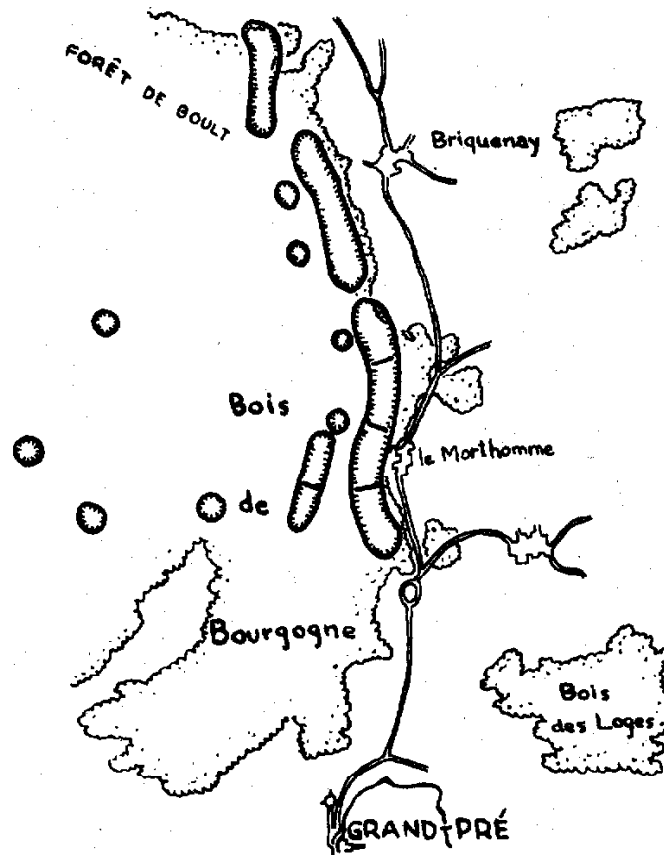


**U. S. ARMY CHEMICAL CORPS HISTORICAL STUDIES**  
**GAS WARFARE IN WORLD WAR I**  
**THE 78th DIVISION AT THE KRIEMHILDE STELLUNG**  
**October 1918**



**U. S. Army Chemical Corps Historical Office**  
**Office of the Chief Chemical Officer**  
**Washington, D.C.**

Study No. 2

July 1957

The 78th Division at the Kriemhilde Stellung  
October 1918

Prepared by  
Rexmond C. Cochrane, Ph.D.

Under contract DA-18-108-CML-6214

with  
U.S. Army Chemical Corps

This is an accepted draft study on gas warfare in World War I

A handwritten signature in dark ink, appearing to read 'W. R. Currie', is written over the typed name.

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Brigadier General, USA  
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The 78th Division at the Kriemhilde Stellung  
October 1918

by

Rexmond C. Cochrane

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1957

### Foreword

This is a tentative study of the gas experience of the 78th Division at the Kriemhilde Stellung during World War I. This study is not presented as a definitive and official history, but is reproduced for current reference use within the Military Establishment pending the publication of an approved history.

The author was assisted in his research by Mr. Walter O. Moeller and Mrs. Charlotte Bolin.

Note to Reader: Comments and suggestions relative to accuracy and adequacy of treatment are invited, and may be transmitted to the Chief, U.S. Army Chemical Corps Historical Office, Army Chemical Center, Maryland.

