket missiles and seen as the last-ditch weapons against the enemy air onslaught: the Taifun (a slim 1.9-metre-long ground-to-air missile weighing 19 kilos) and the Orkan (an 81-centimetre-long air-to-air missile weighing 4 kilos). Of 70,000 Taifuns ordered, 50,000 were to be of the 'P' (solid fuel) and 20,000 of the 'F' (liquid fuel) type. In March, Taifun production facilities at Oppau, Piesteritz, Linz, Trostberg, Rotterdam, Haarlem a.o. were transferred to the Mittelwerk. A production line was set up in the finished galleries of complex B-3a at Woffleben, but production never really got off the ground. When the war ended, only some 800 Taifuns, mainly of the P type, had been made here. As for the Orkan, it appears some 6,000 were manufactured, also in B-3a.

Earlier, in December 1944, the Henschel firm had already transferred part of its Berlin-Schönefeld factory to B-3a, their leading rocket scientist Professor Herbert Wagner installing research and production workshops there for Hs117, Hs298, X4 and X7



Left: Slave workers for B-3 and B-11 were also at Harzungen, located two miles east of Niedersachswerfen. [R] Sick bay, [GKS] Storage rooms, [Kü] Kitchen, [AW] Baths/WC, [P] Guardhouse. (Maurice Bouchez) Top right: A memorial from GDR times marks the site. Above: An original camp hut survives on the spot.

flak missiles. The Hs117 even reached series production (some 1,400 were made), but a Kammler order on February 6 forbade further production of all four types, although research on the Hs117 and X4 could continue.

Finally and completely unannounced, on March 5, the main staff of the Armaments Ministry moved into the Mittelwerk. Its chief, Karl Otto Saur (Speer's deputy since July 1944), had first ordered its evacuation from Berlin to Blankenburg in the Harz in February. When rumours sprang up that Blankenburg would be bombed, Saur, overriding all protests, demanded refuge in the underground shelter. One half of the offices in Gallery 1 were to be made available; they were luxuriously fitted out with glass doors, carpets and heated baths. To the prisoners of 'Dora' who saw them, these rooms and their occupants seemed like from another world. (Saur's staff also took over galleries in the nearby Mühlberg, hitherto used by the people of Niedersachswerfen as air raid shelter.)

Between all the new staffs, industries and institutes moving in with their personnel and machines, occurred the far more dramatic arrival of thousands of slave prisoners who had been evacuated from other camps. These wretched creatures arrived sick and hungry, having travelled for days in open trains in freezing cold, often without food or water. Many had died on the way. The first group, 1,000 prisoners from Buchenwald, arrived on January 24. It was followed in the next weeks by three from Auschwitz (some 4,000 persons), two from Gross-Rosen (4,700), one from Ravensbrück (992), again two from Gross-Rosen (5,324), and, in March, by one each from Bunzlau (441) and Aslau (487). Most of these 17,000 new inmates came to 'Dora', which was completely flooded by the new influx. The camp cinema (Block 131) was vacated and 1,200 crammed into it. On January 10, 'Dora' opened a sub-camp in a Luftwaffe barracks in Nordhausen, the Boelcke-Kaserne, which it used to accommodate sick prisoners, and the whole of the Gross-Rosen transport of February 16 (3,501 persons) was diverted there, as were the 487 inmates from Aslau on March 19.

Some of the new arrivals were put to work, but the majority was far too weak or sick to do any labour. The camp crematorium could not cope with all the dead and, in late Febru-

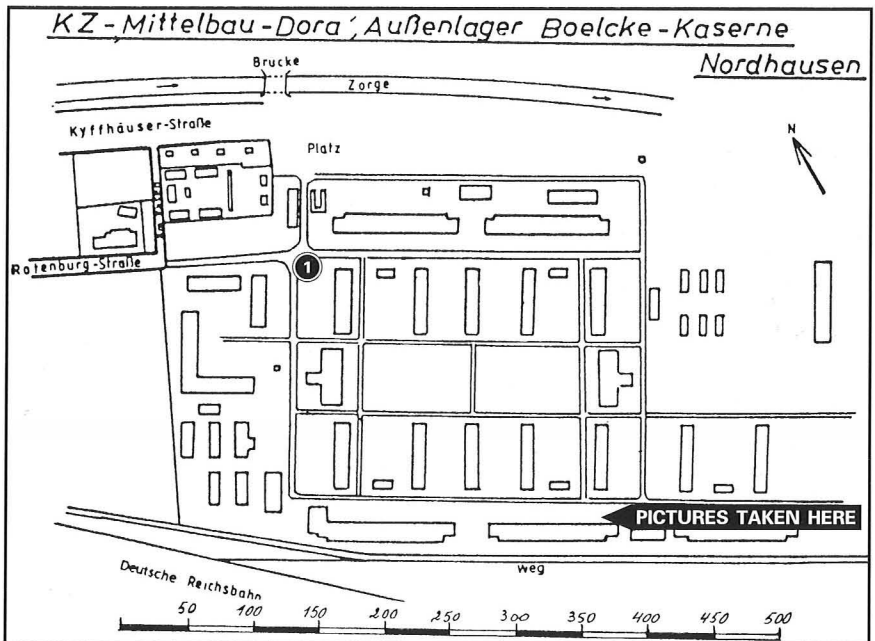
ary, corpses had to be burned in pyres in open air. On March 8, another transport of 2,250 sick and invalid inmates was shipped off to Bergen-Belsen.

With the inmates from evacuated camps came the SS guards and officers of these camps, many of them even more cruel and brutalised than those at 'Dora'. The reign of terror worsened. The number of dead from beatings and executions rose. An attempt by Russian and Polish inmates to break out of the 'bunker' on March 9, ended in them being massacred by the SS. There followed several mass executions on the roll-call square, some 52 inmates being hanged on March 10 and another 57 on March 20-21.

With enemy armies closing in from east and west, preparations were made to defend the Kohnstein. A Wehrmacht battalion was

stationed at Ilfeld and several Volkssturm companies organised. However, the inevitable end could no longer be averted. By early April, all production came to a halt. Papers were burned, and key managers and scientists ordered to make their way to Oberammergau in Upper Bavaria. Albin Sawatzki, disobeying an SS order to blow up the Mittelwerk factory, stayed behind determined to hand over the complex, of which he was so proud, to the Americans.

On April 3/4, and again the following night, RAF bombers bombed Nordhausen, destroying half the town and killing some 8,800 people, both locals and German refugees and slave workers. Hardest hit was the Boelcke-Kaserne, where some 450 camp inmates were killed in the first raid and 1,000 in the second.



In January 1945, the SS took over the Boelcke-Kaserne, a Luftwaffe barracks on the other side of Nordhausen town (see map on page 2), to cope with the rising number of sick and invalid inmates. In the weeks following, prisoner groups arriving from other camps were also diverted there, and by early April some 3,500 inmates — French, Belgians, Poles, Russians, Germans — were accommodated here.



On the nights of April 3/4 and 4/5, the barracks were hard hit when the RAF bombed Nordhausen town, and over 1,450 inmates were killed. When, six days later, US ground forces reached Nordhausen, they found the starved, emaciated survivors among the mangled corpses of the dead and dying. Many of the dead had succumbed to hunger, exhaustion or maltreatment. Others had been machine-gunned by the SS

guards when they attempted to run for cover during the air raids. However, the awkward fact that most of the dead found at the Boelcke were victims of Allied bombing rather than of SS killings was played down or left unsaid in the contemporary accounts — the caption to this photo by Signal Corps photographer Tech/4 James E. Myers for instance just says that they 'died of starvation or were shot by Gestapo men'. (USNA)

Meanwhile, SS-Sturmbannführer Richard Baer, who had succeeded Otto Förchner as commander of 'Dora' on February 1, had begun preparing the evacuation of all 40,000 inmates then still in the Mittelbau area. When Baer was wounded in a car crash shortly after, his deputy, SS-Hauptsturmführer Franz Hößler (see *After the Battle* No. 89, page 22), took over. Between April 4 and 7, all camps were emptied: inmates from 'Dora', Ellrich, Woffleben and the sick from Harzungen by train to destinations in northern Germany (Bergen-Belsen, Sachsenhausen, Ravensbrück); those from Harzungen, Rottleberode, Ilfeld and from camps BB3 and BB4 on foot to the north and east. Many were still to die, from exhaustion or shot by SS guards. One group of over 1,000 prisoners was locked in a barn near Gardelegen and burned alive.

In the days after, the local authorities around Nordhausen used the now-vacated secret weapons factory to shelter some 15,000 civilians, including several hundred patients from the town hospital.

Today, a huge industrial complex covers the site of the Boelcke Barracks, and only a few of the original buildings survive. Luckily for us, these include the ones in the Signal Corps pictures, though we had to sneak into the estate on a Sunday to take our comparison.

On the morning of April 11, Combat Command B of the US 3rd Armored Division occupied Nordhausen, finding 405 emaciated prisoners surviving among the dead and debris at the Boelcke-Kaserne. The under-

ground factory was only discovered in the late afternoon, by another CCB task force which approached the Kohnstein from the direction of Ellrich. Entering through the northern entrance, the American GIs were



Troops of both the 3rd Armored Division and the 104th Infantry Division, who arrived in their wake, helped in the relief of the Boelcke Barracks. Sergeant Ragene Ferris of the 329th Medical Battalion, 104th Infantry Division, testified: 'We were battle-tired and combat-wise medics and we thought there was nothing left in the books we didn't know. Yet in a short period of two days, I and many others of the division saw and lived a story we shall never forget. We dismounted, litters in hand, and started for the nearest building with a sense of morbid anxiety. It was a sharp sting of reality which met us at the first doorway. Bombs had ground flesh and bones into the cement floor. Rows upon rows of skin-covered skeletons met our eyes. Men lay as they had starved, discoloured, and lying in indescribable human filth. Their striped coats and prison numbers hung as a last token or symbol of those who enslaved and killed them. In this large motor shop there were no living beings; only the distorted dead. We went to the stairs and under the casing were neatly piled about 75 bodies, a sight I could never erase from my memories.' (RIOD)



Sergeant Ferris: 'Dying on the second floor were, upon later count, about 25 men or half-men. Some of these, lying in double-decked wooden bedsteads, were grotesque yet hanging tenaciously to life's breath. They were still alive.' (RIOD)



A 3rd Armored Division soldier talks to a group of French political prisoners. Although the distinction is rarely made, American eyewitness accounts of 'Nordhausen concentration camp' usually describe the Boelcke-Kaserne rather than 'Dora'. (RIOD)



To speed up relief, Lieutenant Colonel Hugh W. Jones, the 104th Division chief surgeon, and Captain George L. Steinbeck, chaplain of the 329th, who spoke German, had about 100 male citizens of Nordhausen rounded up to clear away the rubble, act as litter-bearers and bury the dead. (USNA)



The industrial site is a closed area, but a memorial to the victims of the sub-camp and the bombing stands at the factory gate ([1] on the plan on page 34).



Left: The dead from the Boelcke were buried in mass graves dug by German civilians in a field opposite the communal cemetery, on a hillside overlooking Nordhausen, about one mile from the Boelcke Barracks, and on the same side of town.



Picture taken by US Army photographer Pfc John R. Briza on April 14. (USNA) *Right:* Looking back to the entrance of what is now the KZ-Ehrenfriedhof (Concentration Camp Cemetery of Honour) on Stresemannring, with the Hauptfriedhof beyond.

completely surprised to find a huge and completely intact bomb-proof factory. Soon, they were led to the camp near the southern exit, where they found some 700 weak inmates who had been left behind in the sick bays, and the corpses of those who had not been

burned. The medical troops of the 3rd Armored, and of the 104th Infantry Division which followed them, began immediate relief of the survivors, transferring them to emergency hospitals set up on Nordhausen airfield. Male citizens of Nordhausen were

rounded up and ordered to carry the litter cases and corpses, and dug mass graves on a prominent hill outside the town. In all, of some 60,000 prisoners sent to 'Dora-Mittelbau' between 1943 and 1945, an estimated 20,000 — one-third — had perished there.



Digging the grave pits and filling them with corpses took several days. (USNA)



Left: By April 18, when Signal Corps photographer Zwick took this picture, the mass graves had been landscaped. The view is south, towards the Boelcke Barracks (indiscernible in the far distance on the left). The main road leading into town in mid-



distance is the Hallesche Strasse. (USNA) *Right:* Today, symbolic crosses mark the mass graves in the KZ-Ehrenfriedhof. Trees hide the view of Nordhausen. The German Kriegsgräberfürsorge has recently restored the cemetery.



On the same day it liberated the Boelcke Barracks, the 3rd Armored Division also discovered 'Dora'. Most of the 10,000-odd inmates had been marched out by the SS the week before, and the Americans found only a few hundred inmates who had been left behind in the camp sick-bay. On May 1, the US Congressional Committee investigating Nazi atrocities (which we saw inspecting a V2 on page 22) made a tour of the camp. Here they are seen walking up the central Lagerstrasse. The hut in

the centre is Block 34, the storehouse, with the high fence of the camp sports ground sticking out beyond. Up on the far right is the camp prison. One Congressman said of the SS: 'They reached depth of human degradation beyond belief and constituted no less than organised crime against the civilisation and humanity for which swift, certain and adequate punishment should be meted out to all those who were responsible.' (USNA)



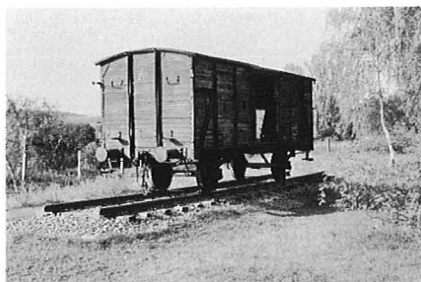


Above: On June 6, 1945, another American delegation, this time of the American Legion, toured the camp. Here, their cars are just passing the entrance to Tunnel B (away on the right). Beyond the concrete mixer and the V2 fuel tanks are the huts and buildings of the SS compound. On the left lie V2 half-sections, the cones of the rocket's apparatus compartment and more fuel tanks. (USNA) **Right:** The two pairs of gate posts make for an easy comparison.



In the days after, numerous Intelligence teams of the US Army, Air Force and Navy inspected the underground facilities and questioned every German specialist whom they managed to find. The most active team was one led by Major Robert Staver of the US Office of Scientific Research and Development. Another was the USAAF's Strategic Bombing Survey team. Also, from May 5-22, a British research commission, SHAEF's Central Intelligence Sub-Committee (CIOS) Team No. 163 led by Colonel W. R. J. Cook, made a thorough inspection, not just of the Kohnstein complex but of all the other underground construction projects and secret objects in the Mittelbau area.

Right: Outside the camp, the Allies found large quantities of V1 and V2 parts, stored in the open for lack of space inside the mountain. These V2 tail units are along the road just before the entrance to Tunnel A (the turn-off can be seen in the distance on the right). The box-car train in the background stands on one of Tunnel A's rail tracks. (BA) **Below left:** The curve of the camp road helps to pinpoint the spot.

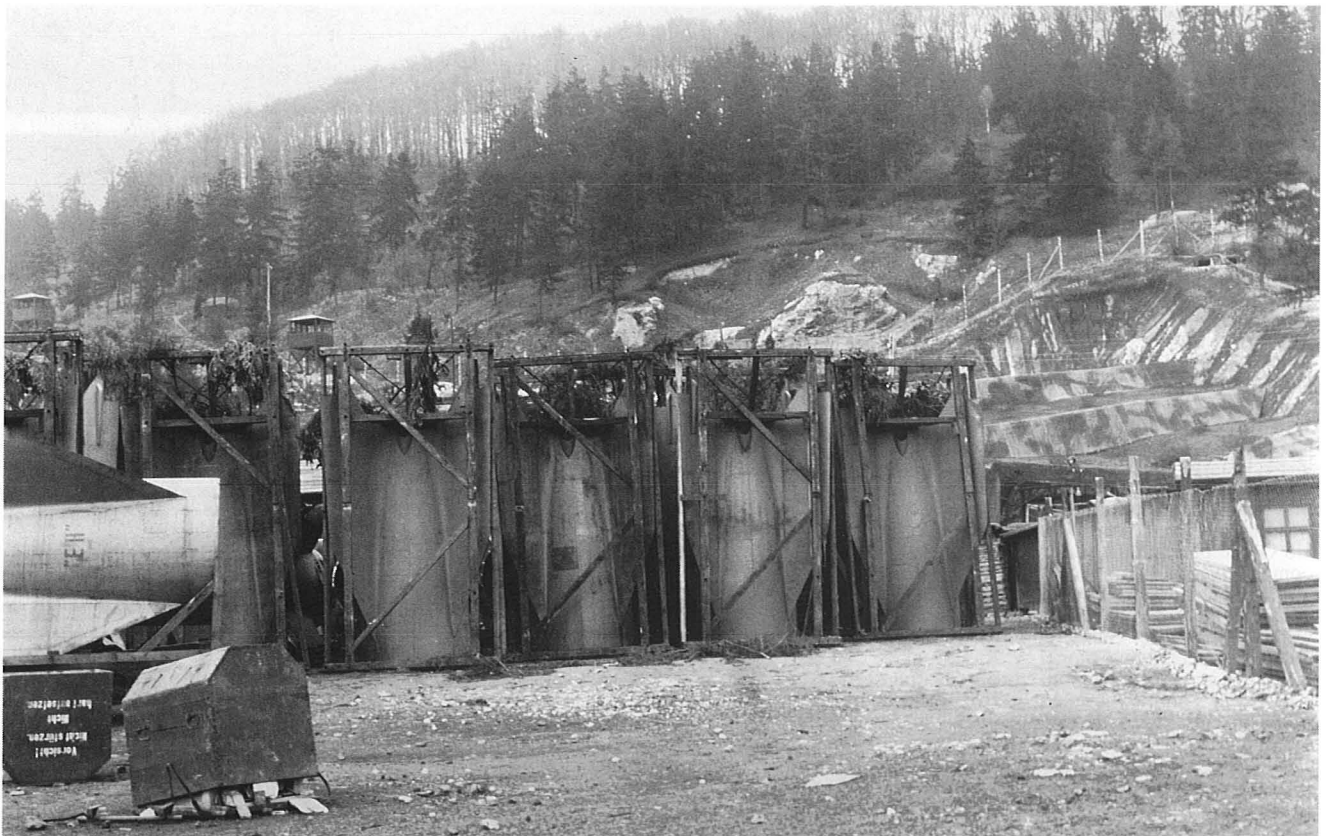
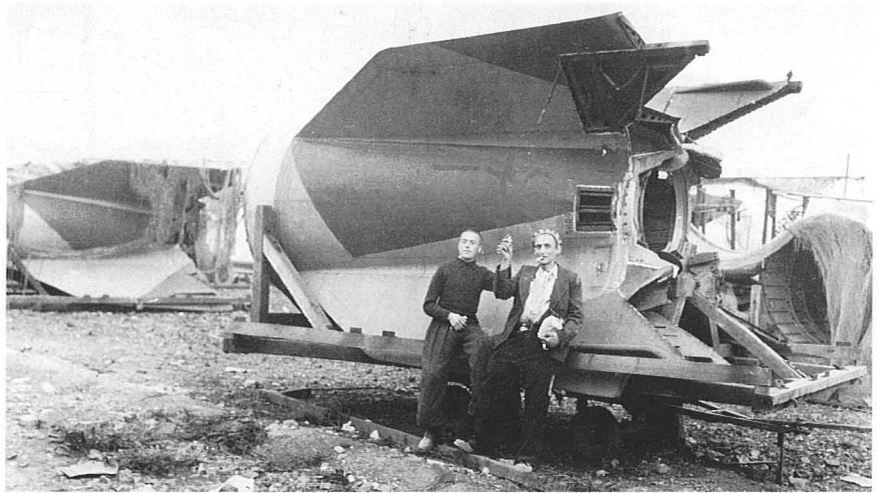


Right on the line of the train track now stands the waggon commemorating the prisoners who died during the harsh train journeys to and from 'Dora'.



Two liberated slave labourers pose for Signal Corps photographer Pfc John Briza beside a V2 tail unit. (USNA)

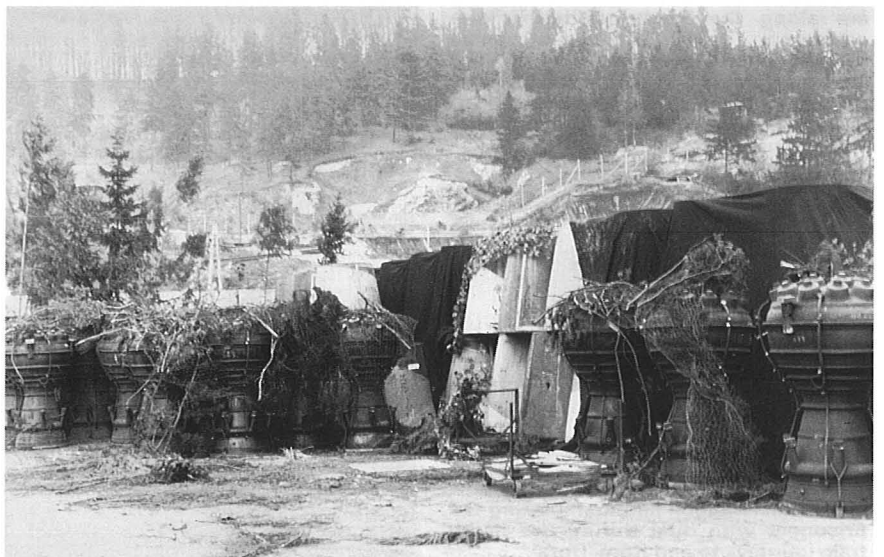
Nordhausen was in the Russian zone of occupation as agreed on at the Yalta Conference, and officially the western Allies were not allowed to remove any industrial machinery, equipment, or scientific information from it. However, between April 11 and May 6, Major Staver, who was mainly interested in rockets, had numerous completed V2s and all complete specimens of the Taifun (P), Hs 117, Hs 298, X4 and X7 missiles, together with every document and blueprint his men could find, packed in crates and sent via US Ninth Army G-2 to Paris. From what was left, the British in turn had their pick, removing individual components of the V2 rocket and C2 missile and various radio and navigational apparatus. Another catch were the Peenemünde scientific archives. After a long search, Staver finally found the ten tons



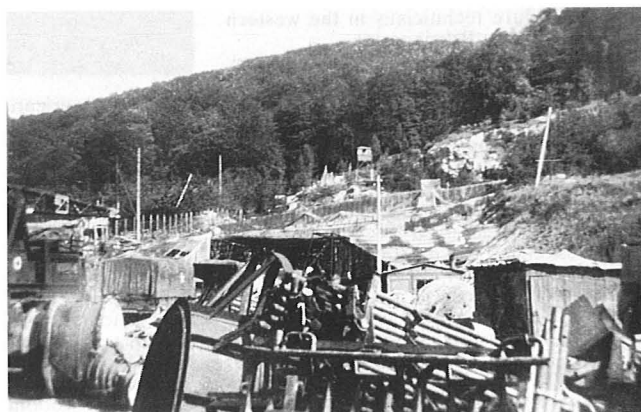
More V2 tail units, these ones packed in transport frames, parked behind the welding shop (Schweisshalle — see the plan on pages 12-13) outside Tunnel A. The camouflage of the tunnel entrance can be seen on the right. Compare with the pictures on page 7. (USNA)

of crated documents around the middle of May in the deserted 'Georg-Friedrich' iron-ore mine at Dörnten near Goslar, where a special squad of von Braun's men had buried them in early April. And just before the Russians moved in, Major James P. Hamill of the US Technical Information Mission in Europe removed enough of the half-finished V2s found left on the assembly line in Tunnel B plus component parts, shipping them from Antwerp to New Orleans, to enable the Americans to later assemble 100 rockets from them (see *After the Battle* No. 6).