**THE 78TH DIVISION AT THE KRIEMHILDE STELLUNG  
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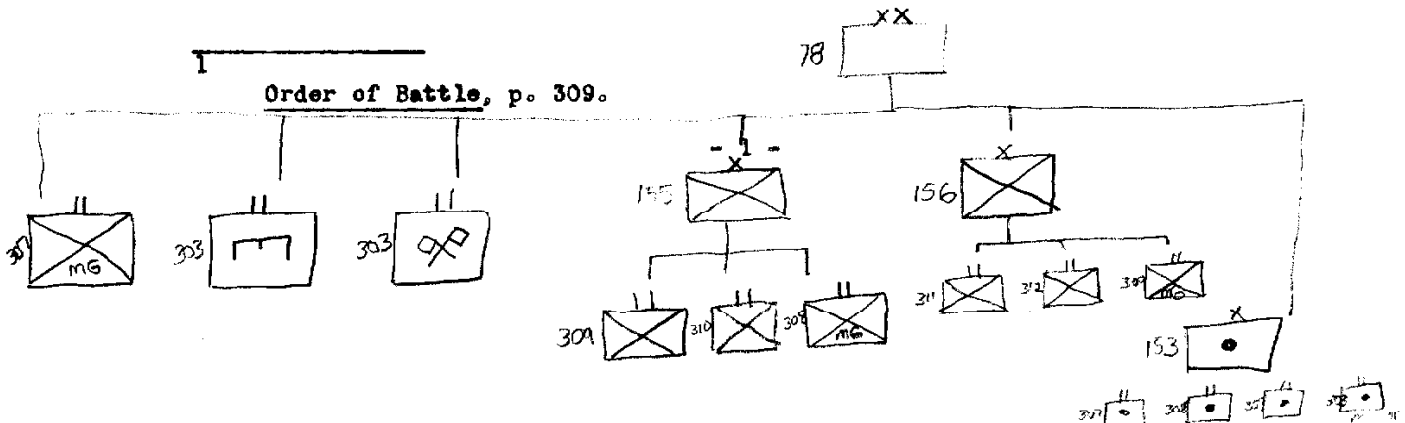
**THE 78TH DIVISION AT THE KRIEMHILDE STELLUNG**  
**OCTOBER 1918**

Just prior to the final assault of the Meuse-Argonne offensive, the 78th Division played a major role in a large-scale, Army-directed gas operation on that front. Although the division was engaging in its first and only assault operation of the war, it participated in the execution of one of the most successful gas missions of American forces, when the extreme right and left flanks of the First American Army front were heavily yperited to protect the principal attack of the Army through the center.

The present study relates the gas warfare experience of the 78th Division in its three weeks on the First Army front, culminating in its yperite mission of 30 October.

**The 78th Division in the St. Mihiel Sector**

The 78th Division was organized in August 1917 at Camp Dix, New Jersey, and on 19 May 1918, under the command of Maj. Gen. James H. McRae, began its movement overseas. Its principal elements consisted of the 155th Brigade (309th and 310th Infantry and 308th Machine Gun Battalion); the 156th Brigade (311th and 312th Infantry and 309th Machine Gun Battalion); and the 153rd FA Brigade (307th, 308th, and 309th FA Regiments and the 303rd Trench Mortar Battery). Other divisional troops included the 307th Machine Gun Battalion, the 303rd Engineers, 303rd Field Signal Battalion, and Headquarters troops and trains.<sup>1</sup>



All during June, July, and August 1918, the infantry units of the 78th trained in France, first behind the Hazebrouck front in the Second British Army area near Ypres, then east of St. Pol, in the First British Army sector back of Arras, and finally at Bourbonne-les-bains in the Haute Marne. Its artillery brigade trained at Camp de Meucon, in Brittany.

On 10 September, the division arrived on the St. Mihiel front and was placed in 1st Corps reserve, behind the 2nd and 5th Divisions.<sup>2</sup> Its artillery had preceded it to this front and supported the 90th Division in the St. Mihiel offensive. Five days after arrival, as the German forces hastily retreated before the Allied attack, the operation was over and the salient was closed.

On 15-16 September, the 78th relieved the 2nd and 5th Divisions in the Limey sector of the new front, and was engaged in the two-week period that followed in organizing the recently captured ground, now less than three kilometers from the Hindenburg line, and in raiding the enemy lines to divert German attention from the coming Meuse-Argonne offensive.<sup>3</sup> On 4 October, the 78th Division, with its artillery brigade joined, moved to the Clermont area in the Argonne Forest. On 10 October it passed from Army to 1st Corps reserve, and on 14 October received 1400 infantry replacements. Two days later it relieved the 77th Division in the line, to participate with 1st Corps, then operating as the left flank corps of First Army, in the

<sup>2</sup>

FO 10, 78th Div, 2300 hrs, 10 Sep (78th Div Box 4).