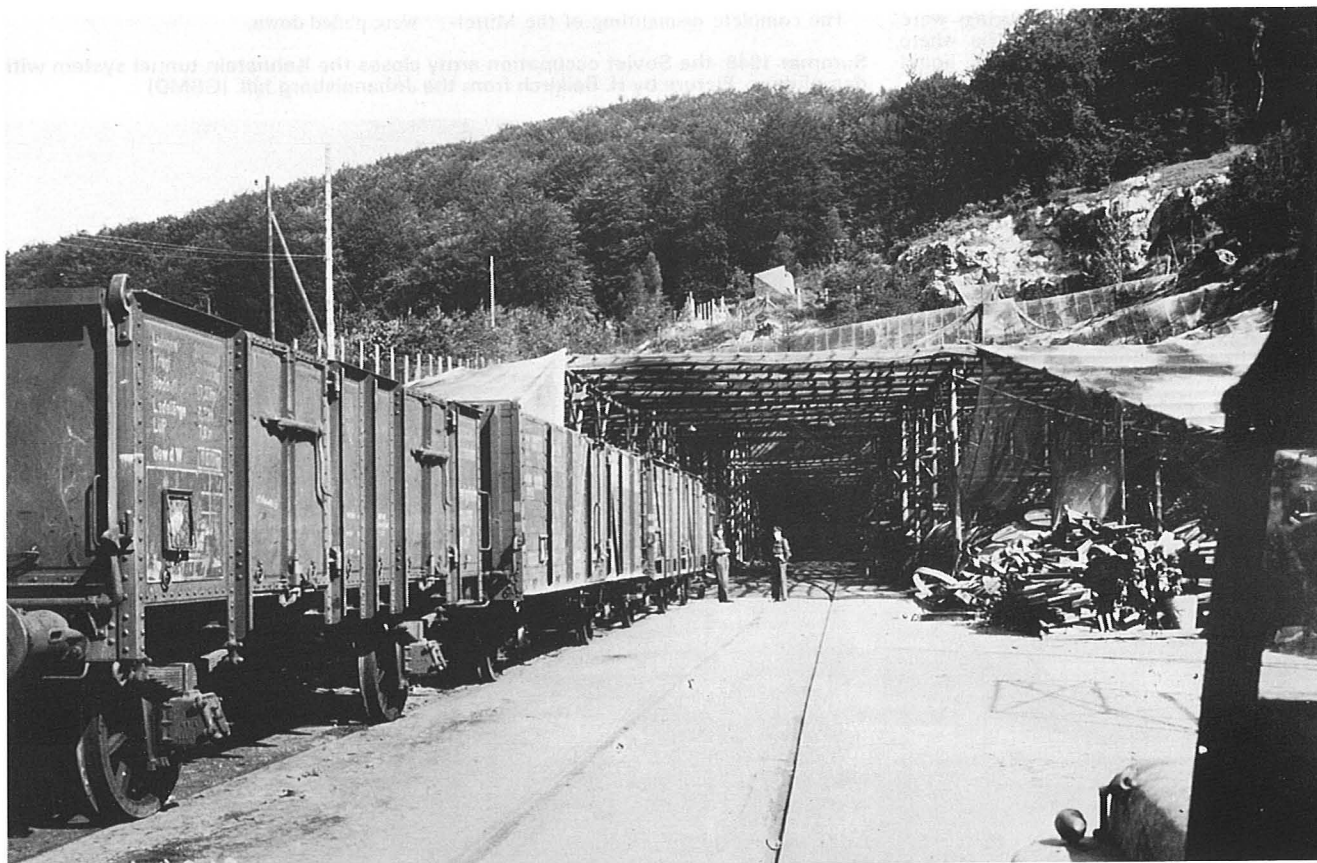
Almost on the same spot, rows of V2 combustion units and, partly under canvas, V2 apparatus compartments. The welding shop is visible on the left. (USNA)



Right: Of course, the secret underground factory, captured completely intact, attracted much attention from Anglo-American scientific intelligence teams. Though bound by the Yalta agreement not to remove anything, the Allies carried off a large number of V2s, experimental missiles and tons of scientific papers before the Russians arrived in July. Here, a US Jeep is seen leaving Tunnel B. Compare with the pictures on page 6. (RIOD) Below: One of the units helping SHAEF's scientific Team No. 163 to remove hardware from Nordhausen was the 1680th Artillery Platoon, RASC. They arrived on June 5 with 26 3-ton trucks. In addition to loading several trains, they despatched four vehicles loaded with 'special equipment' to Brussels by road on the 14th, leaving themselves on the 19th. Lance Corporal John Pike pictured one of the platoon's Bedfords along the Mittelwerk railway. (via Percy Upton)



This snapshot, taken by Driver Rich Edwards, shows two of the platoon's trucks near the entrance to Tunnel B. (via Upton)

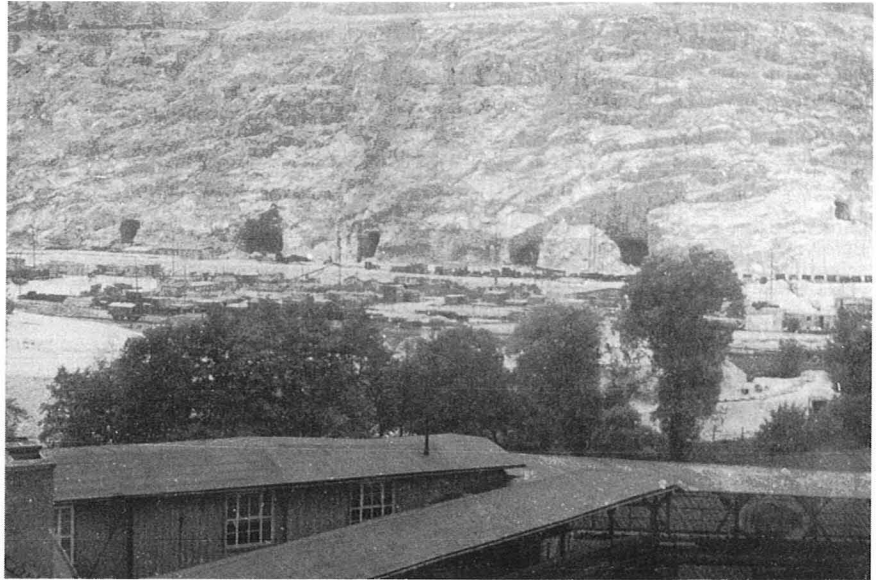


Tunnel B pictured by a member of the British research team in May 1945. The train is probably one of those used by them to

remove V-weapon parts from the factory. Note that the watchtower above the entrance has now collapsed. (BA)

On July 1, 1945, the Americans handed the Nordhausen area over to the Russians. Despite repeated requests by many of the captured German managers and scientists not to let the secret factory fall in Soviet hands intact, the Americans had refused to destroy it. The first Russians to find the tunnel complex were a four-man team under Lieutenant-Colonel Vladimir Shabinsky, who had come to inspect the Niedersachswerfen cement factory and only came upon the underground factory by chance. Although no assembled rockets were left and all scientific papers and major scientists had been removed, the Russians found an intact assembly line, masses of component parts and enough knowledgeable lower-echelon personnel to enable them to again start up production of V2 rockets at Nordhausen itself. To seduce the German engineers, foremen and craftsmen into cooperating, the Russians offered them good houses, high wages and plenty of food and clothing for them and their families. They even managed to secretly lure technicians in the western zones back to the Russian zone.

While the rest of the underground factory was systematically dismantled and shipped off to the Soviet Union, a part of the assembly line was moved to the buildings of the salt mine at Kleinbodungen, which had previously served as Mittelwerk repair workshops, and a special 'rocket reconstruction office' set up at Bleicherode. The whole project was directed by a Technical Special Commission, led by General Kutshnik (later General Gaidukov) with headquarters at Nordhausen. The new rocket factory, known as the 'Central Works', was led by Hellmut Gröttrup, who had been one of von Braun's electric equipment specialists. Between August 1945 and October 1946, the German and Soviet technicians first reconstructed, then built A4 rockets. Components no longer available were simply ordered anew at the supplier (some orders even being placed in the western zones, the components being secretly smuggled out!). Test firings were conducted at Lehesten in Thuringia, where there had been a factory producing liquid oxygen for V2s, and later at Peenemünde.



Like the Americans, the British thoroughly explored all the various underground facilities before the area was surrendered to the Russians. These are the tunnel entrances of B-11 at Niedersachswerfen, pictured by John Pike of 1680th Platoon. (via Upton)

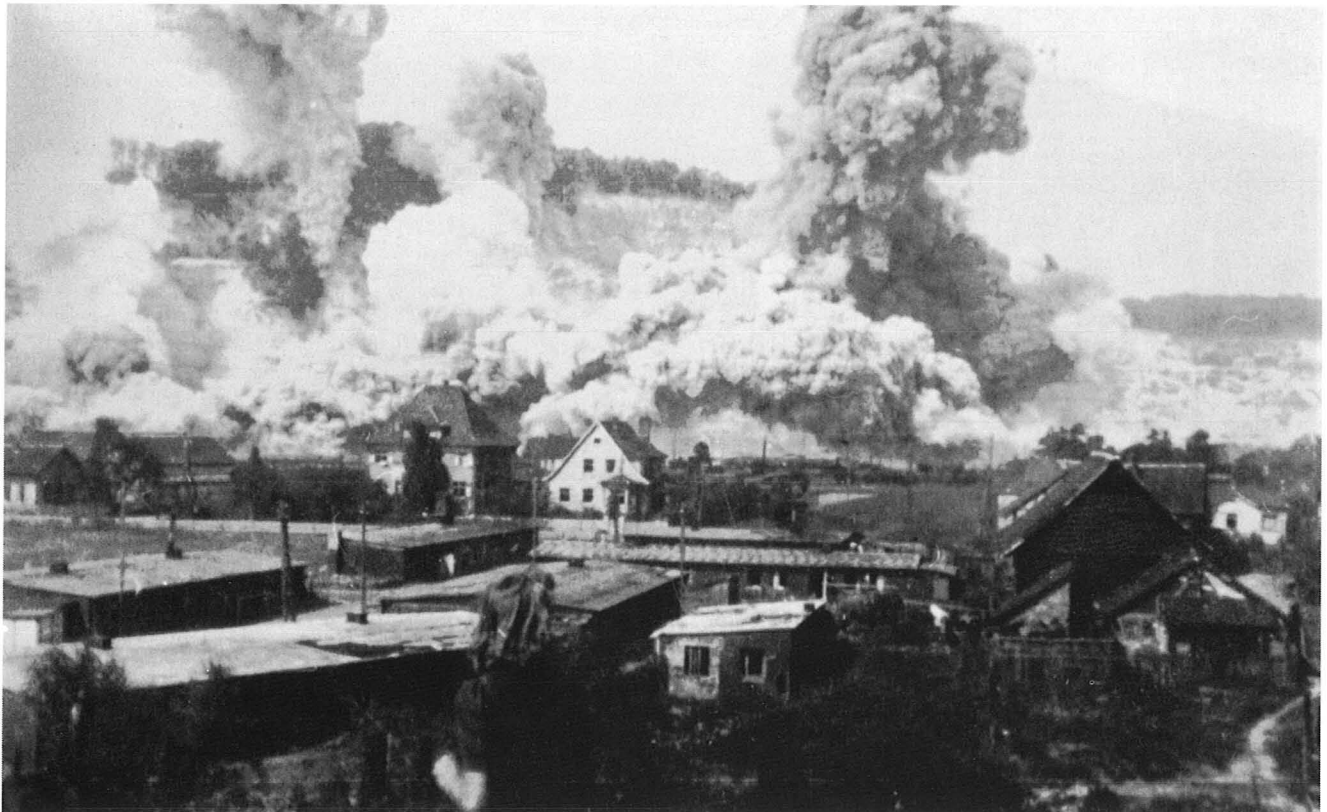
However, the German technicians were in for a surprise. On October 22, 1946, Red Army units sealed off Bleicherode and announced the forced 'evacuation' of all German specialists and their families, some 2,000 people in all, to the Soviet Union. Everyone and everything was loaded on a special train which left Kleinbodungen on the 25th for Moscow. Most would come to work at the ballistics research station on the island of Gorodomla in Lake Seliger, 200 miles north of Moscow, there to develop the Soviet R10 and R14 rockets before being gradually allowed to return to Germany in 1950-55.

The complete dismantling of the Mittel-

werk complex took till the spring of 1948. That summer, the Soviets filled the underground factory with explosives and tried to blow it up. The detonation failed to produce the desired result, so they sealed the tunnels by blowing up the entrances.

After liberation, camp 'Dora' was used by the Americans as a Displaced Persons camp. In August 1945 and a few weeks after, the Russians used it to intern former Nazis. From November, it housed German refugees, mainly Sudeten Germans driven out from Czechoslovakia. Dissolved in August 1946, the camp was broken up and all the huts, guard towers and the camp fence were pulled down.

Summer 1948: the Soviet occupation army closes the Kohnstein tunnel system with demolitions. Picture by H. Beikirch from the Johannisberg hill. (GSMD)



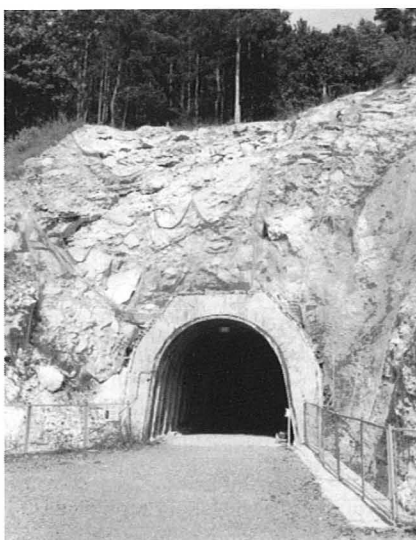
A 'Dora' war crimes trial was held before a US Military Court at Dachau in 1947. On trial stood only one civilian, General Director Georg Rickhey (who was acquitted), and 18 SS officers and guards. After that, the records of the trial and the preceding investigation were classified and would remain secret for over 30 years. This was to suppress the embarrassing truth that some of the German scientists whom the Americans had brought to the US and who were to pioneer the American space programme — men like Arthur Rudolph, Mittelwerk's plant manager and chief clerk, and later project director of NASA's Saturn 5 project — had been closely involved with 'Dora-Mittelbau'. (Rudolph only came up for prosecution in 1978 after US President Jimmy Carter had created the Office of Special Investigation to prosecute Nazi war criminals living in the US; in 1983, before he could be charged, Rudolph relinquished US citizenship and returned to Germany. He died in 1996.)

In the post-war world, Nordhausen and the Kohnstein became part of East Germany. The 'Dora' camp site was made a memorial by the local GDR authorities, the area around the crematorium being landscaped and a bronze sculpture being dedicated in front of it in 1964. In 1973, the site became an official GDR Mahn- und Gedenkstätte (Remembrance and Memorial Site) and a museum exhibition was opened in the crematorium building. Many state-organised, anti-Fascist mass meetings were held here, but few people from the West managed to visit it. (When After the Battle first asked to visit and photograph the site back in 1973, the request was refused on the grounds that the location was 'a border area'.)

For over four decades, the underground tunnels of the Mittelwerk remained inaccessible (except for the occasional adventurous souvenir-hunter who illegally and riskily climbed down the air shafts). Only Tunnels C and D (of the never-finished project B-12) on the north-east side of the Kohnstein were re-opened in 1965-66 and made into cold-storage warehouses for vegetables and fruit. Meanwhile, the gypsum quarry at Niedersachswerfen, restarted by the Russians in 1945 and continued as the Leuna-Werke 'Waltherr Ulbricht' by the GDR since 1953, nibbled away at the Kohnstein. By 1990, quarrying had taken away nearly all of what had once been project B-11 and almost reached Tunnel A between galleries 40-44.

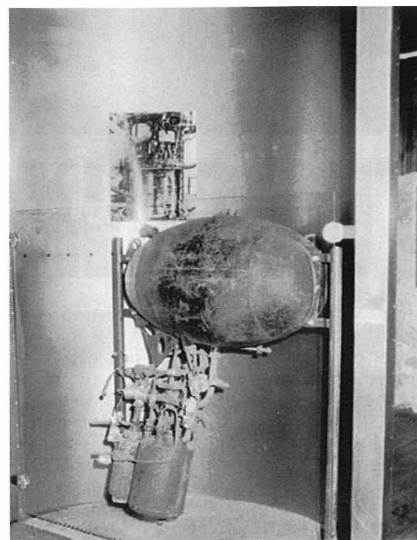


The memorial wall erected beside the Appellplatz in GDR times.



The new tunnel, dug in 1988-95 to enable visitors to enter Tunnel A.

With the German re-unification of 1990, the Gedenkstätte Mittelbau-Dora, like the other camp memorials in the former GDR, was faced with a thorough reorganisation and overhaul of its conception. Meanwhile, the threat to the tunnel system grew as the gypsum factory, now taken over by a West-German owner, accelerated quarrying even more. It was only lifted in June 1991, when the state of Thuringia declared the tunnels a protected



V2 'T-Stoff' container recovered from the Kohnstein and now at the new museum.

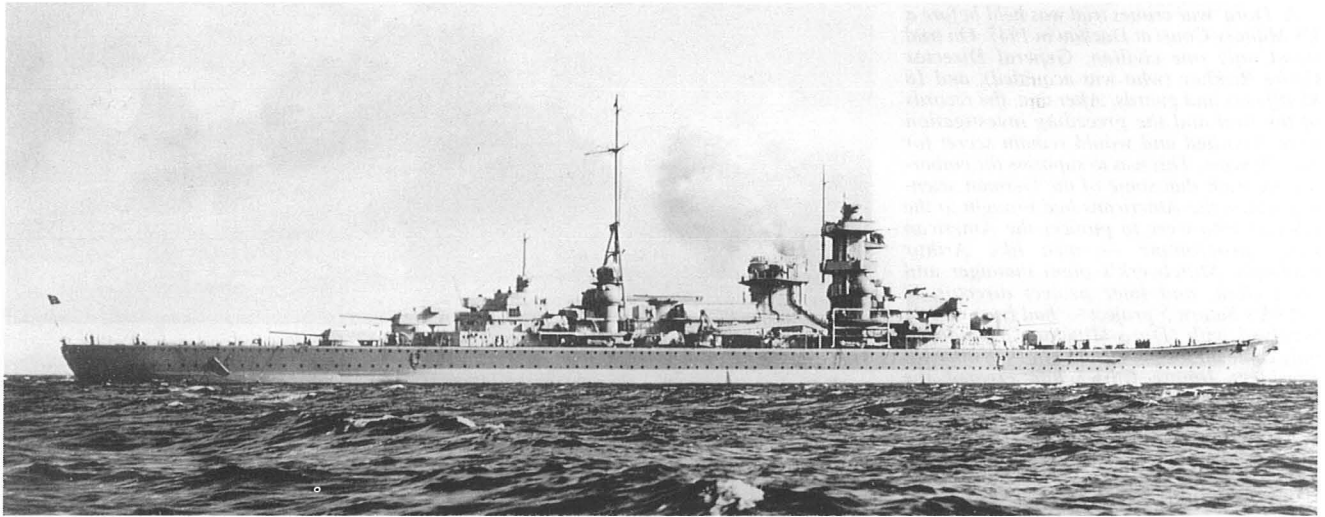
historical site. In 1992, the exhibition in the crematorium was removed, both because it was too one-sided and in order to restore the building's authentic appearance. Since 1991, large parts of the actual camp, which the GDR authorities had allowed to disappear under bushes and trees, were cleared, laying bare the foundations of nearly every hut and building. On one of these, an original camp hut was rebuilt; this was used to house a new and more-balanced exhibition which was opened on April 11, 1995 — the 50th anniversary of the camp's liberation. Other memorials erected by the GDR were left in place.

At the same time, work was in progress to make at least a part of the underground galleries accessible to visitors. For that purpose, a new 180-metre-long tunnel was dug from just next to the southern entrance to Tunnel B, giving access to a 100-metre stretch of Tunnel A and views of Gallery 46, one of those where in 1943 several thousand inmates subsisted and later V1s were assembled. The tunnels can only be visited as part of conducted tours given by the Memorial staff. In 1995, there were over 100,000 visitors. All galleries are in a state of total chaos and destruction — the result of dismantling, demolition and erosion — and partly flooded by ground water. In the dark, damp tunnels, between the debris and rocks, lie the rusty remains of machinery, equipment and the sinister remains of once-secret weapons — macabre memorials to the suffering that took place here.

KZ-Gedenkstätte Mittelbau-Dora. Open daily, 10 a.m.-6 p.m. (10 a.m.-4 p.m. from October 1 to March 31). Guided tours Tuesday to Friday at 11 a.m and 2 p.m. Applications by phone: 03631-983636/fax: 03631-990181. The Gedenkstätte has its own documentation centre, library, research department, publication series, and seminar days.



In April 1995, a spectacular recovery operation took place when a complete turbo section of a V2, which had been located the previous September, was raised from the water in Gallery 29 to be displayed at a special exhibition on Nazi rocket scientists at the Technik-Museum in Berlin. (Technik-Museum)



THE SINKING OF THE *BLÜCHER*

By Major T. G. W. Potts

An observer standing at the entrance to Oslo Fjord on the night of April 8, 1940 might have caught sight of a procession of blacked-out warships proceeding in a northerly direction towards the Norwegian capital Oslo. These comprised Germany's Warship Group 5 and, as part of Operation 'Weserübung', they were to reach the narrows outside Oslo at 0400 hours on the 9th and effect an immediate surprise landing at the capital shortly afterwards. Leading the column was Hitler's brand new heavy cruiser *Blücher* (the flagship of Konteradmiral Oskar Kummetz) which only ten days earlier had been undergoing trials and receiving last minute improvements and modifications. Her crew was not fully trained or worked up and she was included in the operation despite the opposition of the Commander-in-Chief of the Kriegsmarine, Grossadmiral Erich Raeder. *Blücher* was about the size of HMS *Belfast*, the museum ship moored in the River Thames, having a displacement of about 12,000 tons.

She was followed by Germany's only serviceable pocket battleship *Lützow* (formerly named *Deutschland*) which was also taking part despite Raeder's objections as he wanted her to begin distant ocean raiding after further repairs. She also displaced about 12,000 tons.

She was followed in turn by the light cruiser *Emden* (5,600 tons), three torpedo boats, eight motor minesweepers and various other support vessels. In addition to their normal crews, the German squadron also carried 2,000 soldiers, some motor transport, and administrative personnel for the running of Norway, including a detachment of Gestapo. Thus, the heavy ships were seriously overloaded with men. The German plan was to capture all Norway's major ports simultaneously on the morning of April 9 without a prior declaration of war. In his Decree for the Execution of 'Weserübung' Raeder wrote:

'The Führer and Supreme Commander, in order to ensure vital German interests, has imposed upon the Wehrmacht a task, the success of which is of decisive importance to the war.

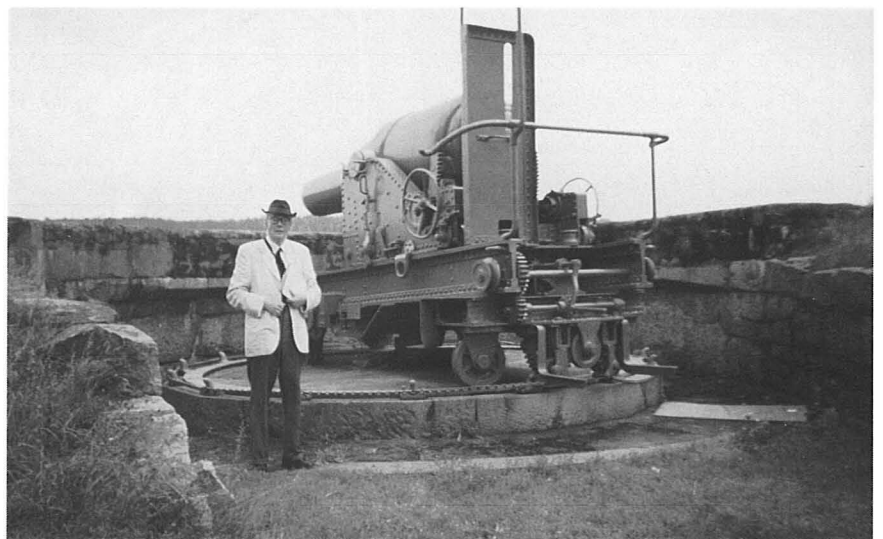
'The execution and protection of the landing operations by the Kriegsmarine will take place mainly in an area in which not Germany, but England with her superior naval forces, is able to exercise control of the sea. In spite of this we must succeed, and we will, if every leader is conscious of the great-

ness of his task and makes a supreme effort to reach the objective assigned to him.

'It is impossible to anticipate the course of events and the situations which may arise locally. Experience shows that luck and success are on the side of him who is eager to discharge his responsibilities with boldness, tenacity and skill.

'The pre-requisite for the success of the operation are surprise and rapid action. I expect the senior officer of every group and every commanding officer to be governed by an inflexible determination to reach the port assigned to him in the face of any difficulty that may arise. I expect them to enter the ports of disembarkation with the utmost resolution, not allowing themselves to be deterred by the holding and defence measures of the local commanders, nor by guard ships and coastal fortifications.

'Any attempt to check or hinder the advance of our forces must be repulsed. Resistance is to be broken ruthlessly in accordance with the directives in the operational orders.'



The heavy cruiser *Blücher* (top), built by Deutsche Werke at Kiel, was launched on June 8, 1937. She was the sister ship to the *Admiral Hipper* launched at Hamburg four months earlier. The *Blücher* was commissioned on September 20, 1939 being sunk in Operation 'Weserübung' in April 1940. (IWM) Above: Major Tom Potts, our author, pictured with one of the two 28cm (11-inch) guns which helped send her to the bottom. Ironically, they were constructed in the German Krupp factory in Essen!

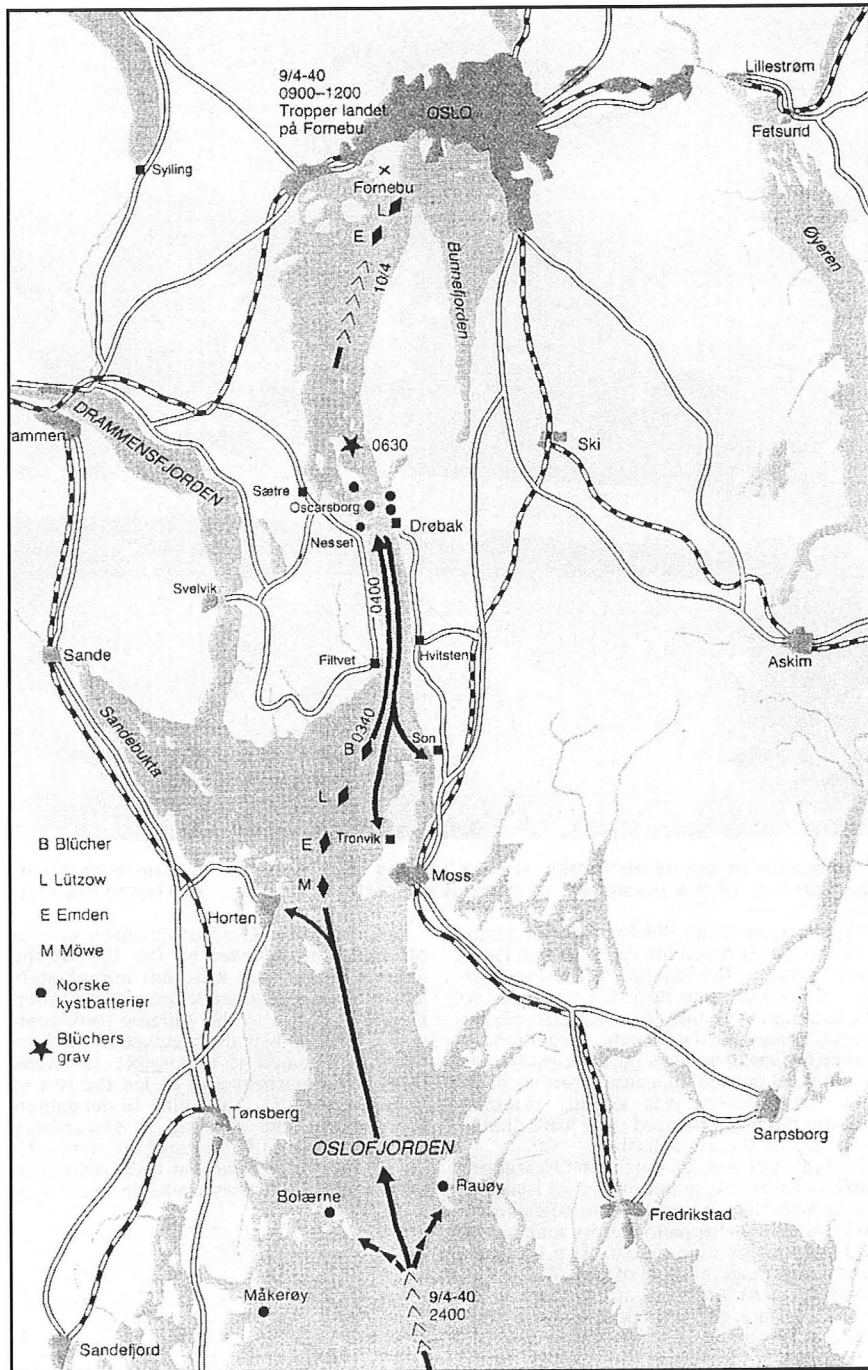
A small Norwegian patrol boat *Pol III*, a 214-ton whaler mounting a single gun, raised the alarm at 2306 hours firing warning shots and attempting to ram the German torpedo boat *Albatros*, having called upon it to surrender. A German officer ordered his men to 'take care of it'. The Germans opened fire and a shell cut off both legs of the brave skipper, Leif Welding Olsen. Mr Churchill wrote in *The Gathering Storm*: 'The armed Norwegian whaler went into action at once without special orders against the invaders. Her gun was smashed and the commander had both legs shot off. To avoid unnerving his men he rolled himself overboard and died nobly.' Fourteen Norwegians were rescued from the *Pol III* to become the first prisoners of the campaign.

The *Lützow's* commander, Kapitän zur See August 'Curry' Thiele, suggested to Admiral Kummetz in the *Blücher* that as surprise had been lost, the squadron should proceed up the fjord at a faster speed before all the lighthouses were doused but the admiral insisted on adhering strictly to his orders. He planned to maintain the fiction of peaceful occupation and to land at the harbour in Oslo at about 0500 hours. The first of the soldiers would then race to the royal palace and take King Haakon II into custody. To preserve the pretence of a friendly occupation, the King would be serenaded by a Wehrmacht band which was included in the invading forces.

From the German point of view, the most dangerous point in the trip north to Oslo was likely to be at the Drobak Narrows, where the width of the seaway is reduced to about 600 yards. Defending the narrows was the very elderly fortress of Oscarsborg, situated on South Kaholmen Island in the middle of the fjord, about ten miles south of the capital. Oscarsborg fortress is named after the Swedish King Oscar, who christened it in 1855, when Sweden ruled Norway. It still looks substantially the same today as it did in 1940 and, indeed, in 1855. Everything depended on whether the defenders of Oscarsborg could stop the invaders. The main armament of the *Blücher* was eight 20.3cm (8-inch) guns and twelve 10.5cm (4-inch) guns while the pocket battleship *Lützow* had a main battery of six 28cm (11-inch) guns. The Norwegian artillery in their principal fortress consisted of three 28cm (11-inch) guns made by Krupp in 1892. These were known as Josva (Joseph), Moses and Aron (Aaron). Joseph being so named because, on being unloaded nearly half a century before, it had been dropped in the water! The three guns were manually operated and had no protective cover. Each had a built-in manually operated crane to enable the 600lb shells to be lifted up to the breach of the guns. The rate of fire would have been one round every four or five minutes.

On the eastern side of the fjord, on the mainland north of Drobak village were situated three 15cm (6-inch) guns based at Husvik and two 57mm (6-pdr) guns on the foreshore. There was another battery on the western side of the fjord at Nesit. This took no part in the action.

The defences at Oscarsborg were the last significant defences before Oslo. How would the defenders react? They were seriously handicapped because successive Norwegian governments had allowed the defences to run down to an unbelievable extent. The garrison commander, Colonel Birger Kr Eriksen, already warned of an impending attack, lacked even the minimum number of men to crew the three serviceable 28cm Krupp guns. All he could muster to fight a night action against a moving target on a dark and misty night were two sergeants and 23 young trainees, some of whom had only served for nine days. Thus, he could only man two of the three serviceable heavy guns. His other soldiers, officer cadets, were sent in the



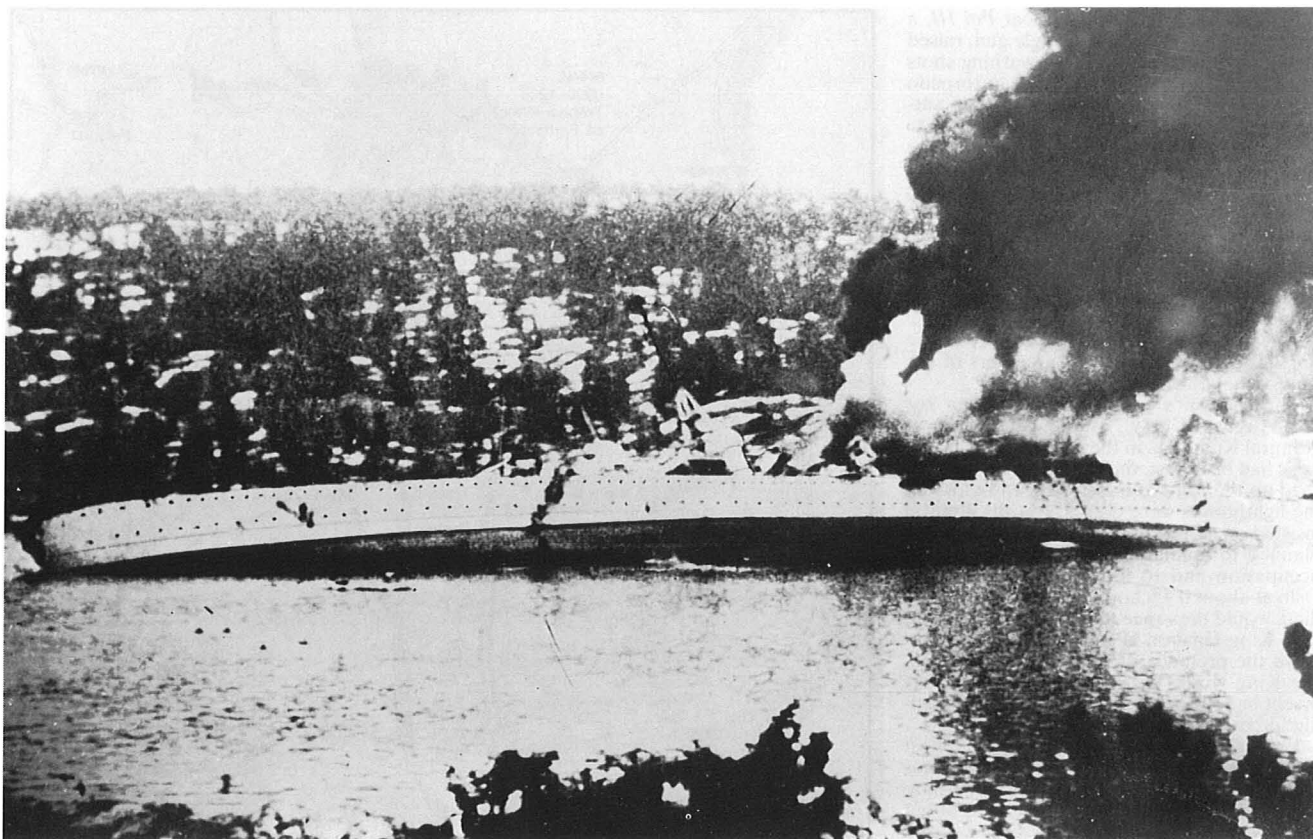
Schematic of the voyage up Oslo Fjord on the night of April 8, 1940. [B] *Blücher*. [L] *Lützow*. The latter was the first of Germany's new breed of 'pocket battleships' which cleverly circumvented the tonnage restrictions on new capital ships as laid down in the Treaty of Versailles. Launched in May 1931 and christened *Deutschland*, in January 1940, she was confusingly renamed *Lützow*, the same name as a heavy cruiser launched in July 1939 and sold to the USSR in 1940. [E] *Emden*, a light cruiser dating from 1925. [M] *Möwe*, a torpedo boat constructed in the mid-1920s. [●] Marks the positions of the Norwegian coastal batteries. [★] *Blücher's* sinking position.

middle of the night to man the batteries on the eastern side of the fjord.

The Norwegians stationed two small patrol boats immediately south of Oscarsborg to warn the defenders of the approach of the hostile squadron. Admiral Kummetz adhered strictly to his orders and, without any escorting warships ahead, steered straight for the narrows in an attempt to bluff the defenders. A searchlight lit up the *Blücher*. Colonel Eriksen, the fortress commander, gave the order to open fire on his own initiative when the *Blücher* was at a range of about 1,500 yards.

Against a moving target the Norwegians must have known that they only had time to

fire one round from each gun. By the time the gunners actually fired, the target was considerably closer, perhaps as close as 500 to 1,000 yards. Both rounds were hits, although, because of the reduced range, higher up the target than intended. Nevertheless, the two heavy shells had a devastating effect. The *Blücher* had an aircraft hangar designed to hold Arado Ar 196 seaplanes. They were full of petrol. There was also some motor transport aboard. A direct hit on the hangar set the petrol on fire. The second shell flew over the bridge and struck the foretop, killing the anti-aircraft commander, Kapitänleutnant Hans-Erik Pochhammer, and those around him.



The *Blücher* in her death throes. As the burning ship reached the narrows to the north-east of Oscarsborg fortress on the morning of April 9, she was struck by two torpedoes and started to founder.

The captain of the *Blücher*, Kapitän Heinrich Woldag, ordered full speed ahead. However, owing to the damage it had received, the cruiser started to turn in a circle and so the captain could only steer her through the narrow channel by varying the revolutions of the propellers. The guns on the eastern side of the fjord opened up, causing further damage. The *Blücher* was already doomed because the inexperienced crew were unable to extinguish the fire amidships.

About half a mile north of Oscarsborg fortress lies the neighbouring small island of North Kaholmen where the Norwegian navy had positioned a torpedo battery manned by two officers and nine sailors. At a few hundred yards range, they fired two Whitehead 50cm (20-inch) torpedoes at the *Blücher*. By a quirk of fate, the torpedoes had only just been overhauled, and they ran very true indeed and at 0521 hours two dull explosions shook the ship, ripping open the port side. The *Blücher* immediately began to founder as water poured in and her turbines stopped. Meanwhile, the fire in the hangar got worse. As the ship was drifting on to the rocks on the side of the fjord, an order was given to drop an anchor. At 0630, there was a large explosion as a magazine blew up. A great column of smoke shot into the sky. By 0700, the stricken warship had developed a 45 degree list and she soon lay on her side. At 0731 hours she sank beneath the surface and subsequently there was a further explosion and flames could be seen under the water.

The ship had only one small boat useable as a lifeboat which was used to transport wounded to the shore, but the bulk of the 2,500 crew and passengers who survived were faced with having to swim the 400 or 500 yards, either to the eastern shore or to a small island in the middle of the fjord. The water was freezing. The danger to the survivors was increased by burning oil which spread over the water threatening to engulf them. In all, about 1,000 Germans lost their lives.

The rest of the German squadron was cut off from the *Blücher* by the fire of the defenders and they were not immediately aware of what had happened to the cruiser. Kapitän Thiele in the *Lützow* took command. His ship had also received some damage. He deemed it impossible to break through the narrows and he led the rest of the squadron off to the south. In the gathering daylight, the garrison at Oscarsborg could see Junkers Ju 52 transport planes flying up the fjord to land at Oslo. However, there was nothing they could do about it as

the only anti-aircraft weapons they had available were a couple of machine guns on an island near the fortress and two Bofors guns on the eastern side of the fjord. There was no prospect of any air support for the Norwegian Air Force which was grossly outnumbered by the Luftwaffe.

During the daylight hours on April 9, the garrison on Oscarsborg was repeatedly bombed from the air and about 500 bombs of 50kg (110lbs) and 250kg (550lbs) were dropped on them. All they could do was seek refuge in the fortifications. Astonishingly, no



Old Norwegian coast artillery gunners never die — they only meet on a Thursday! (Tom forgot to ask why but see *After the Battle* No. 95.) L-R: Ole Slaake, Per Halvorsen, Magnar Thorvardsen, Magne Lundby, Alf Stafne, Arnold Lange, Ragnar Toensberg. In the background on the left is Oscarsborg and on the right Kaholmen Island. Tom Potts is indebted to these gentlemen for their help.

Having been ripped by shell-fire and slammed by two torpedoes, the *Blücher* was doomed. At 6.30 a.m., her magazine blew up sending a huge column of smoke skywards. She then lay on her side for an hour before disappearing from sight beneath the surface of the fjord which at that point is around 50 fathoms deep.

significant damage was inflicted on the fortress by either the German navy or air force and no Norwegians were injured.

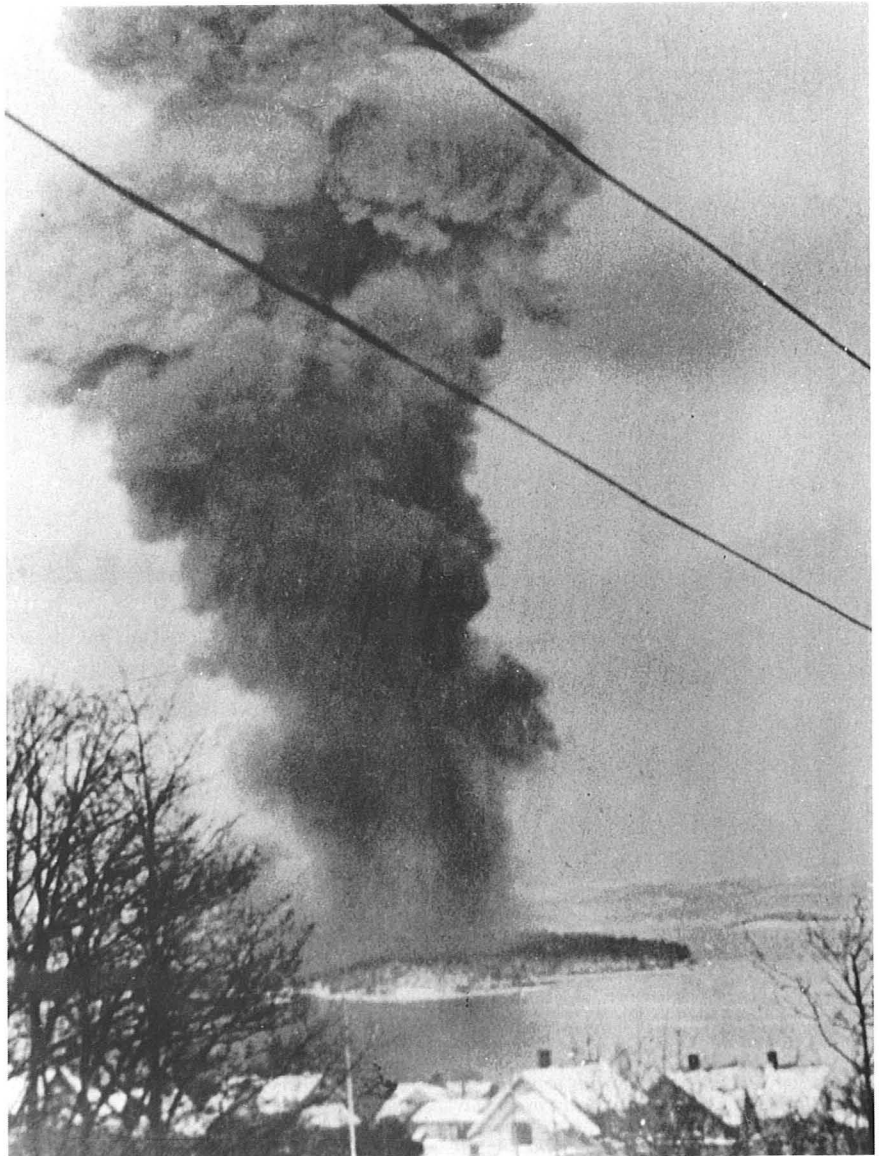
The Kriegsmarine returned to the fray at 1417 hours when the *Lützow* opened fire on Oscarsborg with her 28cm guns. Under cover of this fire, a small patrol boat passed through the Narrows unscathed and then reported by radio: '*Blücher* sunk off Askholmen. Probably two torpedo hits. Part of crew on Askholmen and mainland.'

Kapitän Thiele was not prepared to hazard the *Lützow* by attempting to force the Drobak narrows himself so he sent a boat under a white flag to Oscarsborg. A Norwegian vessel came out from the island to meet it. Terms of surrender were negotiated in writing. These included the clause that 'it is agreed that the brave defenders of the fortress may hoist the Norwegian flag next to the German flag'. At 0900 hours on April 10, the two flags were hoisted and *Lützow* and *Emden* sailed on northwards into Oslo harbour, where they arrived 30 hours late. King Haakon and his cabinet had left for central Norway at 0720 hours the day before and were thus able to continue the war. In the British Official History of the Second World War, the author wrote: 'But the important fact is that Oslo, unlike the other ports, was not firmly in German hands during the vital period of the morning of the 9th. Had it been, the Government could not have organised resistance and the success of the German coup would have been complete.'

The continuance of Norway in the war was of considerable importance to the Allies. At the time, the Norwegian mercantile marine was the fourth largest in the world and Norwegian ships were able to play a valuable role in the Battle of the Atlantic which Churchill admitted was the battle that worried him most. The 20-minute battle at Oscarsborg was Norway's biggest victory in the invasion of 1940.



Bomb splinter marks remain on one of the doorways at Oscarsborg. Among the aircraft which attacked the fortress were 22 Stukas from Gruppe 1/StG1, based at Kiel-Holtenu, which bombed at 1059 hours on April 9.



Hundreds of German sailors lost their lives when she sank and today the wreck is consecrated as a war grave. More succumbed trying to swim ashore in the freezing waters covered in burning oil, and the final death toll was around a thousand, including senior officers earmarked for appointments in the German administration in Oslo and members of the Gestapo. These lucky survivors have made themselves improvised shoes, one of the golden rules of surviving a sinking vessel being to discard footwear to aid swimming.





The Germans erected a memorial to their fellow-crewmen but the Norwegians removed it after the war.



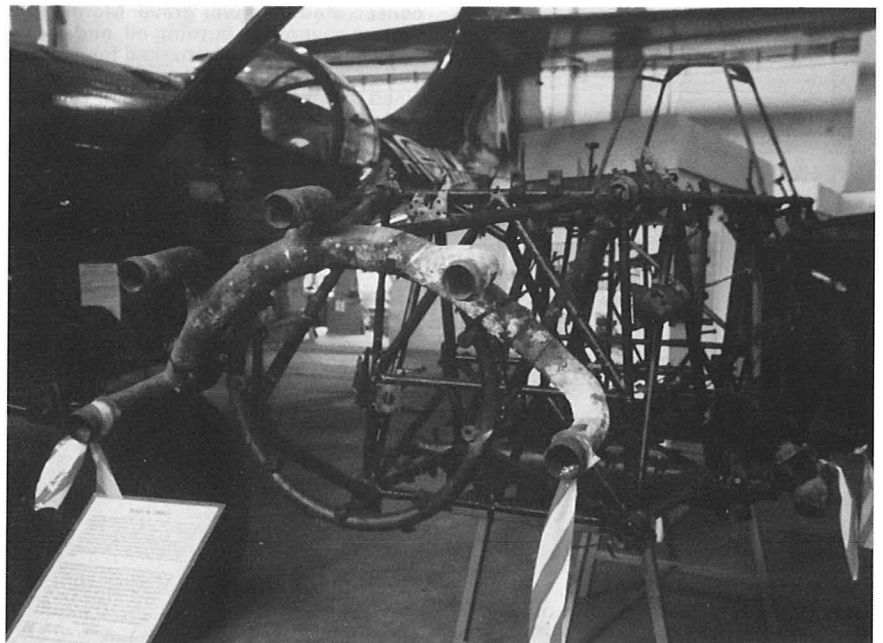
The Norwegian memorial in the mid-19th century Oscarsborg fortress to Colonel Birger Eriksen, the commander in 1940.

The *Blücher* still lies where she sank at the bottom of the fjord off Haoya Island, about 3,000 yards north of Oscarsborg. Norwegian fjords are deep and the bow is at a depth of about 300 feet and the stern at around 200 feet. Big ocean liners sail past her every day on their way to Oslo but undoubtedly most of those on board do not appreciate the significance of the spot. In 1994, the Norwegians instituted an operation to extract fuel oil trapped in the wreck which was seeping into the water and damaging the environment. Contractors drilled a hole through the hull of the wreck and recovered about 1,100 tons of oil. More interestingly, the salvagers discovered on the bottom of the fjord, about 100 yards from the *Blücher*, the battered remains of an Ar 196 floatplane which had broken away from the ship, presumably as she sank. This was salvaged and is now on display at the aeronautical museum at Stavanger/Sola aerodrome in central Norway. This is open every day from June 2 to mid-August and on every Sunday from 1200 to 1600 hours from May to November. The museum is situated in a World War II naval seaplane hangar (at the far end as viewed from Stavanger aerodrome where the passenger aircraft land). Its address is Flyhistorisk Museum Sola, Postboks 512 N-4055, Stavanger Lufthavn, Norway. The airport bus will drop passengers outside.

The museum includes a surprising range of aircraft, including a rare Arado Ar 96 B-1 trainer which landed in a fresh-water lake on March 13, 1943, and was salvaged in September 1992. It is now being restored. Also being meticulously restored is Messerschmitt Bf 109 G - 1/R2 Werke No. 14141 of 2/JG5. This aircraft crashed into the sea following engine failure in late 1943. In November 1988, a shrimp trawler inadvertently salvaged the wreck at a depth of about 900 feet. It is being restored by volunteers under the leadership of a professional aeronautical engineer, Kjell Naas.

Oscarsborg fortress remains as it was at the end of the war and even some bomb-splinter marks on the brickwork remain. The heavy guns that hit the *Blücher* are still in position. The little town of Drobak is about a 45-minute bus journey from Oslo and the 541 bus can be caught from a bus stop about 300 yards from the Central Bus Station on the opposite side of the road. The Royal Norwe-

gian Navy runs a small tender which does the short journey from Drobak to the fortress on the island opposite, which is still a military base. There are conducted tours of the Oscarsborg Coastal Artillery Museum during the short summer months only. The Drobak area has two good hotels. The tourist office at Oslo airport is helpful. Even the bus drivers speak English.



The wreckage of the *Blücher's* Arado Ar 196 seaplane was salvaged from the bottom of the fjord a few years ago and can now be seen in the museum at Stavanger in central Norway.



Then . . . and now . . . but between these two photographs lies a mountain of red tape as your former Editor strove to have headstones erected on the unmarked graves of men killed in the explosions at Waltham Abbey in 1940. The administration of the Royal Gunpowder Factory (RGPF) purchased the grave plot but then failed in their duty to mark the last resting place of their six employees. Wherever we have come across civilian graves which should be rightfully marked, we have tried to ensure that this is done, favouring the Commonwealth War Graves Commission style of headstone but with the two corners notched to denote that it does not mark a military grave. In this case, the former grave owner — the RGPF — had ceased to exist and responsibility for maintaining its obligations had not been defined. Thus we spent the best part of two years trying to find a civil servant with the courage to say 'yes'. In the end, that man turned out to be Stuart Fox, the Deputy Defence Land Agent East, and his approval was given on January 30, 1998. With the anniversary of the first deaths having already passed, the next date for the ceremony was April 20.

ROYAL GUNPOWDER FACTORY SEQUEL

By Bryn Elliott

Two years ago, in *After the Battle No. 93*, I recounted the story of the deaths of ten men at the Royal Gunpowder Factory (RGPF) at Waltham Abbey during the early months of 1940. There was an instant death, being killed by the explosion of thousands of pounds of volatile mix they were processing in what was then the only Government-owned gunpowder factory serving the war effort.

As the research into the story unfolded, it soon became clear that the remains of six of the dead lay together in adjoining unmarked graves in the war graves section of the New Cemetery in Sewardstone Road. Such was the manner of their deaths that the scant remains of the six were easily contained within two caskets. We included a picture of the bare area of grass where the remains of Albert Lawrence, Charles Purkis and John Parkes from the first explosion in January and Thomas Galvin, Francis Keene and David Lewis from the April explosion lay.

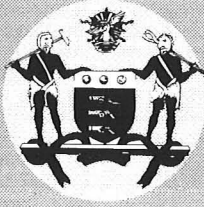
As soon as he saw that the graves were unmarked, the Editor of *After the Battle*, Winston Ramsey, expressed a desire to 'do the right thing' and mark the graves even though some 56 years had passed since the men were originally laid to rest. Any sense of disbelief I may have had was dispelled by the precedents that I was made aware of as the graves of the first civilian to be killed in the London Civil Defence Region — Jim Roberts, a fireman in Loughton, and the last civilian to die in the war Ivy Millichamp, a housewife in Orpington — had been marked thanks to the efforts of *After the Battle*. It was a project to be taken seriously and to which I wholeheartedly concurred.

It was agreed that the form of headstone should be that adopted by the Commonwealth War Graves Commission for non-combatants. However, the deed was to be far more difficult to realise than the intention. The crest of the Board of Ordnance, the section of the Ministry of Supply responsible for the RGPF at the time, was chosen for the badge and wording set out with characteristic corner notches to denote civilians. The Editor approached his favourite stonemasons, F. Masters in Woodbridge, Suffolk, with the design and then set about seeking permission to place them on the graves.

The problems affecting this seemingly simple task were deeply bound by red tape. The current owners of the graveyard, the Waltham Abbey Town Council, were approached for permission and they acceded providing a signature could be obtained from the owner of the graves, the Superintendent of the Royal Gunpowder Factory, or his successors.