<sup>3</sup>

FO 13, 78th Div, 14 Sep; FO 15, Plan of Defense, 23 Sep.

final phases of the Meuse-Argonne offensive.

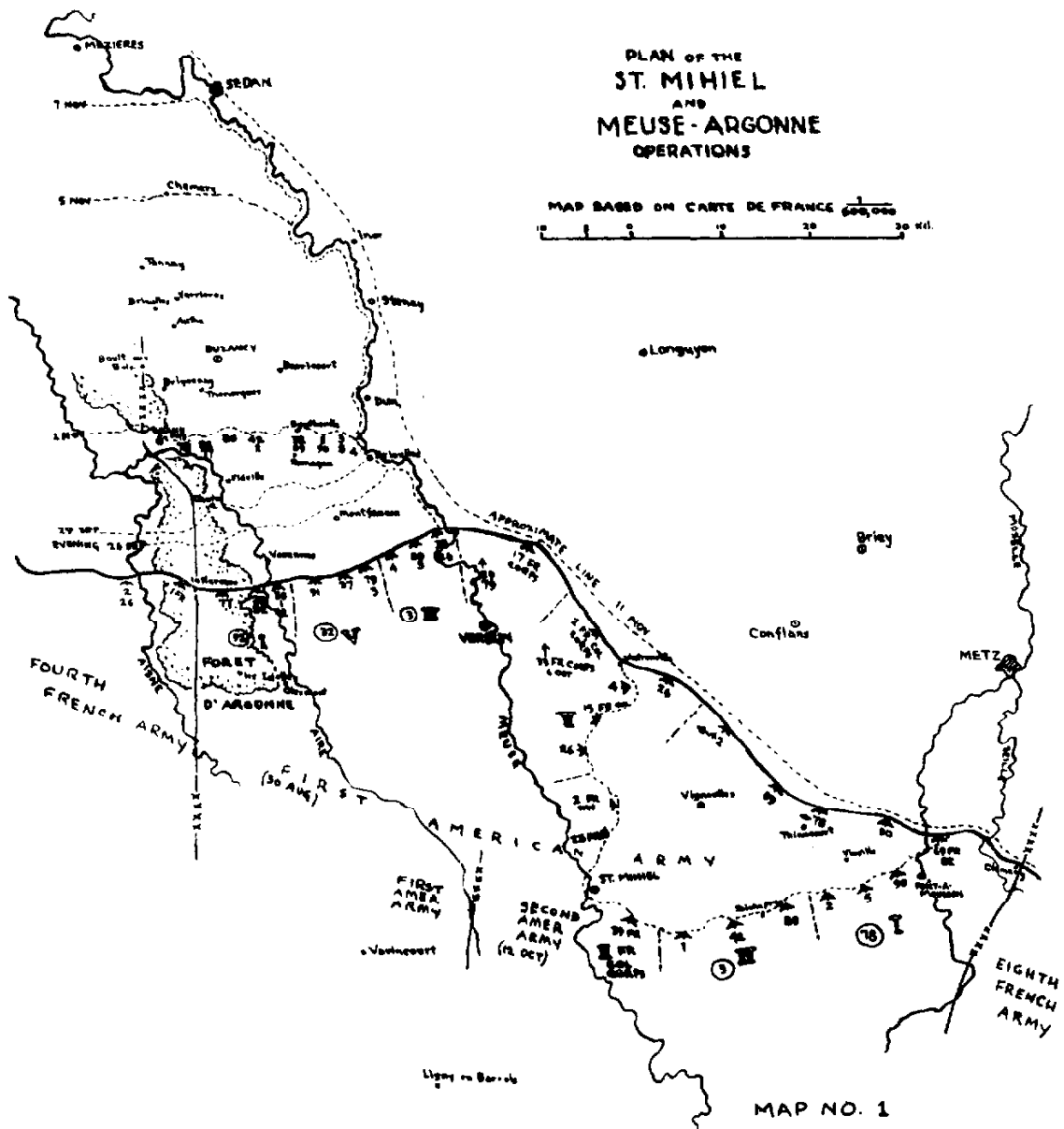
#### The Meuse-Argonne Campaign

The Meuse-Argonne offensive started on 26 September. This offensive was a part of Marshal Foch's Tout le monde à la bataille -- his Greatest of All Battles -- the simultaneous assault on the Central Powers in Macedonia, in Palestine, and against the Hindenburg Line on the Western Front. While the French and British armies to the west and northwest marshalled their striking forces, thirteen line divisions of the First American Army, augmented by two French corps, were ranged for the attack along a 72-mile front, from La Harazee in the Argonne Forest, east and southeast to Clemery. Nine American divisions, between the Argonne and the Meuse, a distance of 15-20 miles, were to launch the attack, while the remaining French and American forces, east of the Meuse, held fast (Map No. 1).