A relatively ancient title, there has not been a Superintendent of the RGPF for many years and neither the Board of Ordnance nor Ministry of Supply exist or have a clearly-defined natural successor. The road to tracing the legal owner of the graves proved long and arduous. Being civilian war dead, the charter of the Commonwealth War Graves Commission did not give it the power to intervene, and Royal Ordnance (which took over the factory site only to promptly close it) drew a negative reply. An appeal to the Chairman of their parent company, British Aerospace, also fell on stony ground.





**THOMAS GALVIN
FRANCIS KEENE
DAVID LEWIS
20TH APRIL 1940**



**KILLED IN THE LINE OF DUTY
AT THE
ROYAL GUNPOWDER
FACTORY
WALTHAM ABBEY**



**The Church of
Holy Cross
and St Lawrence**

Waltham Abbey

MEMORIAL SERVICE
3 p.m. 20th April 1998

**ALBERT LAWRENCE
JOHN PARKES
CHARLES PERKIS
Died 18th January 1940**

**THOMAS GALVIN
FRANCIS KEENE
DAVID LEWIS
Died 20th April 1940**

This service to mark the passing of six warblers to the Royal Gunpowder Factory (RGPF) will take place in the church of this country side, 1998.

On 18th January 1940 an explosion at the RGPF resulted in several deaths, in the hours the explosion severely damaged the church and was reported up to 20 miles away in the New Forest.

Albert George Lawrence, John Herbert Parkes and Charles Frederick Perkis died working in a building on the RGPF North Site.

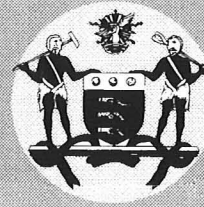
On the morning of April 20th, 1940, exactly 58 years ago, Thomas Galvin, Francis Keene, David Lewis and three other men died at another blast.

The remains of the six men were buried in two coffins, due to the pressure of war their last resting place was never marked.

This service will serve to remedy that situation.



The design for each headstone had been drawn up incorporating the crest of the Board of Ordnance. The inscription was then cut by Hilary Wells of F. Masters of Woodbridge, Suffolk, who had previously inscribed the stone for Ivy Mill-champ (see *The Blitz Then and Now*, Volume 3, page 586). Once the go-ahead had been given, Andy Mansfield and I drew up an Order of Service with the Reverend Canon Patrick Hobson to be held in the Abbey church.



**ALBERT LAWRENCE
JOHN PARKES
CHARLES PERKIS
18TH JANUARY 1940**



**KILLED IN THE LINE OF DUTY
AT THE
ROYAL GUNPOWDER
FACTORY
WALTHAM ABBEY**

Having failed to gain the interest of transitional bodies — the Prince Organisation and Civix — it was a matter of awaiting the formation of the Trust itself. As plans for the future of the site hardened, those involved in its development came to notice and were approached with a request for assistance early in 1998. It was fortunate that Don Spinks, the recently appointed Chairman of the Royal Gunpowder Mills Trust, was already known to both the Editor and myself, thus removing many of the formalities of introduction.

Within a matter of days, Don, a former local Councillor and East London businessman, had managed to track down Stuart Fox, the Deputy Defence Land Agent East working with the Ministry of Defence in Waterbeach, Cambridgeshire. It then became clear that the Defence Estate Organisation was, unknowingly, the place we had sought from the beginning!

Stuart gave us the usual bad news in confirming that there was no actual successor to the Superintendent of the RGPF. However,

by the end of January he courageously announced that he was quite prepared to sign the necessary piece of paper to allow the overdue marking of the graves to take place.

Armed with the all-important signature, events moved swiftly and an enthusiastic alliance was formed between *After the Battle*, Waltham Abbey Royal Gunpowder Mills and the Church to bring the project to fruition.

It was immediately obvious that although the anniversary of the January explosion had passed, it might be possible to hold a ceremony on the 58th anniversary of the second explosion, April 20, 1998. The intervening two months might just allow enough time to trace as many of the relatives of the dead as possible in order that they might be invited. Although the families had been traced in 1996, it was known that each of the six men were not local, most hailing from Enfield. With the assistance of the local newspapers, several previously unidentified relatives, who were wholly unaware of what was proposed, were traced.

By April 20, it had been possible to trace representatives for Lawrence, Parkes and Purkis as well as those of three of the four men who already lay in marked graves. The relatives of Kelman, Monk and Raby were enthusiastic in their wish also to be present when the graves of the six were marked. Most of the relatives were the children or cousins, but it was gratifying to know that Mrs Kelman and Mrs Raby were both well, although each had remarried.

It transpired that the relatives of Purkis had spent over 20 years attempting to get it marked as a war grave. They too were met by official intransigence, complicated by the fact that three families were involved, before finally giving up in their attempt in the 1980s. That information alone made the effort worthwhile.

There were only five of us present, including the original *After the Battle* team, when on April 17, an appropriately damp, grey and cold day, the stones were delivered and set in place by Stephen Haste from Woodbridge alongside the existing war graves.



On a cold Friday, April 17, Stephen Haste of Masters carefully erected each headstone in its concrete beam.

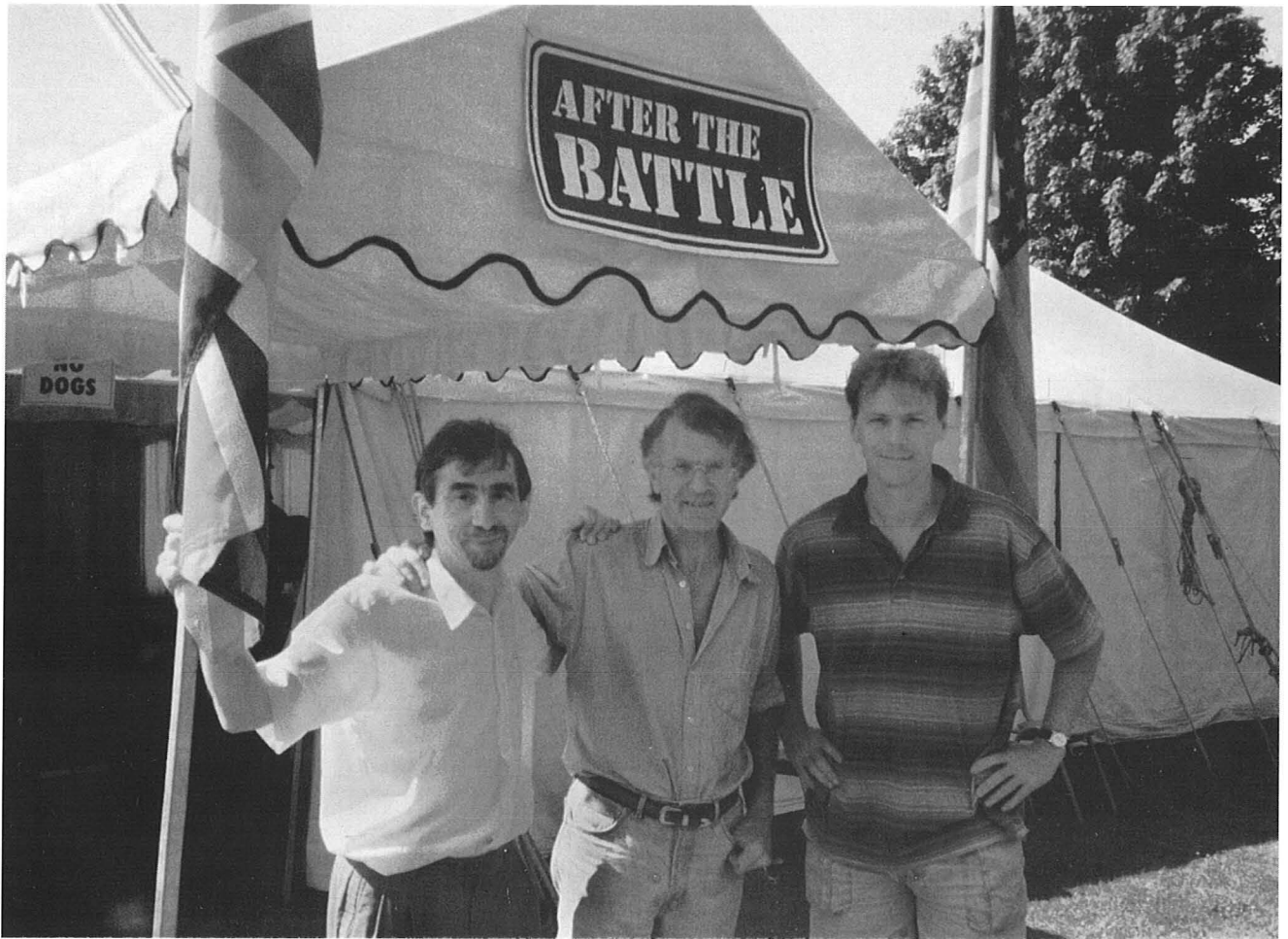


In contrast, over 50 people were drawn to the Church of Holy Cross and St Lawrence on the afternoon of Monday, April 20, 1998. In the magnificent surroundings of a parish church which is the last vestige of the final monastery to be dissolved by Henry VIII over 450 years earlier — and still known simply as the Abbey church — the six were remembered. The church had itself been severely damaged in the first series of explosions in January 1940.

The very moving memorial service and address was led by the incumbent of the Abbey, the Reverend Canon Patrick Hobson, MC, MA. Patrick by chance, served in an armaments factory as a boy and, as a second lieutenant with the King's Regiment in Korea during his National Service. During that war he earned a Military Cross in circumstances he chooses to keep private. His calling to the Ministry came later in life.

The group then moved on to the cemetery in reasonable weather where the new stones were blessed and, much to the delight of the relatives of Monk and Raby, a short visit was made to the two existing marked graves nearby.

The Royal Gunpowder Mills are now owned by a charitable trust which, with the grant of over £6 million from the Lottery Fund, is developing the site as a heritage resource to open in the year 2000.



From your new Editor

In the final paragraph of our last issue, No. 100, Winston Ramsey announced that he would hand over Editorship of *After the Battle* to me, Karel Margry. Having been a reader since No. 1, a contributor since No. 56, and Winston's European Editor since No. 76, I feel very honoured to have been chosen to take over the reins from him.

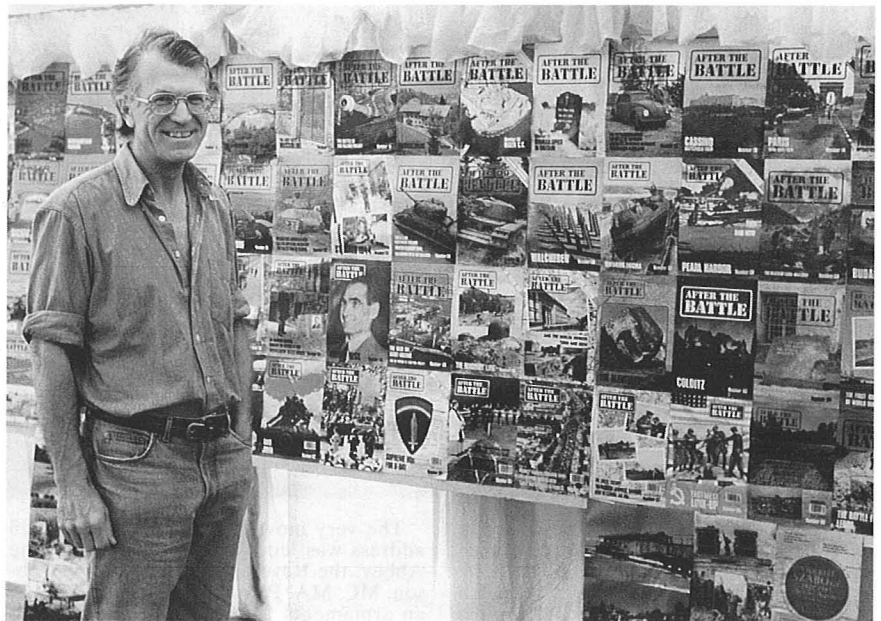
The official hand-over took place on Saturday, May 16, 1998, at a party hosted by Winston and his wife Jennifer at their beautiful home near Harlow, to mark and celebrate the publication of Winston's literary milestone, the 100th edition of *After the Battle*.

The party gave Winston an opportunity to realise a long-cherished idea, namely to bring together as many as possible of the people who in one way or another had contributed to the making of *After the Battle* in the past 25 years: authors, researchers, indexers, company staff, travel companions, fellow-editors, and other 'friends of *ATB*'. Coming as they do from countries all over the world, and representing many different languages, Winston cherished the idea of the Babylonian confusion of tongues that would ensue. 'I will ask them all in one room, lock the door behind them, and see what happens', he told me several times with glee in his eyes. (In the event, it was gloriously sunny all day, so most of the party took place outdoors and in a giant marquee which had been erected in the garden, with all the foreign guests foiling his plan by merrily talking English all day!)

Winston had arranged several period features to indicate the party's link to history. Displayed in the garden was Alan Holland's Jeep LHK 534, which had featured on

the covers of both issues 1 and 100, thus encompassing the 25-year time span of the

magazine. Guests were welcomed by Winston Churchill look-alike Joe Mahoney. Music of the Glenn Miller repertoire was provided by Ted Higgins' Opus One Big Band, with Heather Carmel performing Vera Lynn songs. Later in the day, George Kimmins added to the historic setting by appearing as Lieutenant General George S. Patton.



After a 25-year stint at the helm, Winston Ramsey (*above*) handed over Editorship of *After the Battle* to Karel Margry of the Netherlands, seen (*top right*) with Jean Paul Pallud our long-standing author from France, as they prepare for the celebration held at Harlow on May 16. A marquee had been provided to ensure against the vagaries of the English weather with a central display of the covers of the first 100 issues.



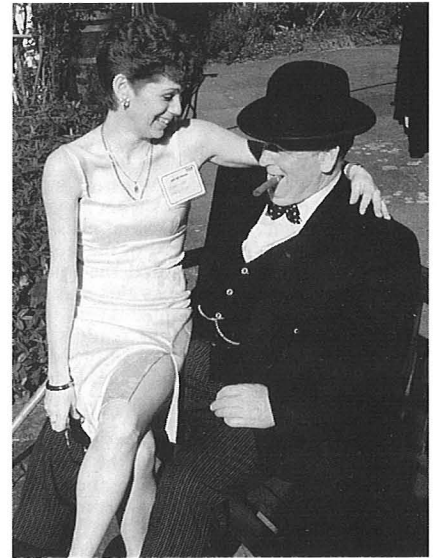
Alan Holland of High Wycombe brought over his beautifully restored Jeep which Winston Churchill had used to produce the first issue of *ATB* way back in 1973.



To add period atmosphere, guests had their photos taken with 'Winston Churchill', alias Joe Mahoney. Don Marshall plays himself!

More than 150 guests attended the party, from far and near. Most originated from Britain, but others had travelled around the globe to be present. Don Marshall, our Iwo Jima marine veteran, had flown in from the US, as had Marty Black; Brian Taylor, the indexer of our first bound volumes, had come all the way from Zimbabwe and Philip Bradley from Australia. Others, who were unable to come, sent in taped greetings to be present in spirit: David Green from Australia; Laurie Goldstraw from Trinidad, Tony Le Tissier from Berlin; John Cleave from Washington; and Charlie Leonard, our Okinawa marine veteran, from California. Many others sent letters of greeting.

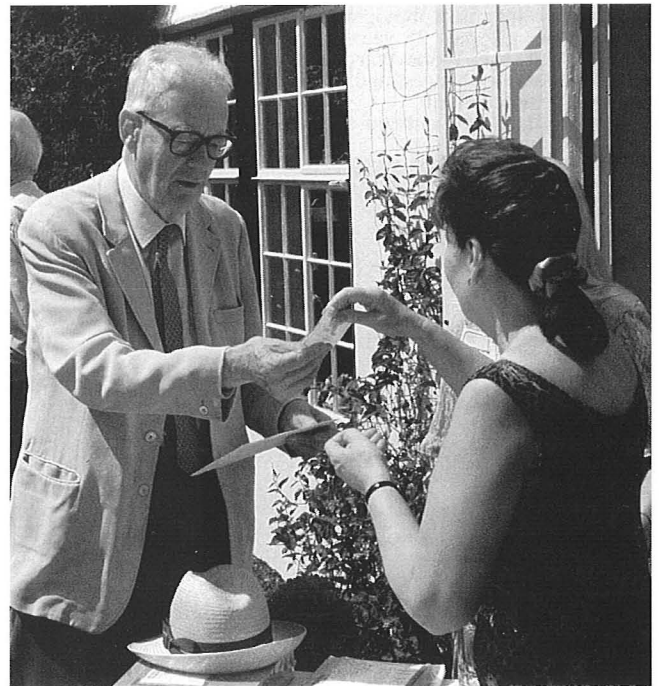
All those present at the party shared having contributed to *After the Battle*, but few of them had met in person before. The No. 100 Party was unique in that it gave people the opportunity to finally put faces to names. As each guest had been provided with a badge which listed not only his name but also what he had written or done for *After the Battle*, recognition in the field was made very easy. Even Winston and Jennifer saw several contributors for the first time. The day was filled with swapping stories about battlefield visits, the vagaries of taking comparisons, and possible future stories for the magazine.



The Prime Minister enjoyed talking over old times with Roger Freeman (left), the noted historian of Eighth Air Force fame, and (right) having his blood pressure checked by Marianne Fredericks (see issue 96).



Guests were badged up on arrival to give not only their name but their accomplishments for *ATB*. Left: Ian Galbraith (issue 86 on the capture of Boulogne) and Keith Braybrooke (contributor



of the Debden chapter in *The Battle of Britain Then and Now*. Right: Our Barbara labels up Major Tom Potts who contributed an article to No. 95 as well as the story included in this issue.



Above: Alan Hall, centre, the former Editor of *Aviation News* who established the design criteria for *ATB*, with Andrew Holmwood our ex-sub-editor, left, and David Davies, right, founder of the Batterie Todt Museum at Wissant (see issues 23 and 78). With back to camera: Gordon Ramsey who left *ATB* in 1997 to set up his own mail order business selling battlefield relics. Left: Gordon's competition 'Guess the Relic' was won jointly by Phillip Bradley from Australia (forthcoming story on Shaggy Ridge) and Bill King, Chairman of the Ridgeway Military Aviation Research Group.

A lavish buffet was followed at 5 p.m. by tea and cakes during which Winston entertained the audience with tales from 25 years of *After the Battle*, inviting several guests to add to this by telling their part of the stories. At the end of this, he handed the microphone over to me — I guess this was the moment I assumed Editorship.

I am sure that many of our readers will want to know whether the change of Editor will mean a change in the magazine. Indeed, newly-appointed publication editors usually feel an urge to introduce all kinds of alterations, either in design or content. However, our fans can rest assured. One of the things I, and many readers with me, like about the magazine is its continuity. The style and format of the magazine, established by Winston 25 years ago, has been tried and proven and is obviously liked by our readers, and I see no reason to change any of them. All I aim for is to upkeep the high standards set by Winston — that is to present a wide range of topics, in well-researched articles illustrated by accurate comparison photographs.

Of course, the past 25 years have presented us and other World War II historians with considerable changes, and the next 25 years will be no different.

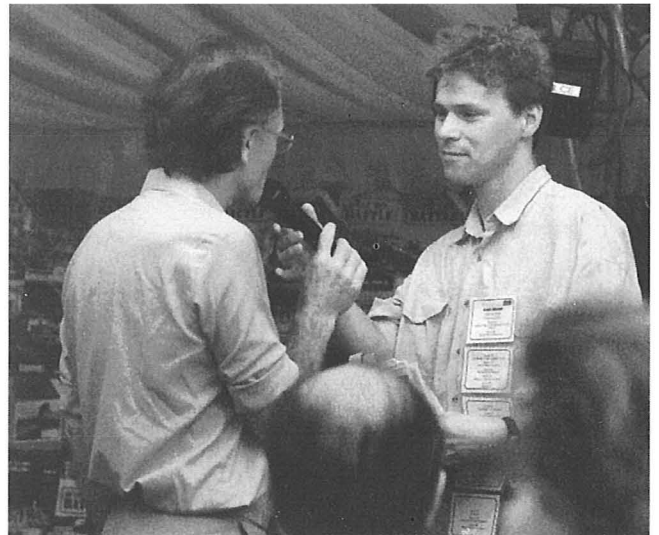
First of all, there has been an immense

increase in our knowledge of the war. Some of the new facts had a wide impact and have changed our entire conception of the war. For example, the revelation in 1974 of the Ultra secret — that the Allies had decrypted the German secret coded messages — has forced historians to rewrite the history of many a battle and to reconsider the reputation of many a commander and general.

But as least as important for us at *After the Battle* is the growth and increasing quality of research done by local or specialist historians. In the past two decades, almost every local battle, every wartime airfield, every aircraft crash, etc. has found its own historian or group of historians who often, because of their depth of inquiry and local familiarity, have been able to unearth details previously unknown, which in not a few cases enabled them to correct the accepted history. This is true of Britain, but equally so in countries like Germany, Holland, France and elsewhere. *After the Battle* has been able to benefit greatly from the work of these local historians. To give just one example, our story of the Hammelburg Raid (issue 91) would have repeated many of the legends and inaccuracies contained in Anglo-American accounts were it not for the research done by local German historians in the region.

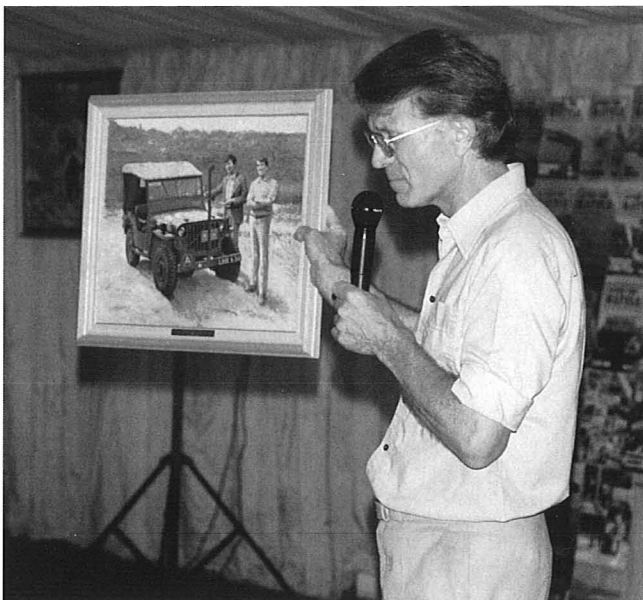
Another development, of particular importance to *After the Battle*, have of course been the changes in the physical appearance of the historic sites connected to the war. Many places that still looked virtually the same as in the war when we took our comparisons, have seen radical changes since. The march of time will undoubtedly continue, with many more sites falling prey to modernity. People sometimes ask us whether we find it more difficult to pinpoint a comparison today than say 10 or 15 years ago. My answer to that would tend to be: no. In my experience, the difficulty of finding a comparison depends, as before, more on the amount of research done beforehand than on the changes in situ. The availability of the wartime caption (providing it is accurate!), good maps, and knowledge of the historical facts are still the best prerequisites for finding the right spot (and also of course the tenacity of the photographer), and will continue to be so in the future.

There is, however, one thing that will definitely make our work more difficult, and that is the decreasing possibility to consult the people who lived through it all: veterans, participants, eyewitnesses. Today, it is still possible to reconstruct a wartime event almost solely on the basis of the personal recollec-

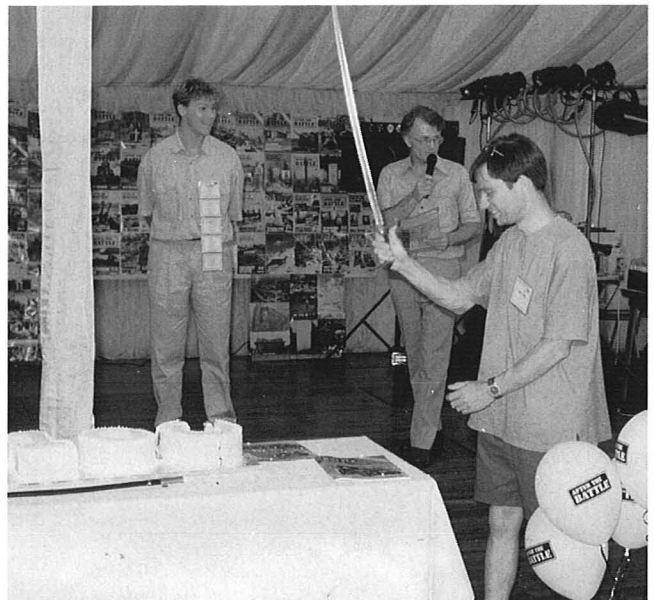


Surprise guest: 'General Patton' (George Kimmins, founder of the George S. Patton Appreciation Society) with his son as escorting MP.

Winston hands over the baton to Karel. The new Editor's badge of office had to be specially lengthened to include his many contributions to the magazine.



Choked with emotion, Winston is presented with a painting symbolising his first trip to Normandy with his old school friend, Christopher Stevens, who died in 1989.



Moment of hilarity as Gordon prepares to cut the '100' cake in true *After the Battle* style using a German NCO's dress sword. Don Marshall called for a Japanese Samurai!

tions of the people involved. (A recent and very good example of this was our story on the IJzendijke explosion in issue 99.) But this will become increasingly difficult in the future. Similarly, help by locals who remember what their village or street looked like in the war — often an invaluable asset when matching a picture — will rapidly become more scarce.

Perhaps the change with the most far-reaching effects for *After the Battle* has been the end of the Cold War and the fall of the Iron Curtain. Because of it, a whole range of historic sites which before were not easily accessible, if not completely out of bounds — especially if you wanted to take photographs — have now become freely accessible. Places which gave us great difficulty when preparing our stories on them in Communist times — like Peenemünde and Colditz in East Germany, Westerplatte and the Wolfschanze FHQ in Poland, Moscow, Budapest, etc — can now be visited by any Western tourist. At the same time, the fall of the Wall has opened up territories (and picture archives) which will enable us to develop stories which we could not do in the past — the example springing to mind most readily of course being battles on the Eastern Front. Another good example is the Nordhausen story featured in this issue, which we already wanted to do back in the 1970s, but which only became possible after the demise of the GDR.

In their letters, readers regularly express their amazement at that we continue to find new subjects for the magazine, and ask whether we are not afraid to run out of topics. This is a worry we do not have. The Second World War has been and remains an endless source of interesting stories, and we have not nearly exhausted our shortlist. We have yet to cover major battles and campaigns like — to give just two examples — Stalingrad or the Allied invasion of southern France; there remain numerous Pacific operations or Commando actions that we have not yet dealt with, many stories from occupied Europe which are virtually unknown to an Anglo-American public. Also, military planes, ships and vehicles continue to be preserved; crash sites continue to be investigated; and war films continue to be made. With authors contributing from all over the world, and readers tipping us off on little-known stories, we have our work carved out for us well into the 21st Century.



Karel already on the job in a deep discussion with David List who carries out research for us at the Public Record Office (and also wrote the Siwa Oasis story in issue 98).

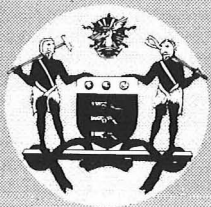


Although the 100th celebration was held primarily for our past authors and contributors, our permanent staff at Church House also enjoyed the day. L-R: Rob Green (typesetting); Trevor Stonham and Karen Rose (dispatch); Winston (who will remain in overall control as Editor-in-Chief) and Karel; Barbara Rush (order processing), and Dave Cheesewright, ex-1st Battalion, King's Royal Rifle Corps (deliveries). Inset: Phyllis Hough (order processing), late on parade.









THOMAS GALVIN

FRANCIS KEENE

DAVID LEWIS

20TH APRIL 1940



KILLED IN THE LINE OF DUTY

AT THE

ROYAL GUNPOWDER

FACTORY

WALTHAM ABBEY



The Church of Holy Cross and St Lawrence

Waltham Abbey

MEMORIAL SERVICE

3 p.m. 20th April 1998

ALBERT LAWRENCE

JOHN PARKES

CHARLES PERKIS

Died 18th January 1940

THOMAS GALVIN

FRANCIS KEENE

DAVID LEWIS

Died 20th April 1940

This service is to mark the passing of six workers in the Royal Gun Powder Factory (RGPF) who lost their lives in the service of their country during 1940.

On 18th January 1940 an explosion at the RGPF smashed hundreds of windows in the town. The explosion severely damaged this church and was reported up to 90 miles away in the New Forest.

Albert George Lawrence, John Nathaniel Parkes, and Charles Frederick Perkis died working in a building on the RGPF North Site.

On the evening of April 20th, 1940, exactly 58 years ago, Thomas Galvin, Francis Frederick Keene and David James Lewis died in another blast.

The remains of the six men were buried in two coffins. Due to the pressure of war their last resting place was never marked.

This service will serve to remedy that omission.





ALBERT LAWRENCE

JOHN PARKES

CHARLES PERKIS

18TH JANUARY 1940



KILLED IN THE LINE OF DUTY

AT THE

ROYAL GUNPOWDER

FACTORY

WALTHAM ABBEY







WASC 1869

AFTER THE BATTLE



YOUR PERFECT GUIDE TO THE SECOND WORLD WAR – THEN AND NOW

**AFTER THE
BATTLE****ADVANCE
ANNOUNCEMENT****AFTER THE
BATTLE**

GLENN MILLER IN BRITAIN THEN AND NOW

By Chris Way

With this new book, *After the Battle* are extending their well-known theme of presenting the Second World War through 'then and now' comparison photographs by illustrating every venue in which Glenn Miller and his American Band of the Allied Expeditionary Force played in Britain in 1944.

Wherever the present-day Glenn Miller orchestras play, they are continually being asked: where exactly did the great man perform? Now, Miller aficionado, Chris Way, has listed and chronicled every concert and broadcast that the band undertook from June 1944, when they arrived in the UK, to that tragic day six months later when Glenn went missing on a flight to France.

Recollections fade, and many people who saw a 'big band' performing in American uniform during the war believe it was Glenn Miller. Chris now sets the record straight as to which were, or were not, genuine Miller concerts.

The circumstances surrounding the last flight are described, avoiding the considerable speculation — some of it highly improbable — which has surrounded it in recent years, to illustrate what happened on that foggy December day in 1944. Chris Way also details the two films in which Miller appeared during the war plus, of course, *The Glenn Miller Story*.

To all those who remember the bitter-sweet days of the Second World War, or whose memories are aroused by the wonderful Miller sound, this book will provide the missing link between the man and his music.

This book is authorised by Steven D. Miller, son of the late Glenn Miller
on behalf of the Miller Estate

TO BE PUBLISHED APRIL 1996

SIZE 12"x8½" 160 PAGES OVER 400 ILLUSTRATIONS ISBN 0 900913 92 4 £19.95 CODE F039

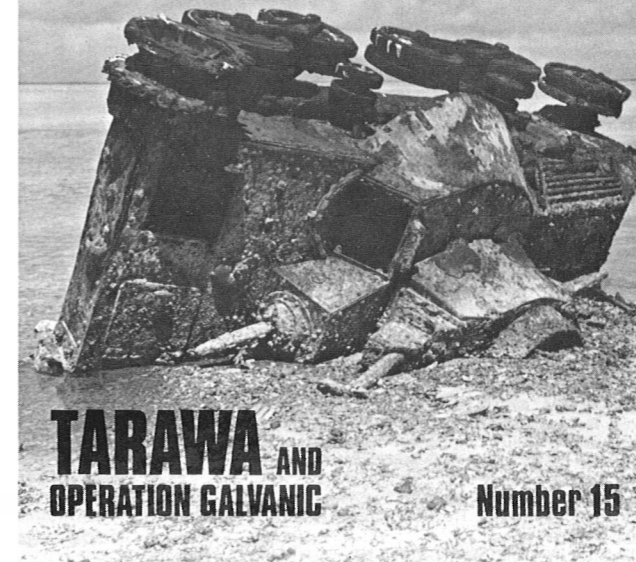
AFTER THE BATTLE

After the Battle is published quarterly on the 15th of February, May, August and November

COMPLETE CONTENTS LIST

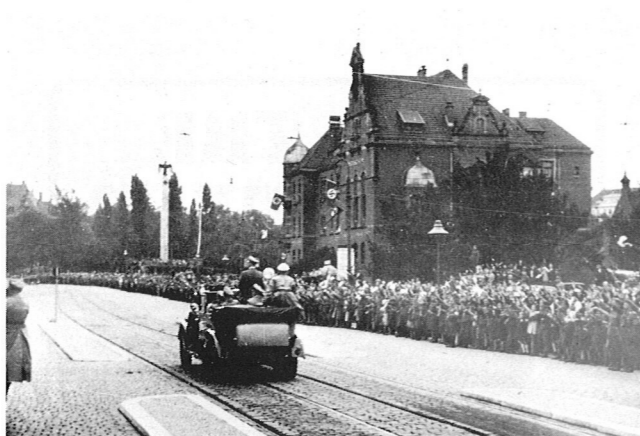
- Issue No. 1** £3.00 **CODE A001**
NORMANDY. Personality — Colonel James Stewart. **Preservation** — Joe Lyndhurst Collection. **United Kingdom** — Cabinet War Rooms. **War Film** — Battle of Britain. **Wreck Recovery** — Wreck investigation in the Welsh Mountains. **It Happened Here** — Oradour sur Glane.
- Issue No. 2** £3.00 **CODE A002**
ARNHEM. NUREMBERG. Personality — Major Glenn Miller. **Preservation** — Royal Small Arms Pattern Room. **United Kingdom & War Film** — The escapes of Franz von Werra. **Wreck Recovery** — Raising the XE8.
- Issue No. 3** £3.00 **CODE A003**
THE RUHR DAMS RAID. DUNKIRK. Personality & War Film — Lieutenant Audie Murphy. **Preservation** — Mementos of the Mighty. **England** — Bomb and Mine Disposal. **Wreck Recovery** — Capture of the U-505.
- Issue No. 4** £3.00 **CODE A004**
THE BATTLE OF THE BULGE. Personality — Lieutenant-Colonel David Niven. **Preservation** — Battle of Britain Memorial Flight. **England** — Britain's offshore forts. **War Film** — The Longest Day. **Wreck Recovery** — Brenzett Museum.
- Issue No. 5** £3.00 **CODE A005**
DIEPPE. Personality — Lieutenant Richard Todd. **Preservation** — Adolf Hitler's Mercedes-Benz. **Special** — Return to Normandy. **It Happened Here** — Fort Eben-Emael.
- Issue No. 6** £3.00 **CODE A006**
THE V-WEAPONS The Fi 103 — the V1, A4 rocket — the V2, Operation Backfire, The V3, The V4. **Personality** — Captain Douglas Fairbanks. **England** — The Unknown Warrior. **Wreck Recovery** — Heinkel He 111E recovery from Norway.
- Issue No. 7** £3.00 **CODE A007**
THE LAST DAYS OF MUSSOLINI. Personality — Admiral of the Fleet Prince Philip. **Preservation** — Keele Air Photo Library. **England** — Patton at Knutsford. **War Film** — The Photography of Patton. **Wreck Recovery** — P-47 Thunderbolt Recovery. **It Happened Here** — The Death of George S. Patton. **Where Are They Now?** — Patton's Vehicles.
- Issue No. 8** £3.00 **CODE A008**
THE BATTLE OF THE FALAISE POCKET. **Preservation** — The Confederate Air Force. **Wreck Recovery** — The Roudeix Collection. **It Happened Here** — Rommel's Accident. **Where Are They Now?** — Admiral Yamamoto and his G4M 'Betty'.
- Issue No. 9** £3.00 **CODE A009**
OBERSALZBERG. **Where Are They Now?** — Göring's 'Vermeer'. **Personality** — Lieutenant John F. Kennedy. **War Film** — PT-109. **Preservation** — Overloon, The National War and Resistance Museum of the Netherlands. **It Happened Here** — Hitler at Landsberg.
- Issue No. 10** £3.00 **CODE A010**
MALTA. **It Happened Here** — The Italian Naval Attack on Grand Harbour. **Preservation** — The Malta Scene. **Personality** — Flight Lieutenant Ian Smith. **War Film** — The Dam Busters, 1975 Sequel. **Wreck Recovery** — The Battle of Britain Museum, The Essex Historical Aircraft Society 35th Anniversary excavation.
- Issue No. 11** £3.00 **CODE A011**
GERMAN SPIES IN BRITAIN First World War, Second World War, Table of Double Agents. The unlucky sixteen, Jan Willem Ter Braak. **It Happened Here** — The Venlo Incident. **Preservation** — The Australian Military Vehicle Collectors' Society. **Wreck Recovery** — Shipwrecks. **Personality** — Major Clark Gable. **War Film** — Vera, the Beautiful Spy.
- Issue No. 12** £3.00 **CODE A012**
THE VOLKSWAGEN STORY. **Personality** — Lieutenant-Commander Peter Scott. **Preservation** — America's Preserved Warships. **Wreck Recovery** — Wreckology in Holland. **United Kingdom** — The Secret Underground Railway Executive H.Q. **War Film** — **It Happened Here.** **It Happened Here** — The Battle of Takrouna.
- Issue No. 13** £3.00 **CODE A013**
THE BATTLES FOR CASSINO. Cassino Battlefield Tour. **Personality** — Oberjäger Max Schmeling. **United States** — The WWII Historical Re-enactment Society. **Wreck Recovery** — Polish Hurricane at Loughton. **Preservation** — The Royal Artillery Quad. **It Happened Here** — The Bruneval Raid.
- Issue No. 14** £3.00 **CODE A014**
PARIS — The Surrender, The Armistice, Hitler in Paris, The Occupation, The Battle of Paris, The Liberation, Victory! **It Happened Here** — Himmler's Suicide. **United Kingdom** — British Invasion Defences. **Preservation** — War Graves.
- Issue No. 15** £3.00 **CODE A015**
TARAWA AND OPERATION GALVANIC Funafuti Atoll, Nukufetau Atoll, Nanomea Atoll, Tarawa Atoll, Makin Atoll, Abemama Atoll. **War Film** — The Battle of Midway. **Personality** — Major Anthony Quayle. **It Happened Here** — Massacre at Le Paradis. **Wreck Recovery** — AVRE at Graye-sur-Mer.
- Issue No. 16** £3.00 **CODE A016**
CROSSING THE RHINE. **War Film** — The Bridge at Remagen. **Wreck Recovery** — The Swedish Hampden. **It Happened Here** — The CDLS of Lowther Castle.
- Issue No. 17** £3.00 **CODE A017**
HIMMLER'S SECRET GRAVE REVISITED. **It Happened Here** — Prelude to Operation Market Garden. **War Film** — The making of 'A Bridge Too Far'. **Wreck Recovery** — The Search for the X5. **Personality** — Lieutenant Kenneth More. **England** — German Prisoners-of-War in England.

AFTER THE BATTLE

**TARAWA AND
OPERATION GALVANIC**

Number 15

- Issue No. 18** £3.00 **CODE A018**
THE BATTLE FOR SAN PIETRO. **War Film** — Mosquito Film Stars. **Wreck Discovery** — The Wartime Solomons — thirty years after. **United Kingdom** — Largest Wartime Explosions — Silvertown, London, 1917, Fauld, Staffordshire, 1944. **It Happened Here** — Crossing the Seine at Vernon. **Preservation** — RMASC Centaur.
- Issue No. 19** £3.00 **CODE A019**
GUIDE TO HITLER'S HEADQUARTERS The Führersonderzug, FHQu 'Felsenest', 'Felsenest' today, FHQu 'Wolfsschlucht', 'Wolfsschlucht' today, FHQu 'Tannenberg', 'Tannenberg' today, FHQu 'Fruelingssturm', By rail to Moenichkirchen, FHQu 'Wolfsschanze', The Assassination attempt — July 20, 1944, 'Wolfsschanze' today. The other Eastern, Führerhauptquartiere, FHQu 'Wolfsschlucht 2', 'Wolfsschlucht 2' today, FHQu 'Adlerhorst', 'Adlerhorst' today, Fate of the Führersonderzug.
- Issue No. 20** £3.00 **CODE A020**
THE DEATH OF GENERAL SIKORSKI Search and Salvage, The Funeral, The Controversy, The Last Journey. **War Film** — Twelve o'clock High. **Personality** — Lieutenant General Moshe Dayan. **Preservation** — Monty's Wartime Caravans. **It Happened Here** — Airfield Construction in Holland. **Wreck Recovery** — Scrapyard Panther. **United Kingdom** — Fairchild UC-61K Argus 43-15025.
- Issue No. 21** £3.00 **CODE A021**
THE WAR IN GIBRALTAR Historical Background, Construction of the Airfield, The Tunnels, Operation 'Felix' — the Invasion of Gibraltar, Gibraltar at war, The Italian Underwater attacks against Gibraltar.
- Issue No. 22** £3.00 **CODE A022**
THE RESCUE OF MUSSOLINI. **Crime in WWII** — The Mutiny at Bamber Bridge. **Wreck Recovery** — The Mountain Rescue Service. **Where Are They Now?** — Guns of the Great.
- Issue No. 23** £3.00 **CODE A023**
CORREGIDOR Introduction, Corregidor of Eternal Memory, Caballo Island, Corregidor, El Fraile. **War Film** — MacArthur. **Preservation** — The Marine Corps Aviation Museum. **Wreck Recovery** — Tank recovery at Dunkirk. **Crime in WWII** — Battle of Britain Investigation.
- Issue No. 24** £3.00 **CODE A024**
THE ASSASSINATION OF REINHARD HEYDRICH Czechoslovakia, The Assassination, Escape to Martyrdom, The Judas Iscariot of WWII, The Seven fight it out, The Retribution. **War Film** — It's all a Game. **Wreck Recovery** — 1978 Sikorski Sequel — Seabed Site Investigation. **Preservation** — The River Maas Buffalo.
- Issue No. 25** £3.00 **CODE A025**
THE LADY BE GOOD. From the Editor — a round up of 25 issues of *After the Battle*. **Preservation** — Tank destroyer restoration.
- Issue No. 26** £3.00 **CODE A026**
THE DEATH RAILWAY Guide to the Death Railway. **It Happened Here** — SOE Operation Pimento. **America's Unknown Soldiers** — World War I, World War II and Korea. **Preservation** — SOE Hudson in Luxembourg.
- Issue No. 27** £3.00 **CODE A027**
DACHAU The Webling Incident. **Wreck Recovery** — Epping Forest Ju 88. **Crime in WWII** — The 10th Replacement Depot at Lichfield.
- Issue No. 28** £3.00 **CODE A028**
OPERATION 'JERICHO' — THE AMIENS RAID. The Fliers, The Resistance, The Raid. **Norway** — The saga of a lost German bomber. **Japan** — Pacific War recovery, Kawanishi Shiden-kai. **England** — Turmcoat 109. **Australia** — Air-raid on Broome. **Germany** — Death of the Prinz Eugen.



Hitler's first victory in the Second World War. On Tuesday, September 19, 1939 he triumphantly enters the Polish city of Danzig — the story of the battle described with comparison photographs of the same scenes today in *After the Battle* No. 65.

Issue No. 29 £3.00 **CODE A029**
THE CROSS-CHANNEL GUNS
Part I: The Kentish Heavies
Part II: The Pas de Calais

Issue No. 30 £3.00 **CODE A030**
MASSACRE AT BANDE. War Film — Angels One Five. It Happened Here — The Last Flight of the only Battle of Britain VC. **Preservation** — The Jeremiah O'Brien. **Wreck Recovery** — Wartime Wrecks on St. Kilda, The Sunderland at Gleann Mhor, The Beaufighter on Conachair, Wellington on Soay. **United Kingdom** — Death of an Aerodrome, Artwork of the Eighth.

Issue No. 31 £3.00 **CODE A031**
SINGAPORE — Singapore 1980. **Crime in WWII** — Nazi Gold. **From the Editor** — readers' letters and follow-up stories on previous issues.

Issue No. 32 £3.00 **CODE A032**
OPERATION 'AMBASSADOR', COMMANDO RAID ON GUERNSEY. **Wreck Recovery** — Calais Spitfire. It Happened Here — Ascension Island. **Crime in WWII** — The Execution of Eddie Slovik. **Iceland** — Norwegian Northrop. **Preservation** — Belgian Tank Museum.

Issue No. 33 £3.00 **CODE A033**
ST. MALO 1944 Cezembre, A Town is Reborn. **Preservation** — Spur Battery dismantled. **Sequel** — The Commandos Return.

Issue No. 34 £3.00 **CODE A034**
THE G.I.s IN NORTHERN IRELAND The United States Army, The United States Army Air Force, The United States Navy, The Social Life, What now remains? Northern Ireland Tour, Belfast, South-East Tour, North-West Tour. **Preservation** — Salvaging the D-Day Beaches. **Wreck Recovery** — **Wreck Recovery** in 1940.

Issue No. 35 £3.00 **CODE A035**
ADOLF HITLER'S STAATSKAROSSE. **From the Editor** — readers' letters and follow-up stories on previous issues. **Readers' Investigations** — September 12/13, 1940. **War Film** — Reach for the Sky.

Issue No. 36 £3.00 **CODE A036**
WALCHEREN The Allied Plan, Infatuate I, Infatuate II, Ashore at Westkapelle, Flushing, Walcheren in 1982. **Wreck Discovery** — WWII Medway U-Boats. **Where Are They Now?** — Operation 'Deadlight'. **Preservation** — The Story of the U995.

Issue No. 37 £3.00 **CODE A037**
BREAKING ENIGMA My Secret Life with Ultra. **The Battle of the Bulge** — Then and Now. **Wreck Recovery** — Portsmouth Graveyard. It Happened Here — The Death of the Duke of Kent. **Preservation** — Fort Velsen Dismantled. **Readers' Investigations** — Saltram House. **United Kingdom** — London's Wartime Headquarters. **Crime in WWII** — The Killing of Guardsman Fox.

Issue No. 38 £3.00 **CODE A038**
PEARL HARBOR — THEN AND NOW Hawaii — its Discovery and Development, Japan's Rise to Power, Operation Z — Pearl Harbor Plan, Countdown to Disaster, The Attack, Kaneohe, Hickam, Wheeler, Bellows, Schofield, Aftermath, Salvaging the Fleet, The USS *Utah*, The USS *Arizona*, Pearl Harbor Today.

Issue No. 39 £3.00 **CODE A039**
THE DEATH OF AIR CHIEF MARSHAL LEIGH-MALLORY. It Happened Here — TV Pictures from Occupied Paris. **Readers' Investigations** — Finland 1939-40 — The Raate Road. **Wreck Recovery** — Dinah Recovery in Western Australia. **From the Editor** — readers' letters and follow-up stories on previous issues.

Issue No. 40 £3.00 **CODE A040**
BUDAPEST Operation 'Margarethe', The Operation and its Aftermath, Operation 'Panzerfaust'. **War Film** — The Battle of the River Plate, The Battle, The Trap. **Preservation** — The *Graf Spee* — what now remains? It Happened Here — Night Solo to Eternity. **Crime in WWII** — The Death of Joachim Peiper.

Issue No. 41 £3.00 **CODE A041**
THE ATOMIC BOMB The Manhattan Project, Oak Ridge, Hanford, Los Alamos, Trinity, Wendover, Tinian, Hiroshima, Nagasaki, In after years. **Preservation** — The *Enola Gay*. It Happened Here — One night ... one Lancaster. **Readers' Investigations** — Forty years on, Swift Current, Canada.

Issue No. 42 £3.00 **CODE A042**
THE BATTLE FOR AACHEN The Southern Advance, Attack from the North, Assault on the City. **Wreck Recovery** — The First of The Many. **PACIFIC** — Wake. It Happened Here — Disaster at Antwerp — April 5, 1943.

Issue No. 43 £3.00 **CODE A043**
THE BATTLE FOR OKINAWA — A MARINE RETURNS

Issue No. 44 £3.00 **CODE A044**
THE OTHER D-DAYS, THE SLAPTON ASSAULT TRAINING AREA. **Wreck Recovery** — A Relic of the Long Range Desert Group. **Norway** — Batterie Austrat. It Happened Here — Hermann Göring — his Capture. **Readers' Investigation** — Hermann Göring — his Suicide. **Preservation** — Hermann Göring — his Military Memorabilia.

Issue No. 45 £3.00 **CODE A045**
TELEMARK RE-CREATED Operation 'Freshman', Exercise 'Heavy Water'. **War Film** — The Heroes of Telemark. **Wreck Recovery** — The Tank that Missed D-Day. It Happened Here — Ordensburg Vogelsang. **Preservation** — Surveying the Arizona. **Crime in WWII** — D-Day's most ignominious Casualty.

Issue No. 46 £3.00 **CODE A046**
THE BATTLE OF HONG KONG. **Wreck Recovery** — Churchill Recovery. It Happened Here — Adversaries Meet Again. **Readers' Investigations** — The Drive on Prüm. **Special** — Gunners Turn the Clock Back.

Issue No. 47 £3.00 **CODE A047**
OPERATION 'MERKUR', THE GERMAN INVASION OF CRETE. It Happened Here — The Kidnapping of General Kreipe. **Readers' Investigations** — The Granville Raid.

Issue No. 48 £3.00 **CODE A048**
GERMAN SURRENDERS Surrender of Gruppe Elster; Unconditional Surrender; Caserta, Italy; Lüneburg, Germany; Innsbruck, Austria; Baldham, Germany; Wageningen, Netherlands; Reims, France; Berlin, Germany; The Channel Islands; Lorient, France; St Nazaire, France; Dunkirk, France. It Happened Here — Michael Wittmann's Last Battle.

Issue No. 49 £3.00 **CODE A049**
EUROPE'S LAST VC, GUARDSMAN EDWARD CHARLTON. It Happened Here — Incident at Imber. **War Crime** — The Ascq Massacre. **Wreck Recovery** — A Lonely Grave on Ben More Assynt.

Issue No. 50 £3.00 **CODE A050**
THE SOVIET VICTORY IN EUROPE Moscow, Minsk. **From the Editor** — readers' letters and follow-up stories on previous issues. It Happened Here — The Japanese Surrender. **Readers' Investigations** — Fallingbommel.

Issue No. 51 £3.00 **CODE A051**
LIBYA The Desert Rescue Team, Tobruk Revisited. **Wreck Recovery** — Normandy Typhoon. **Crime in WWII** — The Notorious Fort Breendonk. **Preservation** — Relics of the Range. **Readers' Investigations** — Wimpey Investigation. It Happened Here — The Road Ends at Denée.

Issue No. 52 £3.00 **CODE A052**
ANZIO. **War Film** — The Battle for Anzio. It Happened Here — Massacre in Rome.

Issue No. 53 £3.00 **CODE A053**
VICTORY PARADE IN LONDON. It Happened Here — George Mergenthaler. **Readers' Investigations** — The Night that shook Sydney. **Preservation** — Alight Lough Erne. **War Film** — Toral! Toral! Toral! **Wreck Recovery** — The Loch Ness Wellington. **Crime in WWII** — A Costly Liberation.

Issue No. 54 £3.00 **CODE A054**
OPERATION 'MINCEMEAT', THE STORY OF MAJOR MARTIN, THE MAN WHO NEVER WAS. **Wreck Discovery** — Unknown Maloelap, Taroa 1986. It Happened Here — The Aarhus Attack. **Crime in WWII** — Show Trial at Luchy.

Issue No. 55 £3.00 **CODE A055**
U-BOAT BASES IN FRANCE The Atlantic Coast U-Boat Bases, The Pens, Construction, Lorient, Dombunkers and Scorfbunker, Keroman I and II, Keroman III, La Pallice, Saint-Nazaire, Bordeaux, Brest, RAF attacks on Brest. It Happened Here — Dungeness Spitfire.