The intention of the French and American forces in the Argonne sector was to drive northward between Reims and Verdun towards the German railway centers at Mezieres and Sedan and by capturing them close the central corridor used by the Germans to move supplies and troops into France. Protecting this corridor was the complex of fortified lines and switches centered on the Hindenburg line and Kriemhilde Stellung, a belt of interlocking defenses thirteen miles deep (Map No. 2 and Overlay).<sup>4</sup> So

<sup>4</sup>

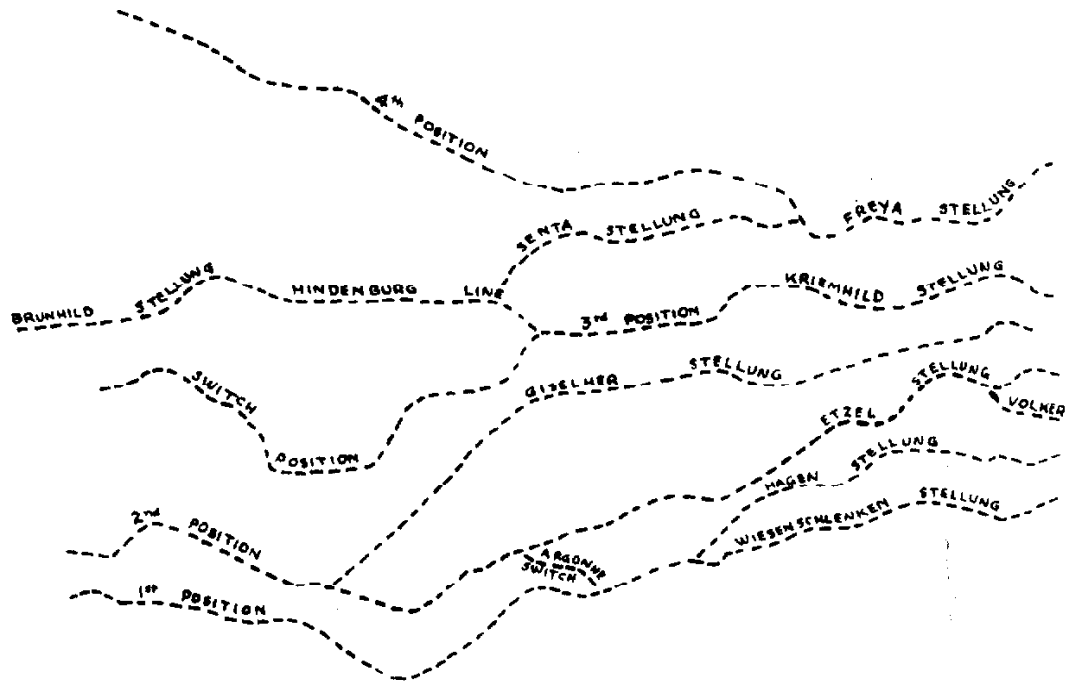
Shipley Thomas, The Story of the A.E.F., pp. 228 - 29, 232 - 37; U.S. Army in the World War, 1917-1919 (Hist Div, DA, Washington, 1948, Vol. 9, Meuse-Argonne, pp. 129, 508.



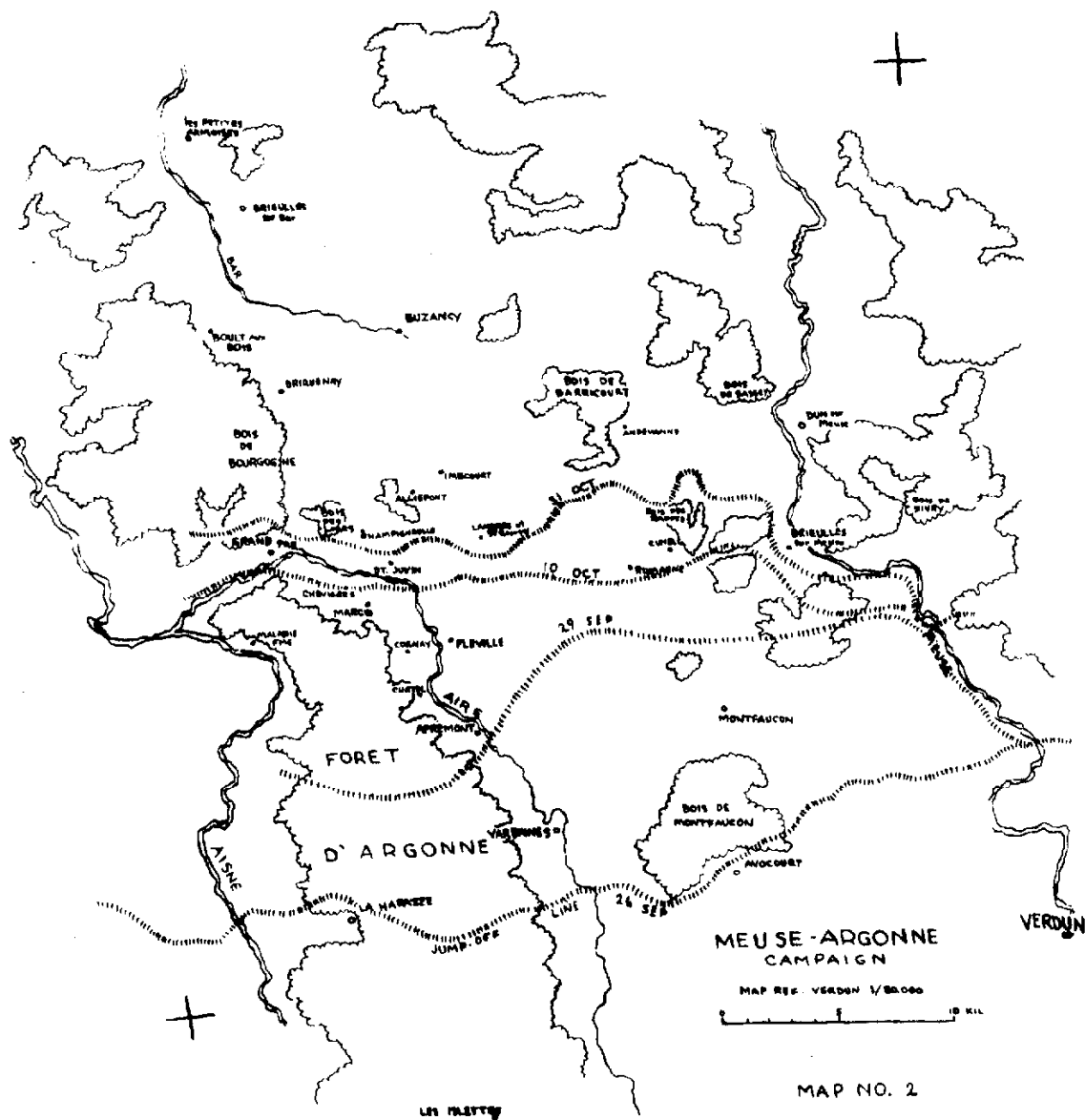
# GERMAN DEFENSIVE ORGANIZATION IN THE MEUSE-ARGONNE REGION



Source: Based on data of American Battle Monuments  
Commission, 1939, and reproduced in U.S.  
Army in the World War, 1917-1919, vol 9, p 508