Issue No. 56 £3.00 **CODE A056**
THE AMBUSHING OF SS-GENERAL HANNS RAUTER The Ambush, Reprisals, The Aftermath. It Happened Here — The Italian Air Raid on Bahrain. **The Eastern Front** — the battlefields outside Warsaw. **Wreck Recovery** — An Epic Excavation, Pilot Officer Charles Barber. **Readers' Investigations** — Malta Marine Craft and Sea Rescue.

Issue No. 57 £3.00 **CODE A057**
THE RUSSELSHEIM DEATH MARCH. **Wreck Investigation** — Beneath the Waters of Truk. **Readers' Investigations** — The Mass Escape from Cowra. It Happened Here — Antwerp 'City of Sudden Death'. **Preservation** — An Engineer Returns ... and a Museum is born.

Issue No. 58 £3.00 **CODE A058**
RUDOLF HESS. **War Film** — Theirs is the Glory. **From the Editor** — readers' letters and follow-up stories on previous issues. 50 Years Ago.

Issue No. 59 £3.00 **CODE A059**
THE RAID ON SAINT-NAZAIRE The Attack, Ashore. **Preservation** — Saint Nazaire Ecomuseum. **Crime in WWII** — The US Prison at Shepton Mallet. 50 Years Ago — Anschluss in Austria.

Issue No. 60 £3.00 **CODE A060**
THE MAGINOT LINE. It Happened Here — The Fate of a Whitley. 50 Years Ago — Hitler Visits Italy. **Wreck Recovery** — The Exhumation of a Humber. **Readers' Investigations** — Return to the Berghof.

Issue No. 61 £3.00 **CODE A061**
THE REICHS CHANCELLERY — THE BERLIN FÜHRERBUNKER

Issue No. 62 £3.00 **CODE A062**
THE ALEUTIANS The Raid on Dutch Harbour, The Aleutians Today, Attu Forty Years After. It Happened Here — Known to God, Unknown to Man. 50 Years Ago — The Munich Crisis. **Preservation** — Time Warp in Tubney Wood. **Special Investigation** — Back to the Bunker.

Issue No. 63 £3.00 **CODE A063**
COLDITZ CASTLE AND ITS ESCAPES. John Gillespie Magee — The pilot poet of High Flight.

Issue No. 64 £3.00 **CODE A064**
THE BATTLE OF DEN BOSCH. It Happened Here — The Bombay Explosion. **Readers' Investigations** — Major Martin ... the story continues. **United Kingdom** — GI Baby. 50 Years Ago — The Führer's 50th Birthday Parade.

Issue No. 65 £3.00 **CODE A065**
WESTERPLATTE The Free City of Danzig, Westerplatte, The Military Transit Depot, Preparations for Defence, Preparing for Aggression, The Last Hours of Peace, The First Day of War, The Second Day, The Third Day, The Fourth Day, The Fifth Day, The Sixth Day, The Seventh Day, Hitler Visits Danzig, Westerplatte Today.

Issue No. 66 £3.00 **CODE A066**
MUNICH — DER NEUNTE ELFTE. 50 Years Ago — First shots in the West. **Wreck Recovery** — Malta Update. **From the Editor** — readers' letters and follow-up stories on previous issues.

Issue No. 67 £3.00 **CODE A067**
THE SHETLAND ISLES. **Readers' Investigation** — The Strongest, Bravest and Best. **United Kingdom** — Island Farm Camp, Camp 198, Camp 11, The Empty Years. It Happened Here — Devastation at Darwin. **Wreck Discovery** — Find the *Bismarck!*

Issue No. 68 £3.00 **CODE A068**
BLITZKRIEG IN THE WEST. **Wreck Recovery** — **Wreck Recovery** Wartime Style. **Preservation** — The Merville Battery — 45 years later. It Happened Here — The Night the Rhine Caught Fire. A Veteran Returns — Return to Morotai. **United Kingdom** — Royal Air Force Bomb Disposal. **Readers' Investigations** — El Alamein '89.

Issue No. 69 £3.00 **CODE A069**
OPERATION 'SEALION' — THE INVASION THAT NEVER WAS. **Veterans Return** — Typhoon Memorial at Noyers-Bocage. It Happened Here — Crickett the American Way. **Preservation** — Return to Mementos of the Mighty. **War Film** — The Remaking of *Memphis Belle*.

Issue No. 70 £3.00 **CODE A070**
'GOMORRAH' — THE HAMBURG FIRESTORM. It Happened Here — Unification Day, Berlin 1990. 50 Years Ago — Luftwaffe Hospital, Woolwich. **United Kingdom** — The Combined Services Interrogation Centre.

Issue No. 71 £3.00 **CODE A071**
THE BATTLE OF THE HÜRTGEN FOREST. 50 Years Ago — The Liberation of Addis Ababa. It Happened Here — Carinhall Revisited.

Issue No. 72 £2.50 **CODE A072**
THE AALBORG ATTACK. It Happened Here — Scapa Flow and the U-47. **United Kingdom** — American Red Cross Field Hospital Unit. **Readers' Investigations** — The Death of Generaloberst Dietl. **From the Editor** — readers' letters and follow-up stories on previous issues.

Issue No. 73 £2.50 **CODE A073**
CLEARING THE RHINE. **Readers' Investigations** — With the Company Commander (Charles B. MacDonald). **Wreck Recovery** — Jersey Coastal Artillery Gun Recovery. **Personality** — The Soviet Union's Fighter Ace. **United Kingdom** — US Army Airstrips in Britain, 1942-45.

Issue No. 74 £3.00 **CODE A074**
THE PEENEMÜNDE ROCKET CENTRE. **Readers' Investigations** — The Paratrooper and his Dog. **Wreck Recovery** — Recovery of a Japanese tank, Guam. **War Graves** — Pilgrimage to Kohima. **War Film** — Liberation. It Happened Here — MI5's Secret Interrogation Centre.

Issue No. 75 £3.00 **CODE A075**
HORST WESSEL. **United Kingdom** — Black Propaganda. **Readers' Investigations** — Silent Heroes. It Happened Here — Mine Clearance in Guernsey. A Veteran Remembers — Spear of Destruction.

Issue No. 76 £2.60 **CODE A076**
THE FRENCH NAVY AT TOLON. The Pacific — Palau 50 Years On. It Happened Here — Greifswalder Oie: Sub-base of Peenemünde. A Veteran Remembers — A Prisoner in Scotland.

Issue No. 77 £2.60 **CODE A077**
THE INVASION OF SICILY. It Happened Here — Night of the Grand Council — The Fall of Mussolini. **Veterans Remember** — The Death of Hitler — the story continues.

Issue No. 78 £2.60 **CODE A078**
PELELIU One of the worst of all the American Pacific island invasions. **Preservation** — 28cm Railway Gun at Calais.

Issue No. 79 £2.70 **CODE A079**
THE BIELEFELD VIADUCT. **United Kingdom** — Poison Gas manufacture in the UK. It Happened Here — Mustard Disaster at Bari. **Poland** — Incident at Mosty.

Issue No. 80 £2.70 **CODE A080**
THE DEATH OF ROMMEL. **From the Editor** — readers' letters and follow-up stories on previous issues. **War Film** — *Stalingrad*. **Wreck Recovery** — Typhoon crash at Boulon, Normandy.



Britain's invasion defences were covered in an article in issue No. 14. This obstruction once blocked the A24 near Findon in Sussex.

Issue No. 81 £2.70 **CODE A081**
TRAGINO 1941 — BRITAIN'S FIRST PARATROOP RAID. **Western Approaches HQ.** **United Kingdom** — Spigot Mortar at St Albans and also First Base Post Office — APO 640. **Wreck Recovery** — Missing, Presumed Killed. It Happened Here — Sugamo Prison, Tokyo.

Issue No. 82 £2.70 **CODE A082**
IWO JIMA — 'See No Iwo', Iwo Jima Today. It Happened Here — Reflying the Dams Raid.

Issue No. 83 £2.80 **CODE A083**
AUSTRALIA'S UNKNOWN SOLDIER. It Happened Here — The Massacre at Kalavryta. **Readers' Investigations** — The Tragedy of HMS *Dasher*. **Wreck Recovery** — U-534 — The mystery boat. **France** — Panzer attack in Lorraine. **Preservation** — Panther at Parroy.

Issue No. 84 £2.80 **CODE A084**
SUPREME HEADQUARTERS FOR D-DAY. It Happened Here — Shingle Street.

Issue No. 85 £2.80 **CODE A085**
FROM THE EDITOR. **Crime in WWII** — Normandy Executions. **Commemoration** — The Australian Military Plaques Project. **Wreck Recovery** — The Search for *Blue Peter*. **Preservation** — Historic preservation in the Marshall Islands. 50 Years Ago — The Battle for Merkssem.

Issue No. 86 £2.80 **CODE A086**
OPERATION 'WELLHIT' — The Capture of Boulogne. **Preservation** — Eighth Wall Art Conservation Society. 50 Years Ago — The Market Garden Corridor Tour. **War Film** — Carve Her Name with Pride.

Issue No. 87 £2.85 **CODE A087**
THE GREAT ESCAPE. — **War Film** — The Wooden Horse/The Great Escape. It Happened Here — The Great Escape Plus 50. **United Kingdom** — The High Wycombe Air HQ. 50 Years Ago — The Death of Admiral Ramsay.

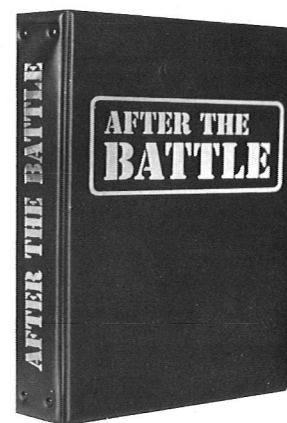
Issue No. 88 £2.85 **CODE A088**
EAST-WEST LINK-UP — The US-Soviet Link-up at Torgau. The British-Soviet Link-up at Wismar.

Issue No. 89 £2.85 **CODE A089**
BERGEN-BELSEN — Bergen-Belsen 1943-45, Liberation, The Belsen Trials. **Wreck Recovery** — The Return of the Lady Be Good. It Happened Here — A Charioteer is No Longer Missing. **Preservation** — Manod Quarry and the National Gallery Paintings. **Pacific** — The Invasion of Saipan. **Personality** — Lee Marvin: Hell in the Pacific.

Issue No. 90 £3.00 **CODE A090**
THE BATTLE FOR LEROS. **Preservation** — The First Allied Shots. It Happened Here — Slaughter at Cefalonia. **United Kingdom** — Sennybridge Training Area. **Crime in WWII** — Military Executions.

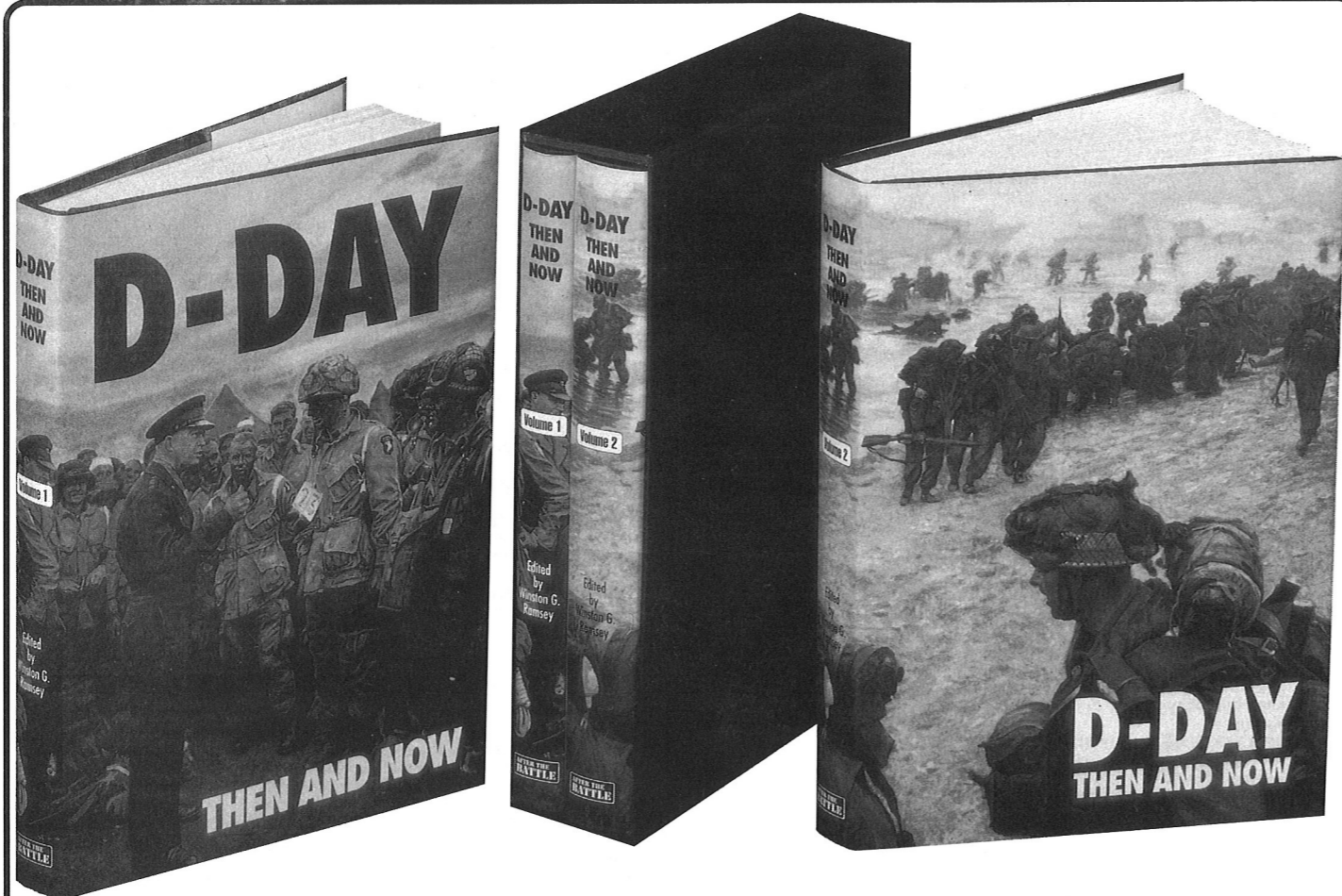
Issue No. 91 £3.00 **CODE A091**
THE HAMMELBURG RAID — 50 Years On. The Eastern Front — Smolensk. **Crime in WWII** — Mutiny in the Cocos Islands.

Special Issue — *Arnhem compilation*
PRELUDE TO ARNHEM GARDEN — Bridgehead on the Meuse-Escaut canal, Crossing at Lommel, The Class 40 bridge. **Arnhem** — The defences, The plan, The bridges, Sunday, September 17, Race for the bridges, Main force — attack and defence, The evacuation, Arnhem VCs. **War Film** — A Bridge Too Far. **Preservation** — The Hartenstein Museum.



AFTER THE BATTLE MAGAZINE BINDERS *CODE Z001
Black PVC binders to hold ten issues of the magazine.
Gold blocked on the cover and spine. £8.79 inc. VAT





D-DAY THEN AND NOW

6 **People of Western Europe. A landing was made this morning on the coast of France . . .**

With these simple — yet memorable — words, General Eisenhower, the Supreme Commander, Allied Expeditionary Force, announced to the world on June 6, 1944 that the Allies had begun Operation 'Overlord' to liberate Europe.

Now, 50 years later, *After the Battle* presents the full story: from its inception, planning and preparation through to its launch on D-Day and the days that followed, as told by the commanders whose responsibility it was.

Many of the hundreds of 'then and now' photographs have been taken *exactly* 50 years later — sometimes to the precise minute — from when the original events took place, creating a unique two-volume record of the greatest combined military, naval and air operation of all time.

VOLUME 1: ISBN 0 900913 84 3 SIZE 12"x8½" 320 PAGES OVER 800 ILLUSTRATIONS £29.95 **CODE F034**
VOLUME 2: ISBN 0 900913 89 4 SIZE 12"x8½" 416 PAGES OVER 1,000 ILLUSTRATIONS £39.95 **CODE F035**

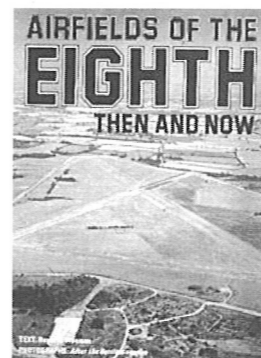
PRESENTATION BOXED SET Both volumes in presentation slip case ISBN 0 900913 90 8 £69.90 **CODE F036**

Contents Volume 1:

PRELUDE — General George C. Marshall • **OPERATION 'OVERLORD'** — General Dwight D. Eisenhower • **SUPREME HEADQUARTERS, ALLIED EXPEDITIONARY FORCE** — Lieutenant General Walter Bedell Smith • **GERMAN DEFENCES** — Oberst Bodo Zimmermann • **ULTRA** — Major Ralph Bennett • **COMMAND DECISIONS** — Air Chief Marshal Sir Arthur W. Tedder • **PLANS AND PREPARATIONS** — General Sir Bernard Montgomery • **AIR OPERATIONS FOR D-DAY** — Air Chief Marshal Sir Trafford Leigh-Mallory • **OK, LET'S GO?** — General Dwight D. Eisenhower • **OPERATION 'NEPTUNE'** — Admiral Sir Bertram H. Ramsay • **6th AIRBORNE DIVISION** — Major-General Richard Gale • **SPECIAL DUTY OPERATIONS** — Brigadier Roderick McLeod • **D-DAY'S FIRST FATAL CASUALTY** — Father Alberic Stacpoole • **82nd AIRBORNE DIVISION** — Major General Matthew B. Ridgway • **101st AIRBORNE DIVISION** — Major General Maxwell D. Taylor

Contents Volume 2:

'DIE INVASION HAT BEGONNEN!' — Oberst Bodo Zimmermann • **OMAHA AND UTAH AREAS** — Lieutenant General Omar N. Bradley • **THE MEDALS OF HONOR • GOLD AREA** — Brigadier Harold Pyman • **THE D-DAY VICTORIA CROSS • JUNO AREA** — Lieutenant-Colonel Charles P. Stacey • **SWORD AREA** — Brigadier David Belchem • **MULBERRY** — Captain Harold Hickling
AIRFIELDS — Air Chief Marshal Sir Trafford Leigh-Mallory
AN APPRECIATION — Generalfeldmarschall Gerd von Rundstedt • **POSTSCRIPT** — The Editor
50th ANNIVERSARY COMMEMORATIONS — Brigadier Tom Longland • **NORMANDY TODAY** — Major Tonie Holt



AIRFIELDS OF THE EIGHTH THEN AND NOW

Roger A. Freeman

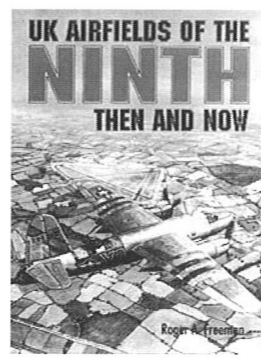
This is a splendid memorial to the USAAF in the UK and will be of absorbing interest to all who have passed these long-deserted airfields and wondered about the drama for which they were once the stage.

AIRCRAFT ILLUSTRATED

A unique, nostalgic look at the airfields used by the Eighth in the United Kingdom during the Second World War. Conceived in war, the airfields experienced their moments of glory and, when the war ended, were left empty and derelict to die. The few which remain virtually intact have only survived because some private or public concern has formed a practical use for them, although not always as airfields. Some of the more remote airfields still dot the countryside the same as when the last plane left their runways and the last truck departed through the main gate. They are bleak, windswept and mouldering but they retain the atmosphere of the fine, high endeavours of the people who inhabited them and the aura of ineffable sadness that hangs over memorials to fighting men. For such they are.

SIZE 12"x8½" 240 PAGES 400 PHOTOS 70 MAPS ISBN 0 900913 09 6 £19.95

CODE F004



UK AIRFIELDS OF THE NINTH THEN AND NOW

Roger A. Freeman

One cannot speak too highly of books of this nature that so comprehensively cover aspects of WW2 that will be forgotten if they are not recorded before memories and people fade away.

AVIATION NEWS

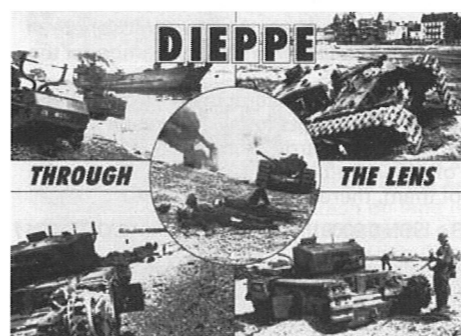
Charged primarily with the support of ground forces in the invasion of Normandy, the Ninth fielded a variety of aircraft — liaison, fighter, bomber and troop carrier — and operated from over 60 airfields in Britain. Within these pages, all are explored and photographed on the ground and from the air, ranging from the troop carrier bases of central and southern England; the bomber airfields in Essex and the New Forest, and the advanced landing grounds in Kent and Hampshire — temporary expedients to enable fighters to give close support to the battlefield. Then, the airfields were in the front line, vibrant and full of activity as men and machines prepared to do battle. Now, they have adopted new faces: as centres of industry and international aviation or venues for leisure activities and motor racing. Some still retain their war-like status as military bases while others have returned to the plough as the wheel turns full circle.

HARDBACK SIZE 12"x8½" 256 PAGES 510 ILLUSTRATIONS ISBN 0 900913 80 0 £24.95 **CODE F031**

US AIRFIELDS IN BRITAIN

PRESENTATION BOXED SET

Both volumes in presentation slip case £44.90 ISBN 0 900913 94 0 **CODE F038**



DIEPPE THROUGH THE LENS

Hugh G. Henry Jr & Jean Paul Pallud

An interesting new departure for the ATB operation. More please. BRITISH ARMY REVIEW

The 14th Canadian Army Tank Regiment was one of the first Canadian armoured regiments to be formed and was also the first to be committed to battle. The action of every one of the regiment's tanks that landed at Dieppe is described in detail by Hugh G. Henry Jr who has spent several years on his research and interviewed all the regiment's survivors. Every Churchill tank and armoured car left behind on the beach is pictured — one large photo per page — selected from the very best photographic coverage of the time. In addition, annotated aerial photographs by Jean Paul Pallud pinpoint and identify the position of every vehicle and full crew lists are given for each. The result is a uniquely illustrated 'after-action' report of Canada's worst military defeat.

SIZE 8½"x12" 64 PAGES 71 ILLUSTRATIONS ISBN 0 900913 76 2 £12.95 **CODE F029**



BEFORE ENDEAVOURS FADE

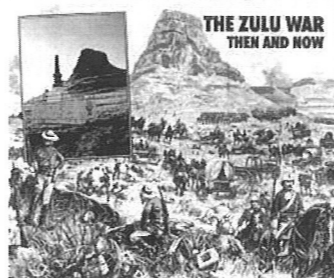
Rose E. B. Coombs, MBE

An excellent and painstakingly well researched record that will be a book of reference as long as interest in this devastating war continues. SOLDIER

From the Belgian coast at Nieuport, across the fields of Flanders, over the valley of the Somme and down the line to the Argonne: all the major battlefields of the First World War — Ypres, Arras, Cambrai, Amiens, St Quentin, Mons, Le Cateau, Reims and Verdun — are criss-crossed in this book over more than twenty different routes, each clearly shown on a Michelin map. Every significant feature is described in detail. A standard work of its kind, and indispensable for anyone contemplating a tour of the battlefields in Belgium and France, this book combines the years of knowledge, travel and research of its author, Rose Coombs, who worked at the Imperial War Museum in London for more than forty years. Following her death, *After the Battle's* European Editor, Karel Margry, travelled every route, checking and revising the text where necessary, as well as re-photographing every memorial. Many new ones are included, yet we have striven to keep true to the flavour of Rose's original concept . . . before endeavours fade.

SIZE 12" x 8½" 176 PAGES 666 PHOTOS 28 MAPS

SOFT ISBN 0 900913 85 1 £11.95 **CODE F001**
HARD ISBN 0 900913 86 X £18.95 **CODE F002**



THE ZULU WAR THEN AND NOW

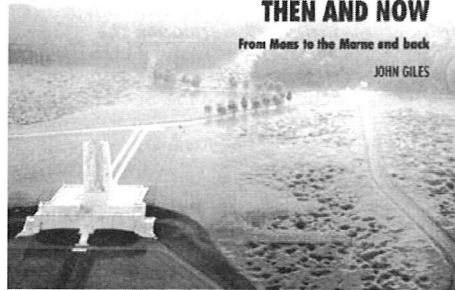
Ian Knight & Ian Castle

It is difficult to be critical of such a comprehensively prepared and beautifully illustrated popular history. BRITISH ARMY REVIEW

The Zulu War Then and Now is a departure from the normal timescale covered by *After the Battle* and enables a completely fresh approach to be given to one of the most widely known military campaigns of the Victorian era. This is the first time that the battlefields of this classic conflict have been presented through *After the Battle's* familiar 'then and now' photographic theme. Many graphic eyewitness accounts from both sides convey exactly what it was like to give battle in the 1870s. Additional chapters cover what remains to be seen today, both on the battlefields and in museums; the lonely and sometimes unmarked and forgotten graves of the participants; the British forts and their ruins, plus accounts of those film productions that have since been made of the 1879 war.

SIZE 8½"x10½" 280 PAGES 510 ILLUSTRATIONS ISBN 0 900913 75 4 HARDBACK £24.95 **CODE F028**

THE WESTERN FRONT THEN AND NOW



THE WESTERN FRONT THEN AND NOW

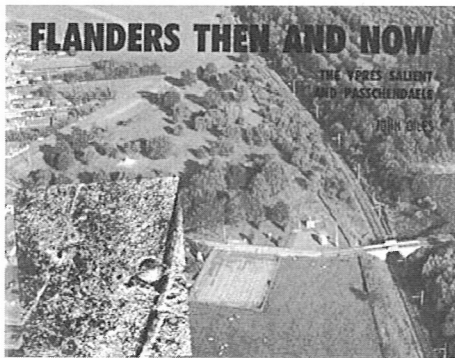
An evocative record of that 'war to end all war'.