OVERLAY FOR  
MAP NO. 2



formidable were these defenses, said Pershing, that "It is small wonder that the enemy had rested for four years on this front without being seriously molested."<sup>5</sup> The sole compensation was that the Meuse provided "easy protection for the right or east flank of the operation."<sup>6</sup>

#### Initial Army Gas Plans

In a rough draft memorandum to the Chief of Staff, First Army, on 18 September, a week before the start of the Meuse-Argonne campaign, Col. John W. N. Schulz, the Army Gas Officer, recommended using phosgene in the attack on the eastern edge of the Argonne Forest, since our troops would occupy it, but urged that all enemy battery positions east of the Meuse be gassed with yperite to neutralize any interference as Army moved up the left bank.<sup>7</sup>

The Army field order for the offensive, issued on 20 September, said that nonpersistent gas was to be used in the Argonne Forest, in the Bois de Montfaucon and the woods to the northeast, and persistent gas put on

<sup>5</sup>

Quoted in McEntee, p. 535. At this time the German front extended along the line La Hazaree-Boureuilles-Avocourt-Haucourt-Bois des Forges-Bezonvaux. See Summary of Opns, 1st A, 9 Aug-11 Nov (1st A Box 52, 33.2).

<sup>6</sup>

G - 3 Rpt, 1st A, 7 Sep (U.S. Army in the World War, Vol. 9, p. 73).

<sup>7</sup>

Draft Memo, CGO 1st A, sub: Employment of gas shell in Operation X (GAF-1st A).

the heights east of the Meuse.<sup>8</sup> Annex No. 1 to the field order was quite specific: "Toxic gas shells, but no yperite shells, will be used west of the Meuse."<sup>9</sup> Yet in seeming contradiction was a First Army telegram that day, 20 September, which made an initial allotment of 2,000 75-mm. yperite shells to 1st Corps, a fact confirmed by another telegram on 2 October. And two days later, on 22 September, Annex 6 to the 1st Corps order for the attack said: "No. 20 shells will be moved forward with the advance for the purpose of breaking up enemy concentrations preparatory to a counter attack. No #20 shells will be fired without authorization from Corps."<sup>10</sup>

The yperiting east of the Meuse began on D Day, 26 September, and continued almost daily as First Army advanced. By the evening of the third day of the offensive, a two-mile advance had been made by the 1st French Division and the 77th American Division in the Argonne, while more than five miles of the Hindenburg line had been penetrated by the eight divisions to

8

FO 20, 1st A, 3:00 p.m., pars 2, 3H(6) (1st A Box 33).

FO 6, Army Arty, 21 Sep, par 5F(1), charged the Verdun Grouping with keeping gassed with yperite "the woods and hostile positions on the east bank of the Meuse River...subject to weather conditions, uninterruptedly day and night until further orders" (1st A Box 90, 60/32.1, RAR FO).

9

Annex No. 1, 19 Sep, Employment of Army Arty, par V 3(a). Par 4 said that "all arty, army, corps, and divisional," for the first 15 minutes of the preparation, would "place an intense bombardment of H.E. and gas shell upon hostile cantonments, important headquarters and telephone centrals in their respective normal zones."

10

Telg fr Gen DeWitt, G - 4, 1st A to CG 1st C, 20 Sep (1st C Box 38, 60.32); Annex 6, Plan of Gas Warfare, to FO 57, 1st C, 1600 hrs, 22 Sep (1st C Box 16).

the right of the forest. There the attack stopped as it met the German main line of resistance.