John Giles
EAST KENT MERCURY

This is the companion to John Giles' earlier volumes covering the Somme and the Ypres-Passchendaele sector. With *The Western Front Then and Now* the coverage is extended to include all the other main British battle areas of the Western Front between 1914 and 1918. Starting with the spark that ignited the war, the outline of events brings the operations of the British Army in France and Flanders full circle: from the BEF at Mons in August 1914 and the retreat beyond the Marne to the victorious advances of the forces of the British Empire and their re-entering the town in November 1918. It is impossible not to marvel at the triumph of nature over the obliteration of the landscape. As for the men who experienced the horrors of war in the shell-torn, trench-riven wasteland of the Western Front, they were, as John Giles writes of them, a breed apart.

SIZE 8½"×10½" 272 PAGES 511 ILLUSTRATIONS ISBN 0 900913 71 1 £21.95 CODE F026

FLANDERS THEN AND NOW



FLANDERS THEN AND NOW

THE YPRES SALIENT AND PASSCHENDAELE

A piece of work which cannot fail to move you.

John Giles
BRITISH ARMY REVIEW

This third, much revised and retitled edition of John Giles' original Ypres Salient book was specially published by *After the Battle* to coincide with the 70th anniversary of the Battle of Passchendaele. In it he recreates, by means of contemporary photographs juxtaposed with others taken by him over a number of years (including aerial pictures), plus eyewitness accounts and narrative, the atmosphere, past and present, of that once infamous salient. The end result is a moving tribute to the men who fought with great courage and tenacity in the horrendous conditions that prevailed in Flanders during what was known as the Great War. To them 'Wipers' was more than just a foreign city — it was a way of life and, for so very many, a way of death.

SIZE 8½"×10½" 208 PAGES 336 ILLUSTRATIONS ISBN 0 900913 48 7 £19.95 CODE F014

THE SOMME THEN AND NOW



THE SOMME THEN AND NOW

This book is a magnificent salute to the infantrymen of World War I.

John Giles
EAST KENT MERCURY

In this revised edition of *The Somme Then and Now*, published on the 70th anniversary of the start of the 'Big Push', John Giles has succeeded in recapturing the atmosphere of an era when men fought savage battles in and around water-filled trenches amongst the stinking litter of war.

Eye-witness accounts of the bitter fighting are blended with contemporary photographs and comparison pictures taken by the author of the same spots today. The result is a salute to all those men who marched along the roads of Picardy, from Amiens and the surrounding camps, through the ruined town of Albert and onwards to the trenches of the Somme battleground. Sadly for so many of them, there was no return.

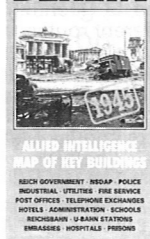
SIZE 8½"×10½" 176 PAGES 300 ILLUSTRATIONS ISBN 0 900913 41 X £17.95 CODE F011

FRANCE AND FLANDERS

PRESENTATION BOXED SET

All three volumes in presentation slip case £59.85
ISBN 0 900913 93 2 CODE F037

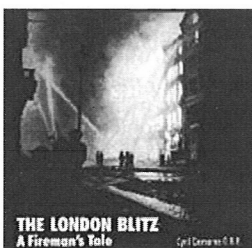
BERLIN



BERLIN INTELLIGENCE MAP

Published specially by *After the Battle* to coincide with the suspension of Allied occupation rights in Berlin in October 1990, this map was produced in 1944 by the War Office and lists the location and use of all important buildings in Berlin to be used in the occupation of the city. Every building associated with the Reich Government, NSDAP, police, fire service, Reichsbahn, U-Bahn, hospitals, telephone exchanges, embassies, prisons, etc., is numbered and referenced to an index printed on the reverse of the map. This sheet covers the central area at 1:12500.

£1.75 CODE F021



THE LONDON BLITZ - A Fireman's Tale

A truly excellent account... a story told from the heart with the unassailable authority of one who was there.

Cyril Demarne
THIS ENGLAND

Prior to September 1939, Cyril Demarne had been fighting fires in the East End of London for fourteen years. On the outbreak of war he became one of the nucleus of professional firemen preparing men of the Auxiliary Fire Service for the maelstrom of the Blitz. This is a true story, told by a fireman in a way that only a fireman who experienced the horrors of the Blitz could tell it. It is a story of ordinary men and women in extraordinary circumstances who, with fortitude and great courage, became very far from ordinary.

SIZE 8¼"×8½" 156 PAGES 144 PHOTOS HARDBACK ISBN 0 900913 67 3 £14.95 CODE F022

THE BLITZ THEN AND NOW

These three books have no publishing parallel and because of their totally comprehensive nature to which so many thousands of people in all parts of the country can relate, they stand apart from any other form of literature published hitherto on this sort of subject.

AVIATION NEWS

Volume 1

September 3, 1939 - September 6, 1940



Volume 1 covers the first year, the period from phoney war to total war: September 3, 1939 to September 6, 1940. Beginning with endless air raid warnings and a sense of unreality, it was a phase which was to culminate in Hitler threatening to raze Britain's cities to the ground. As a direct source of the day-to-day effects of Luftwaffe operations over Britain at the time, the book utilises extracts from the 24-hour log compiled by the Ministry of Home Security, and this provides a contemporary diary of events as they affected the Home Front. These entries ideally form the setting for a detailed record of the losses sustained by the Luftwaffe over Britain and within sight of land: a barometer of the air war, showing clearly the changing climate of hostilities. Every German crash on land is listed with its crew, and footnotes are included on all the crash sites which are known to have been investigated or excavated since the end of the war, together with photographs of some of the more interesting discoveries. Features and special articles by historians and eyewitnesses intersperse the daily happenings, illustrating life at the time on both the civilian and service fronts.

SIZE 12"×8½" 336 PAGES 856 ILLUSTRATIONS ISBN 0 900913 45 2 £23.50 CODE F013

A masterpiece of a publication that deserves a place on every bookshelf to remind us of the horrendous price paid then for the way we live now. THE NEWS, ALDERSHOT

Volume 2

September 7, 1940 - May 1941



The day-by-day, blow-by-blow account of the Night Blitz. Beginning with the first mass raid on London on September 7, 1940, the story is continued through the winter of 1940-41 with Ken Wakefield's masterly description of Luftwaffe operations over Britain. The result of over fifteen years of study and research, his 150,000-word account of each night's operations over Britain brings into focus for the first time the full details of the escalating attacks as one raid exceeded another in size, damage or deaths. Every German crash on land is listed with its crew, and footnotes are included on all those which are known to have been investigated or excavated since the end of the war, together with photographs of some of the more interesting discoveries. Over twenty features and special articles by historians and eyewitnesses intersperse the daily happenings, illustrating life at the time on both the civilian and Service fronts, and contrasting descriptions by German airmen give us an insight into just what it was like to be on the other side. A unique record of a period which changed the face of Britain and cost the lives of 40,000 of her people.

12"×8½" 656 PAGES OVER 1500 ILLUSTRATIONS ISBN 0 900913 54 1 £37.50 CODE F015

This is a book for you, your children and your children's children to keep so that the sacrifices of their forebears will not go unhonoured or be forgotten. WINGSPAN

Volume 3

May 1941 - May 1945



The period in question began quietly with the Luftwaffe busy elsewhere, yet the increasing attacks on Germany by the Royal Air Force provoked a response in the form of the so-called Baedeker offensive of 1942. And it is against the background of the hammer blows dealt out to German towns and cities that the Blitz on Britain during the 1942-1944 period must be viewed. Hitler's frustration at not being able to hit back, like for like, led to the appointment in 1943 of a Blitz supremo to mete out retaliation. This finally came in 1944 with the Steinbock raids — known better as the Baby Blitz — yet it was only an interim measure. As the manned bomber attacks faded, so a new and fearsome method of attack by robot bomb began with weapons of vengeance. The V1 and V2 period is fully documented with the basic facts and figures balanced by eyewitness accounts never before published.

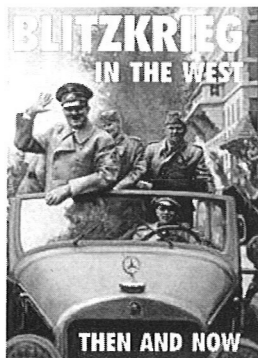
The three volumes of *The Blitz Then and Now* run to more than 1,500 pages and include over 3,500 illustrations. It has taken ten years to bring to fruition — longer than the period it encompasses — and it is dedicated to the 60,000 British civilians who died and the 86,000 who were injured.

SIZE 12"×8½" 592 PAGES 1452 ILLUSTRATIONS ISBN 0 900913 58 4 £37.50 CODE F019

THE BLITZ THEN AND NOW

PRESENTATION BOXED SET

All three volumes in presentation slip case £98.50
ISBN 0 900913 60 6 CODE F018



BLITZKRIEG IN THE WEST THEN AND NOW

Jean Paul Pallud

Superb volume . . . astounding collection of photographs, maps and diagrams and detached text. This book is a classic. TRI-SERVICE PUBLICATIONS

Jean Paul Pallud, author of the highly acclaimed *The Battle of the Bulge Then and Now*, presents — for the first time through comparison 'then and now' photographs — a detailed account of the Battle of France: the forty-five traumatic days from May 10 to June 24, 1940 that resulted in one of the most remarkable military victories of modern times. During those six weeks, six nations found themselves at war, fighting across four countries. From the polders of the Netherlands in the north to the mountains of the Alps in the south, and from the Rhine valley to the Atlantic coast, Jean Paul Pallud explores every corner of the battlefield, the camera recording the scenes today where fifty years ago Dutch, Belgian, German, French, British and Italian soldiers were locked in mortal combat.

Battles great and small are described and illustrated to colour the canvas of both the broad strategy and the individual firefight in Hitler's victorious campaign of *Blitzkrieg in the West*.

SIZE 12"x8½" 640 PAGES 1880 PHOTOS HARDBACK ISBN 0 900913 68 1 £39.95

CODE F023

AVIATION LANDMARKS

Jean Gardner

A thoroughly interesting book because of the diversity of the memorials. AVIATION NEWS



Selecting from a collection of almost 400 different memorials, Jean Gardner has put together the story of the progress of aviation: from the adventurous and hazardous beginnings of the pioneers and the gruelling 'firsts' of trans-continental flights, to the courage and sacrifice of the war years and, in more recent times, to the exploration of space.

As with any project of this nature, the end is never in sight. New memorials are constantly appearing, while older ones disappear during development, are 're-positioned', or are renovated by a new generation after years of neglect.

This book attempts to tell the story of flight and the human endeavour that it enshrines through the seemingly impregnable blocks of stone which others have been generous enough to erect to the memory of those brave young men and women who have made aviation history.

Their landmarks remain as memorials to man's conquest of the air.

SIZE 8¼"x8½" 144 PAGES 250 PHOTOS ISBN 0 900913 66 5 £14.95

CODE F020

BATTLEFIELD PHOTO ALBUMS

I particularly enjoyed making the comparison photographs. What a good idea this book was! It provided a real focus for my visit. MARK HONE, BURY, LANCS.

This new series from *After the Battle* will enable readers visiting the battlefields to put themselves in our shoes and compile their own 'then and now' Photo Albums. By following the annotated map indicating where each wartime picture was taken, the reader will be able to find and take comparison photographs for fourteen specially selected pictures of the subject battle in each case. Each right-hand

page of the album is reserved for you to add your own comparison, and the album is spiral-bound to enable your photographs to be neatly presented. Not only will you experience the sense of achievement when you discover and photograph the correct location, but you will also be producing a permanent reminder of your visit.

DIEPPE BATTLEFIELD PHOTO ALBUM SIZE 6"x8½" 32 PAGES 15 ILLUSTRATIONS ISBN 0 900913 78 9 £4.95 CODE F030
NORMANDY BATTLEFIELD PHOTO ALBUM SIZE 6"x8½" 32 PAGES 15 ILLUSTRATIONS ISBN 0 900913 81 9 £4.95 CODE F032



THE BATTLE OF BRITAIN THEN AND NOW Mk V

Edited by Winston G. Ramsey

It is not only a work of colossal scholarship, it is the noblest literary memorial to 'The Few' yet published. MANCHESTER EVENING NEWS

First published to commemorate the 40th anniversary of the Battle of Britain, *After the Battle* ploughed an entirely fresh furrow across this legendary field of human conflict to produce a book which has now come to be regarded as a memorial in itself to 'The Few'. Never before has such detailed coverage been given to the losses of either the Royal Air Force or the Luftwaffe. The graves of RAF aircrew that were killed have been listed, visited by the editorial team and photographed as a complete and lasting record of those that died. The pilots, their memorials, crashes and crash sites, and the aircraft that have survived are profusely illustrated. Twenty of the most famous fighter aerodromes have been explored and described as they were at the time and as they are today. Also included is a complete listing of 'The Few' — more than twenty-five years' work by the late John Holloway.

The 16-page introductions to the Mk III/IV and Mk IV editions are available separately if required.

SIZE 12"x8½" 848 PAGES 1700 ILLUSTRATIONS ISBN 0 900913 46 0 £39.95 CODE F006
16-page Intro Mk III/IV £1.75 CODE F007 16-page Intro Mk V £1.75 CODE F016

BERLIN THEN AND NOW

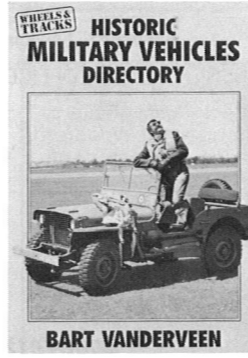
Tony Le Tissier

A really sumptuous book . . . beautifully prepared and presented. PRACTICAL WARGAMER

Using 'then and now' photographs we look at Berlin throughout its many phases. The turbulent years of the Weimar Republic, when Communist and Nazi fought each other for control of the streets, led to the Third Reich with its spectacular scenes of grandeur and glory. However, the 'Thousand Year Reich', and the architectural megalomania it spawned which transformed the centre of Berlin, began to crumble within ten years as the Western Allies dealt out massive retribution from the air. The Soviet land attack which followed finally ground much of what was left of the city into dust. Berlin's position as the focal point of the Cold War in Europe is examined, culminating in 1961 with the fateful division of the city by 'the Wall' which split Berlin into two camps — East and West — for nearly three decades, leaving Berlin an island within a hostile sea. Finally, the story comes full circle with our description of the unbelievable events of 1989-90.

SIZE 12"x8½" 472 PAGES OVER 1700 ILLUSTRATIONS ISBN 0 900913 72 X £39.95

CODE F027



HISTORIC MILITARY VEHICLES DIRECTORY

Bart Vanderveen

This compact yet capacious hardback is certainly a must for the military vehicle enthusiast. BRITISH ARMY REVIEW

Historic Military Vehicles is a uniquely comprehensive, richly-illustrated directory providing general, technical and physical data of transport and fighting vehicles which were produced for armies, air forces and other services from the mid-1930s until about 1960. Coverage ranges from airborne scooters and motorcycles through all manner of 'soft-skin' vehicles, including multi-wheeled and tracked machines, to armoured cars and tanks, arranged by country of manufacture, from Argentina to the United States — 23 in all. Nearly 1400 models are illustrated and described. Each chapter is preceded by a narrative of the country's activities in regard to their forces' motorization and an introductory pictorial survey highlights typical examples of types which were made in the early part of our century, including World War I. Compiled under auspices of *Wheels & Tracks*, the *Historic Military Vehicles Directory* will prove indispensable for anyone with an interest in military history and motor vehicles in general alike.

SIZE 8½"x6" 400 PAGES 1396 ILLUSTRATIONS HARDBACK ISBN 0 900913 57 6 £19.95

CODE F017



BATTLE OF THE BULGE THEN AND NOW

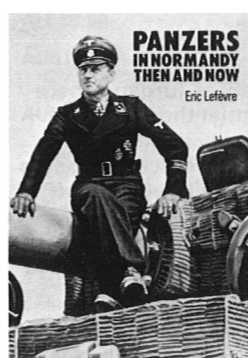
Jean Paul Pallud

The remarkable impartiality of Mr Pallud's calm, measured reportage gives the reader confidence that the narrative is as free from distortion as any account can be . . . intricate . . . majestic . . . a dauntingly massive book. THE DAILY TELEGRAPH

Nine days before Christmas 1944 Hitler played Germany's last card on which he staked everything to turn the tables in the West. This is the first time that an attempt has been made to cover the entire salient in order to present the battle in our familiar 'then and now' format. Hundreds of miles have been travelled by the author throughout every corner of the battlefield to search out the scenes of past events — every known photograph belonging to combatants, civilians, and in public collections and private sources has been sought or considered. All the cine film has been examined frame by frame and certain sequences illustrated and analysed. In this way a number of classic pictures almost always used — or misused — in depicting the Ardennes battle are not only placed in their context in the German advance but are also shown to be not always quite what they seem!

SIZE 12"x8½" 544 PAGES 1260 ILLUSTRATIONS 31 MAPS ISBN 0 900913 40 1 £39.95

CODE F009



PANZERS IN NORMANDY THEN AND NOW

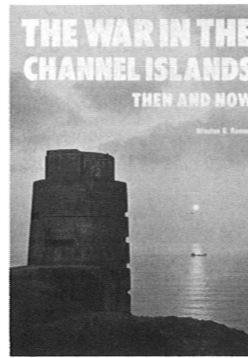
Eric Lefèvre

This is a truly magnificent record of the performance of the German tanks and their Panzertruppen in the Normandy Campaign. BRITISH ARMY REVIEW

Published to commemorate the 40th anniversary of the Normandy campaign, *Panzers in Normandy Then and Now* is a detailed study of the German panzer regiments in Normandy in 1944 as seen from the German side. The book is basically divided into two parts: the theoretical composition of the 1944 model of the panzer regiment, its equipment and personnel, and secondly, individual chapters on the seventeen panzer units which saw service in Normandy. In addition the book contrasts the scenes of the fighting that raged in the countryside and villages of this part of France with comparison photographs of the battleground as it is today. Research for this book also resulted in the discovery of the location of the grave of the most famous panzer commander, formerly listed as missing in action, when a Normandy roadside revealed its secret in 1983 as the last resting place of the victor of Villiers-Bocage, Michael Wittmann.

SIZE 12"x8½" 212 PAGES 373 ILLUSTRATIONS 19 MAPS ISBN 0 900913 29 0 £19.95

CODE F008



WAR IN THE CHANNEL ISLANDS THEN AND NOW

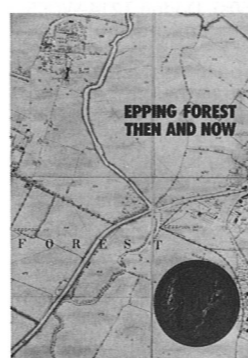
Winston G. Ramsey

The most comprehensively illustrated book about the German Occupation of the Channel Islands. JERSEY EVENING POST

Besides being the only British territory occupied by the Germans in the Second World War, it is perhaps less generally known that the Channel Islands were fortified out of all proportion to the rest of Hitler's Atlantic Wall: a legacy that is explored in individual chapters on Alderney, Guernsey, Jersey and Sark. First-hand accounts of all seven Commando raids are brought together for the first time. A summary of how the Islands' hotels were put to use by their German guests may intrigue present-day visitors, and a review of the war museums gives an insight into the variety of relics that enthusiasts have had the foresight to preserve. The war cemeteries are described, and there is a list of every grave of both sides of the two World Wars. Annotated aerial photographs form an important aspect of the book — among them unique pictures of Sark for which exceptional permission was granted to enter the island's inviolable airspace.

SIZE 12"x8½" 256 PAGES OVER 650 ILLUSTRATIONS ISBN 0 900913 22 3 £19.95

CODE F005



EPPING FOREST THEN AND NOW

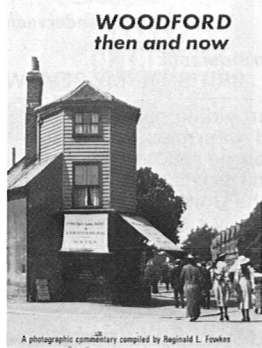
Winston G. Ramsey with Reginald L. Fowles

A magnificent new book. WEST ESSEX GAZETTE

Never before has a book portrayed the historic Epping Forest area of Great Britain in this way: through hundreds of 'then and now' comparisons, recording the changing scene since the earliest days of photography. From Forest Gate in the south to Epping in the north; from Chigwell and Abridge in the east through Chingford to the great abbey of Waltham in the west, a wide-ranging pot-pourri of contemporary extracts has been blended with more than 1,400 photographs, drawings and maps, together with specially-taken aerial photographs, to trace the events and developments which have shaped the locality. The illustrations being combined with a text researched mainly from newspapers, magazine articles and books of the time, *Epping Forest Then and Now* provides a fascinating contemporary record that brings to life the local and social history of the area and does so with a due sense of the past to set beside the present.

SIZE 12"x8½" 480 PAGES 1412 ILLUSTRATIONS ISBN 0 900913 39 8 £33.50

CODE F010



WOODFORD THEN AND NOW

A most impressive publication

In selecting past photographs from a collection formed since the beginning of the century, Reginald L. Fowkes has compiled a 'then and now' pictorial record depicting the contrasting character of Woodford, Essex, over a period which spans almost eighty years. Accompanying the photographs, the history of Woodford is told from the beginning of the thirteenth century.

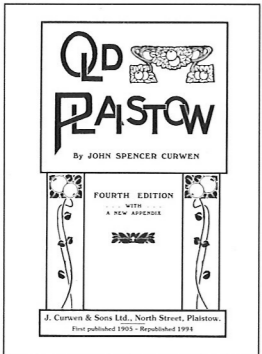
For Woodfordians whose memories encompass the early part of the century, this book, which set a new standard for local histories when it first appeared in 1981, will stir recollections of a leafy, almost leisurely suburb in a semi-rural setting. There are views, though, which still remain virtually as they were then — an intrinsic part of the contrast with Woodford as it is now and a timeless element in the intervening years, recorded for posterity in this book along with those scenes, streets and buildings that are no more.

SIZE 12"x8½" 192 PAGES 460 ILLUSTRATIONS ISBN 0 900913 47 9 £17.95

Reginald L. Fowkes

ESSEX RECORD OFFICE

CODE F012



OLD PLAISTOW

This delightfully quaint and nostalgic local history is the work of Spencer Curwen — the eldest son of the Revd. John Curwen, founder of the Tonic Sol-fa Movement and of the Curwen Press — for twenty years he was minister of the Plaistow Congregational Church in West Ham.

Spencer was born and brought up in Plaistow when it was still a large village. He was the founder of the Stratford Music Festival in 1882, which still organises its annual competitions, and was active in liberal politics and social affairs in south West Ham.

This publication originated in a paper read at Balaam Street Schools, Plaistow, in 1891. It aroused such interest that it was printed by the Press and went through three editions in about two years, becoming somewhat of a local classic of the period. This fourth edition, produced over ten years later in 1905, was enlarged and brought up to date. It vividly recalls a Plaistow which, during more than forty years of incumbency by one vicar, saw the marsh pasture in the south of the parish transformed into an urban landscape covered by railways, docks, factories and terraced housing.

SIZE 8½"x5½" 92 PAGES 50 ILLUSTRATIONS ISBN 0 900913 87 8 £4.95

John Spencer Curwen

CODE F033



AFTER THE BATTLE VOLUME 22

A major feature in this volume is the link-up between East and West in April 1945: at Torgau, where American and Soviet forces joined hands, and at Wismar where the British first met the Red Army.

The escapes from Sagan's Stalag Luft 3 in Lower Silesia are portrayed in actuality and in the film recreations, *The Wooden Horse* and *The Great Escape*. The escape of some 76 RAF officer prisoners and the subsequent murder of 50 of their number by the Gestapo is covered in detail, rounded off with a 50th anniversary pilgrimage to the camp site by seven of the original escapers.

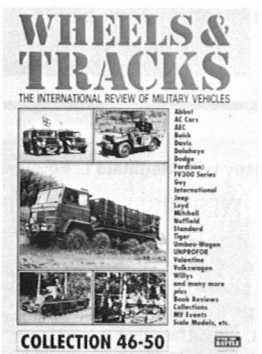
The little-known aircraft accident which took the life of the Allied Naval Commander-in-Chief, Admiral Sir Bertram Ramsay, in January 1945 is described using unique stills from cine film taken at the time. Another tragic death covered in this volume is that of Violette Szabo, posthumously awarded the George Cross for her exploits in France while serving with the Special Operations Executive, and epitomised in the film, *Carve Her Name with Pride*.

Other important features cover the various air headquarters at High Wycombe used by RAF Bomber Command and the US Eighth Air Force; the capture of Boulogne in Operation 'Wellhit'; the executions of US military offenders in Normandy; and the battle for Merksem.

The preservation of military artifacts in the Pacific; the conservation of American wall art in Britain; the initiative by one Australian to commemorate notable battlefields; the recovery of a Spitfire in Scotland and the 50th anniversary 'Corridor Tour' to commemorate Operation 'Market Garden' in Holland, round off this, the 22nd bound volume in the *After the Battle* series.

SIZE 12"x8½" 232 PAGES EACH VOLUME AVERAGES OVER 600 ILLUSTRATIONS £19.95 each Each includes 4 issues of *After the Battle* complete with index

Vol 1 (Issues 1-4)	D001	Vol 6 (Issues 21-24)	D006	Vol 11 (Issues 41-44)	D011	Vol 16 (Issues 61-64)	D016	Vol 21 (Issues 81-84)	D021
Vol 2 (Issues 5-8)	D002	Vol 7 (Issues 25-28)	D007	Vol 12 (Issues 45-48)	D012	Vol 17 (Issues 65-68)	D017	Vol 22 (Issues 85-88)	D022
Vol 3 (Issues 9-12)	D003	Vol 8 (Issues 29-32)	D008	Vol 13 (Issues 49-52)	D013	Vol 18 (Issues 69-72)	D018		
Vol 4 (Issues 13-16)	D004	Vol 9 (Issues 33-36)	D009	Vol 14 (Issues 53-56)	D014	Vol 19 (Issues 73-76)	D019		
Vol 5 (Issues 17-20)	D005	Vol 10 (Issues 37-40)	D010	Vol 15 (Issues 57-60)	D015	Vol 20 (Issues 77-80)	D020		



WHEELS & TRACKS COLLECTION 46-50

This bound volume — our 10th — contains *Wheels & Tracks* issues 46-50. In addition to its 280 pages it features a comprehensive index with three categories of references. About 1,350 illustrations are included, with few exceptions not published before. Major articles on wheeled vehicles include Standard Light Utilities, the rare 3x2 Davies from California, French Delahaye MVs of all shapes and sizes (from 1910 till the 1950s), Dodge T214-WC55 37-mm gun carriages and the whole range of International 2½-ton six-wheelers. Anglo-American Ford(son) 6x2 and 6x4 trucks are dealt with and so are Mitchell cars, the elusive Nuffield-converted Willys MB and a surviving Buick Wehrmacht Umbauwagen. Hard-skin machines include the AC armoured car prototype of WWI and the whole range of British Armoured Command Vehicles (notably the AEC 4x4 and 6x6). Moving to tracked vehicles there is the Loyd Carrier in its many guises, the FV300 series of experiments and the King Tiger in Fort Knox. The period of the mid-1990s naturally resulted in extensive coverage of 50th anniversary events like Normandy in 1994. In addition there are lots of pictures from across the world, the popular Readers' Forum, Discoveries, Identifile, Before and After, Collections and Scale Models. *Wheels & Tracks* is invaluable for the international MV preservation movement but also of importance to those who are involved primarily with commercial vehicles.

SIZE 12"x8½" 300 PAGES EACH VOLUME AVERAGES OVER 750 ILLUSTRATIONS £22.50 each

WHEELS & TRACKS COLLECTIONS Each collection includes five issues of <i>Wheels & Tracks</i> with index					
Collection 1-5	EA02	Collection 21-25	EA06	Collection 41-45	EA10
Collection 6-10	EA03	Collection 26-30	EA07	Collection 46-50	EA11
Collection 11-15	EA04	Collection 31-35	EA08		
Collection 16-20	EA05	Collection 36-40	EA09		

CUMULATIVE INDEX
A complete index covering issues 1-25 of *Wheels & Tracks* is available price £2.95 EA01

WHEELS & What our TRACKS readers say . . .

Wheels & Tracks is my only contact with other enthusiasts and every issue I receive gives great encouragement and is also very informative.

MICHAEL KELLY
VICTORIA, AUSTRALIA

Many thanks for a great magazine.

RORY McCAUGHAN
PIGGS PEAK, SWAZILAND

Thanks for the great magazine — I always look forward to its arrival.

MARK NEITENBACH
BOULDER, COLORADO

I now have almost the full set of *Wheels & Tracks*. Thank you for such an interesting and varied series of articles.

ADRIAN HARDGRAVE
RUGBY, WARWICKSHIRE

After discovering *Wheels & Tracks* by chance, in the Bovington Tank Museum, I have bought all the back issues and continue to subscribe. I enjoy this magazine very much and I am looking forward to the next issue all the time.

BJARNI MAGNUSSON
AKUREYRI, ICELAND

WHEELS & TRACKS BINDER* — CODE Z002 £8.79 inc. VAT
Yellow cloth binders to hold eight issues of the magazine. Blocked in black on the cover and spine.

WHEELS & TRACKS is produced under the editorship of Bart Vanderveen, author of many publications on military vehicles, including the *Historic Military Vehicles Directory*, and is published by *After the Battle* magazine. The vehicles featured, and the stories behind them, span the whole period of recent history right up to the present day. Both wheeled and tracked . . . at war . . . in operational service and civilian rôles . . . preservation and restoration . . . prototypes and developments. There is no other magazine like *Wheels & Tracks*: its scope is international. *WHEELS & TRACKS* is published quarterly on the 15th January, April, July and October. All back issues are available — contents list guide is shown below.

GUIDE TO MAJOR ARTICLES IN WHEELS & TRACKS ISSUES 1-53

ALL £3.00	Issue No.	Issue No.	Issue No.
AUSTRALIA			
GMC Airborne Trucks	22	CMP prototypes	25
Moke	19	CMP reassembly	37
AUSTRIA		CMP wreckers	34
Steyr 1500A	52	Diamond T 975, 975A	24
Steyr RSO	27, 29	Dodge T212 (D8A)	3
BELGIUM		Dodge T214-WC55	48
Ford	19, 21	Ford C11ADF car	14
General Motors	17, 18	Ford wheeled carriers	41
T13 SP gun	18	GMC M135CDN and variants	39
BRITAIN		Ram tank and variants	51, 52, 53
AC Cars	49	Sexton	53
AEC	47	Valentine	46
Alecto SP gun	15	CZECHOSLOVAKIA	
Alvis-Straussler	39	Praga RV, RVR, 6x4	7
Argosy	33	Praga V3S, 6x6	8
Austin 15-cwt	16	Skoda RSO (Porsche 175)	3
Bison mobile pillboxes	41	Tatra sWS	21
Brockhouse Corgi	3	Tatra OT-810	40
Carriers	26	Trailers, HET	54
Churchill FV3902	20	FRANCE	
Coventry armoured car	4	Berliet T12	39
Cranes trailers	17	Delahaye	47
DD tanks	40	Marmon-Herrington FF6	20
Excelsior Welbike	2	GERMANY	
Ford WOC1	26	A7V	25, 35
Fordson 6x4 Sussex	50	Auto Union/DKW	45, 52
FV300 Series	50	Büssing-NAG sWS	21
Guy 6x6, 8x8	32	Ford COE trucks, buses	42
Harry Hopkins	15	Krauss-Maffei Sd.Kfz.7	12
Hornsby tractors	13	Maus	23
Humber Hexonau	35	Mercedes-Benz 770	4, 45
Humber FV1600 series	6	Minenräumer (Alkett, Krupp)	37
Humber scout cars	45	Munga	45
Land-Rover/Tempo	35	Opel military cars	10
Land-Rover FV18501, OTAL, etc.	2	Raupenschlepper Ost	27, 29
Land-Rover 'Pink Panther'	9	Porsche Radschlepper Ost	3
Leyland Martian FV1100 series	23	Steyr Kommandeurwagen	51
Loyd Carriers	48, 49	Tempo	35
Martel	28	Tiger	27, 39, 49
Mini-Moke, Twinny-Moke	19	Überlandwagen	25
Morris Q series	32	Umbauwagen	30, 50
Morris Tilly	25	Unicar	22
Morris-Commercial Quads	29	Zündapp	11
Morris-Commercial C8, C9	30	HUNGARY	
NACT(X)	36	Manfred Weiss	36-39
Neptune	31	Nimrod	34
Nuffield/Willys Jeep	50	Toldi	19
Standard	46	INDIA	
Straussler	36-40, 44	Ford wheeled carriers	41
Talbot 30-cwt	3	ITALY	
Tanks of WWI	12, 16	OTO Melara Gorgona	12
Tanks, Medium A, B	42	NETHERLANDS	
Tanks, Medium C	43	DAF/Ford	33, 35, 37
Tetrarch	15	YPR-765	2
Tortoise	31	NEW ZEALAND	
Vickers tractors	15	Wheeled carriers	41
Welbike	3	POLAND	
CANADA		Star 66, 660, 266	2
Chevrolet C8A, C8AX	1, 2	RUSSIA	
Chevrolet CGT Portee	33	Heavy tanks	44
		Kubinka Museum	35

ALL ISSUES £3.00
Codes E001 - E053 respectively

AFTER THE BATTLE VIDEO COLLECTION

VIDEOCASSETTE 1* £14.95 inc. VAT CODE VV01

Memphis Belle

Memphis Belle is generally considered one of the best action documentaries produced during the Second World War. Although created by a distinguished Hollywood producer, William Wyler, it contains no studio simulations of battle and for this relies entirely on sequences filmed during Eighth Air Force bombing raids over hostile territory. Purporting to depict the twenty-fifth mission of one B-17 of the 91st Bomb Group, this storyline only developed late in the production resulting in much extraneous footage already shot being included as fully described in the Viewing Notes. Complete uncut version including the sequences describing the operational plan deleted on the BBC TV showing. COLOUR 38 MINUTES

Fight for the Sky

Made primarily for the historical instruction of USAF trainees, *Fight for the Sky* represents the best composite record of camera gun shots filmed by Eighth Air Force fighters during the war. Air fighting sequences are followed by the strafing of road and rail targets and the low-level shooting up of enemy airfields — and even a Lancaster! BLACK AND WHITE 20 MINUTES

VIDEOCASSETTE 2* £14.95 inc. VAT CODE VV02

Thunderbolt

Thunderbolt is undoubtedly the best Second World War documentary made about USAF fighter pilots and their operations. Produced and edited by William Wyler as a follow-up to *Memphis Belle* (on USAF bomber operations), the action is centred around the 65th Fighter Squadron, 57th FG, based at Alto, Corsica. The film highlights the bombing and strafing attacks on Operation 'Strangle' — the campaign against enemy road, rail and water communications in northern Italy. COLOUR 40 MINUTES

Desert Bonanza

Desert Bonanza features the huge USAF military aircraft storage base at Davis-Monthan Air Force Base located near Tucson in the moisture-free Arizona desert, where aircraft are preserved from WWII, Korea and South-East Asia for future use or cannibalisation. COLOUR 15 MINUTES

VIDEOCASSETTE 3* £14.95 inc. VAT CODE VV03

Battle for San Pietro

Major John Huston's renowned documentary on the battle for this small Italian village in 1943 caused a furore in US Army circles when it was previewed by the top brass. The GI's war — the living and the dead — was filmed in such stark reality that the film was only finally released for public viewing after heavy editing down to thirty minutes which changed its whole theme from 'anti' to 'pro'-war. This version retains much of the original material excised or altered by Army censors. BLACK AND WHITE 36 MINUTES

The Enemy Strikes

Much captured German film taken in December 1944 is included in this American propaganda account of the Battle of the Bulge. The Viewing Notes give the background to this material and explain how seeing is not always believing. BLACK AND WHITE 10 MINUTES

Rolling to the Rhine

The Red Ball Express — the one-way, twenty-four-hour truck route across France carried over 400,000 tons of freight during its eighty-one days of existence in 1944. An equally important side of the war in Europe is illustrated in this short, made for the American public. BLACK AND WHITE 9 MINUTES

VIDEOCASSETTE 4* £14.95 inc. VAT CODE VV04

Ploesti

This is one of the *Air Force Story* series made as a public relations venture by the USAAF to 'sell' air power to the American public. It was made as a tribute to the Fifteenth Air Force whose units carried out the raids but, as the Viewing Notes explain, much of the fine and genuine combat photography frequently depicts Eighth Air Force aircraft. BLACK AND WHITE 13 MINUTES

Mayday! Mayday!

Made at the end of hostilities by the USAAF, this film relates the methods used for Air Sea Rescue by the Eighth Air Force from the airfields at Boxted, in Essex, and Halesworth, Suffolk. Simulated rescue missions are depicted illustrating this little-known activity of the USAAF in the United Kingdom. BLACK AND WHITE 17 MINUTES

Schweinfurt and Regensburg

Another title in the *Air Force Story* series centred around the mission of August 17, 1943 to hit at industrial targets vital to the German war effort. Clever editing incorporates much footage from later operations, especially of the 303rd Bomb Group B-17Gs from Molesworth, Huntingdonshire. BLACK AND WHITE 13 MINUTES

VIDEOCASSETTE 5* £14.95 inc. VAT CODE VV05

D-Day Minus One

This film, produced as an Army Air Forces special project, covers the operations of the 82nd and 101st US Airborne Divisions and the IX Troop Carrier Command in the early hours of June 6, 1944, and highlights the rôle of the airborne infantry and glidermen in the invasion of Normandy. BLACK AND WHITE 16 MINUTES

The Autobiography of a Jeep

This amusing yet informative short describes the birth of the Jeep as told by itself with some spectacular off-road shots. One Jeep was produced every two minutes and they served in every theatre of war as the 'army's mule on wheels'. BLACK AND WHITE 9 MINUTES

D-Day Convoy

Straightforward documentary produced by the United States Army (and thus angled to the American sphere of operations) on the Normandy Invasion — from training and build-up to touch down. The rôles of the air, sea and land forces are described using footage taken of the assaults on Omaha, Utah and Pointe du Hoc. BLACK AND WHITE 17 MINUTES

VIDEOCASSETTE 6* £14.95 inc. VAT CODE VV06

Fury in the Pacific

One of the most savage of the Pacific battles in Admiral William Halsey's 'island-hopping' campaign was the landing on Pelelieu, one of the Palau Islands in the Japanese-held Carolines. Despite a formidable pre-invasion bombardment, the 1st Marine Division suffered heavy casualties on the first day, rooting out the defenders from a warren of caves with flame-throwers and grenades. One combat cameraman was killed and nine wounded taking these pictures. BLACK AND WHITE 18 MINUTES

Jap Zero

Instructional film featuring Ronald Reagan designed to help American pilots in the Pacific recognise the Zero fighter, made with the help of a captured specimen and animated camerawork. BLACK AND WHITE 18 MINUTES

The Fleet that came to Stay

'The struggle by men who want to die and men who fight to live.' This United States Navy film covers the invasion of Okinawa which began on Easter Sunday 1945. Spectacular footage of the repeated Kamikaze suicide attacks on the 1,400 ships supporting the operation is the highlight of the film. BLACK AND WHITE 20 MINUTES

VIDEOCASSETTE 7* £14.95 inc. VAT CODE VV07

Divide and Conquer

The *Why We Fight* series was made by the US Special Service Division under the auspices of Major Frank Capra specifically for the education of Army personnel as to why America was fighting and the principles for which the United States had gone to war. Film number three covers the invasion of Denmark and Norway, the battle of Narvik, the attack against Holland including the bombing of Rotterdam, the capture of Fort Eben-Emael, the fall of Belgium, breakthrough at Sedan, and evacuation at Dunkirk. Italy enters the war and Hitler triumphantly visits Paris. The film ends with the defeat of France and the signing of the Armistice at Compiègne. BLACK AND WHITE 54 MINUTES

VIDEOCASSETTE 8* £14.95 inc. VAT CODE VV08

The Nazis Strike

This is the second film in the *Why We Fight* series made by the US Special Service Division under Major Frank Capra at the request of the US Chief of Staff George C. Marshall to win the 'battle for men's minds . . . a series of documented, factual information films to explain to our boys in the army why we are fighting and the principles for which we are fighting'. *The Nazis Strike* describes the rise of the Nazi party, the establishment of the German war machine and the expansion of the army and Luftwaffe. 'I am willing to sign anything . . . I will do anything to facilitate the success of my policy.' Thus Hitler's words in an October 1933 interview heralded the take-over of Europe beginning with the occupation of the Rhineland in 1936 and ending with the capture of Warsaw three years later. BLACK AND WHITE 39 MINUTES

German Infantry Small Arms

Produced by the Signal Corps Photographic Center as an instructional film on German weapons, the field stripping, loading and firing are illustrated for the Mauer 98K, Schmeisser MP40, MG34 and MG42. BLACK AND WHITE 12 MINUTES

VIDEOCASSETTE 9* £14.95 inc. VAT CODE VV09

The Battle of Britain

The intention of the *Why We Fight* series was to educate and inform American military personnel as to the causes of the Second World War and the reasons why the United States became involved. Made under the auspices of Major Frank Capra and his Special Service Division, *The Battle of Britain* was the fourth film in the series and covered the period following the collapse of France when Hitler's plans for the invasion of Britain were frustrated by the Royal Air Force. At the time, this film was estimated to have had a service audience of eight million and it was also shown publicly in Britain on the orders of Winston Churchill. BLACK AND WHITE 49 MINUTES

VIDEOCASSETTE 10* £14.95 inc. VAT CODE VV10

Beachhead at Anzio

From 1951 to 1964 *The Big Picture* series was probably the most widely screened public service programme in American television history. It projected the story of the United States Army as told by the United States Army assembled from documentary footage taken by the Signal Corps. *Beachhead at Anzio* tells the story of that campaign in the 'all victorious' style of the 1950 documentary, cleverly masking the failings of the Allied high command to exploit what was virtually an unopposed landing. The Viewing Notes help to balance this omission and set the record straight. BLACK AND WHITE 27 MINUTES

Patton

Another film from *The Big Picture* series, *Patton* is a blatant, trumpet-blowing eulogy of this flamboyant American commander. The film, narrated by Ronald Reagan, follows General George S. Patton's career — with all the pluses and none of the minuses. The Viewing Notes help correct this imbalance of the film which, nevertheless, provides an interesting record of his campaigns with the Seventh Army in Sicily and the Third Army in France and Germany. BLACK AND WHITE 26 MINUTES

VIDEOCASSETTE 11* £14.95 inc. VAT CODE VV11

The Stilwell Road

With the Japanese victories in Burma in January 1942, the road linking India and China, completed in 1938, was cut. This documentary covers the operations which led to its re-establishment via the construction of the Ledo Road — later renamed the Stilwell Road after the Deputy Supreme Commander, South-East Asia Command, General 'Vinegar Joe' Stilwell. The fall of Rangoon, destruction of Mandalay, the Allied retreat, the Flying Tigers, Orde Wingate and the Chindits, the air bridge over 'the hump', Merrill's Marauders, the airfield of Broadway, Imphal, Kohima — all come into the story during this lengthy American account of the war in northern Burma. BLACK AND WHITE 48 MINUTES

VIDEOCASSETTE 12* £14.95 inc. VAT CODE VV12

Attack! The Battle for New Britain

The visual report of a complete operation in the Pacific theatre — from training to victory. The battle depicted is the attack on Arawe and Cape Gloucester in New Britain in December 1943 and commentary by Lloyd Nolan leads the viewer through planning, briefing, dress rehearsal, embarkation and pre-invasion bombardment. The diversionary landing of General Cunningham's 112th Cavalry Regiment at Arawe on December 26 with the main assault on Cape Gloucester by the 1st Marine Division under General Rupertus. Three months of fierce jungle fighting, typical of the Pacific campaign, was necessary to secure New Britain. BLACK AND WHITE 54 MINUTES

VIDEOCASSETTE 15* £14.95 inc. VAT CODE VV15

Combat America

With the emphasis on gunners and gunnery, *Combat America* was filmed in 1943 by a documentary film unit under Captain Clark Gable. It follows the fortunes of the 351st Bombardment Group from their departure from Colorado to arrival at Polebrook and includes some of the finest combat footage of air battles over Europe shot in colour. COLOUR 59 MINUTES

VIDEOCASSETTE 16* £14.95 inc. VAT CODE VV16

Target for Today

Target for Today is a pictorial record explaining the procedures involved in the Eighth Air Force's daylight bombing offensive from Britain. Made as an official training film with the primary object of indoctrinating air crews under instruction in the USA, this film covers in detail the planning, preparation and execution of a typical VIIIth Bomber Command mission. BLACK AND WHITE 88 MINUTES

VIDEOCASSETTE 18* £14.95 inc. VAT CODE VV18

The True Glory

SHAEF's own visual record produced under the auspices of the Joint Anglo-American Film Planning Committee of the campaign in Europe from Normandy to Berlin. This feature-length film was culled from six and a half million feet of film and was widely acclaimed when released to cinema audiences in Britain following its première in August 1945. Among the 700 cameramen who supplied material for the film, 32 were killed, 16 reported missing and 101 were wounded. General Eisenhower made it his personal concern to approve the final version to ensure it reflected a viable manifestation of the integrated effort which enabled the Allied Expeditionary Force to achieve its victory. BLACK AND WHITE 80 MINUTES

VIDEOCASSETTE 20* £14.95 inc. VAT CODE VV20

Target for Tonight

Released in July 1941, *Target for Tonight* must rank as one of the most popular films of the war; one of the first made by the Ministry of Information with the 'hitting back' concept. Filmed with the co-operation of No. 149 Squadron at RAF Mildenhall, the film features the fictional Wellington 'F for Freddie' and its crew on an early raid over Germany. A major 'star' is the (then) Squadron Leader Charles 'Pick' Pickard (who later lost his life on the Amiens prison raid). According to the director, Harry Watt, most of the crew featured were dead by the war's end — immortalised on celluloid, springing to life at the touch of a button, these young men performed their genuine rôle for the camera, giving *Target for Tonight* a certain sense of gravity that demands our respect. BLACK AND WHITE 50 MINUTES

VIDEOCASSETTE 22* £14.95 inc. VAT CODE VV22

Siege of Tobruk

This British film provides its audience with a clear, if simplified, view of the siege and breakout of the Tobruk garrison, including its complete replacement under cover of darkness beneath the very noses of the German attackers. In addition to genuine footage, the film includes re-enacted scenes staged for the benefit of the cameras. BLACK AND WHITE 17 MINUTES

Malta Convoy

Made to tell the story of one of the war's most famous supply convoys, *Malta Convoy* is the story of Operation Pedestal, a fourteen-ship convoy bound for the beleaguered Malta garrison. Only five ships survived the constant air and sea attacks; some stunning combat footage of convoys under air attack is seen including the well-known clip of the battered oil tanker *Ohio* entering Valetta harbour. BLACK AND WHITE 13 MINUTES

Liberation of Rome

Tracing the progress of the Allied forces from their Sicilian springboard into Italy, British-made *Liberation of Rome* features the Italian campaign up to the entry into Rome, including the Anzio landings and the battle for Monte Cassino. BLACK AND WHITE 21 MINUTES

VIDEOCASSETTE 24* £14.95 inc. VAT CODE VV24

Shipbusters

This short documentary presented by the RAF Film Unit is a neat package of Allied and Axis library footage linked by specially shot material featuring the Beaufighters and Mosquitos of Nos. 144 and 248 Squadrons. The story illustrates a typical raid against German shipping off the coast and in the fjords of Norway. BLACK AND WHITE 15 MINUTES

Raising Air Fighters

A peacetime newsreel, this film is a fascinating visual record of the RAF in the thirties during the pre-war expansion period featuring, amongst others, Harts, Demons, and Tutors, the Fairey Fox, the Vildebeeste, Wellesley and the Whitley. BLACK AND WHITE 17 MINUTES

Fighter Pilot

Featuring the fighter pilots of the RAF, much of the activity centres on No. 64 Squadron and Squadron Leader A. R. D. MacDonnell, DFC, during the Battle of Britain. BLACK AND WHITE 8 MINUTES

The Eighty Days

This is the official record of the flying bomb attacks during 1944 when more than 10,000 of Hitler's revenge weapons, the Vergeltungswaffe 1, were launched against London and southern England. BLACK AND WHITE 13 MINUTES

VIDEOCASSETTE 25* £14.95 inc. VAT CODE VV25

Ferry Pilot

Released in January 1942, *Ferry Pilot* tells the story of 'the forgotten pilots' — the men, and women, of the Air Transport Auxiliaries. This wartime ferry organisation provided the tools for the front line squadrons to finish the job, and the detailed Viewing Notes give much background information on the aircraft types seen, including a Messerschmitt BF 110 flown by the RAF! BLACK AND WHITE 35 MINUTES

Speed up on Stirlings

The only British bomber designed at the outset to take four engines, the Stirling's rôle has been largely overshadowed by its successors — the Halifax and Lancaster. This film focuses a spotlight on the Stirling and its production. BLACK AND WHITE 20 MINUTES

VIDEOCASSETTE 26* £14.95 inc. VAT CODE VV26

The Air Plan

An action-packed compilation of footage depicting the air war over the continent of Europe, leading up to, and including, the invasion of Normandy for which the bombing of communications was a vitally important ingredient. BLACK AND WHITE 28 MINUTES

Target Germany

Covering the rôle of Bomber Command, *Target Germany* graphically illustrates the development of the RAF's bombing campaign during the latter half of the Second World War. The attacks on the German war machine and its strategic industries, through the increasing build-up of the heavy bomber forces, brings total war and total destruction to Germany. BLACK AND WHITE 22 MINUTES

Sky Giant

This wartime newsreel is a compilation of film dedicated to the Lancaster — mainstay of RAF Bomber Command after its introduction in March 1942. Leslie Mitchell's wartime commentary reflects the affection which cinema audiences felt for the RAF's greatest bomber — a feeling yet undiminished long after the last aircraft rolled off the production line. BLACK AND WHITE 10 MINUTES

VIDEOCASSETTE 27* £14.95 inc. VAT CODE VV27

Report from the Aleutians

Report from the Aleutians was made in 1943 by the renowned Hollywood director Major John Huston in the bleak, windswept wastes of Alaska. Presented in a non-sensational style, this film provides some of the best quality colour footage shot by US Army photographers during the Second World War, and serves to bring a spotlight on the air operations of the US 11th Air Force in the little-known campaign with Japanese forces in the north Pacific theatre. COLOUR 44 MINUTES

EXCLUSIVE TO AFTER THE BATTLE

Theirs is the Glory

'This film is a tribute to every man who fought at Arnhem and an everlasting memorial to those who gave their lives.'

Thus the producers described a unique film which sets out to record the events of September 1944 when the 1st Airborne Division landed at Arnhem to capture the bridge across the Neder Rhine in the face of a superior enemy force equipped with heavy armour, suffering in the process grievous losses.

One year later survivors returned to the actual battlefield amid the ruins of the town to re-enact an action in which they had gained the admiration even of the enemy. *Theirs is the Glory* was produced entirely without the use of studio sets or actors and every incident was either experienced or witnessed by those who appear in the film. Original footage shot at the time is interwoven to produce a remarkable piece of cinema history.

BLACK AND WHITE 82 MINUTES

VIDEOCASSETTE 28* £14.95 inc. VAT CODE VV28



Our 'Then and Now' Format . . .

If you are interested in the Second World War — and want to know how the places where it was fought appear today, in what remains to be seen and the discoveries that are still being made — then *After the Battle* will interest you.

Published quarterly, each issue contains 56 pages of text uncluttered by advertisements and an average of over 150 photographs with a centre page colour spread.

The actual preparation for the magazine takes place on the battlefields of the Second World War, and the stories are presented with maps and comparison 'then and now' photographs which add a new dimension to recent history.

As well as major battles, local actions are explored and other features include the recovery of aircraft and vehicles on land and sea, the making of war films and the preservation of military equipment.