When, on the 29th, the advance of 5th Corps in the center of the line was held up by hostile artillery fire from the wooded areas to its front, Army G - 3, despite its earlier order, directed 5th Corps to use mustard gas, as well as phosgene, "to neutralize batteries in these positions while our troops advance. The army commander desires this means of overcoming opposition and delay utilized whenever possible."<sup>11</sup> The Army field order that day did not specifically say that all corps might use mustard gas where necessary, but it implied as much. "Gas will be used on heights east of the Meuse, and may be used west of the Meuse within the corps zone at the discretion of the corps commander."<sup>12</sup> But on 1 October, still fighting its way north of Brioules sur Meuse on the right flank and through the Argonne on the left, Army repeated its instructions for the use of yperite east of the Meuse only, "to neutralize hostile artillery fire and observation," with phosgene to "be used freely west of the Meuse on favorable targets."<sup>13</sup>

<sup>11</sup>

Col R. McCleave, G - 3, 1st A to CG V Corps, 29 Sep (U.S. Army in the World War, Vol. 9, p. 155).

<sup>12</sup>

FO 32, 1st A, 29 Sep, par 3(C) (Ibid., p. 157). This same date, Fries, C CWS AEF, wrote to the CS, 1st Army, that the time had come "for a vigorous use of poisonous gas," but he spoke only on behalf of the 1st Gas Regt, whose short-range gas weapons were not admired by division commanders.

<sup>13</sup>

FO 33, 1st A, 12 Noon, 1 Oct, par 3F(4) (Ibid., p. 192).

Despite the yperiting, enfilade enemy fire with HE and gas from the wooded heights across the river continued to take a high toll. Shortly after renewing the general attack on 4 October, Army ordered the French and American forces east of the Meuse to join the advance, in order to drive the enemy from the heights where his batteries were located. Further yperiting there by Allied artillery was suspended while that attack was planned and set in motion.<sup>14</sup> At the same time, Colonel Schulz sent a letter and map to 3rd Corps to warn its elements east of the Meuse, and presumably those also of the 17th French Corps, of the gassed areas north of Verdun. Large areas between Brabant sur Meuse and Sivry sur Meuse had been drenched with mustard, and troops were cautioned when digging to remember that "under surface persistence of mustard gas is extremely high."<sup>15</sup> Yperiting east of the Meuse was apparently not resumed until 12 October.

14

Sum of Opns, 1st A, 9 Aug-11 Nov, p. 10 (1st A Box 52, 33.2); Memo, CS 1st A for ACofS G - 3, 3 Oct, (U.S. Army in the World War, Vol. 9, p. 198); FO 39, 1st A, 5 Oct.

Memo, Drum, CS 1st A for ACofS G - 3, 3 Oct, said that in a conference with the corps that date a final decision had been reached "that no mustard gas could be used east of the Meuse" (Ibid., p. 198).

15

Ltr, CGO 1st A to CG 3rd C, 5 Oct, sub: Mustard gassed areas north of Verdun (GAF-1st A). Several weeks later, when Army yperiting had moved farther north, a ltr to CG 33rd Fr Corps from CG 10th Fr Col Div, 25 Oct, complained of his continuous mustard gas casualties in the Verdun region, an area, he said, that had been "daily" gassed since August 1917, producing and "endemic field in the air with its fumes." While Col Schulz questioned the persistence of yperite beyond 8-10 days, he admitted that because of the recent gassing, troops in the area probably should be frequently relieved. See correspondence with memo, CGO for ACofS G - 3, 1st A, 30 Oct, sub: Yperite in sector of 10th Div (GAF-1st A).

At the Kriemhilde Stellung

In the general attack on 4 October, advances were ground out all along the line except in the Argonne, where the episode of Colonel Whittlesey's "Lost Battalion" illustrated the difficulties of the 77th on the left flank of the attack. The operations leading to the rescue of that battalion on 8 October broke the backbone of the German line in the forest, and with the 82nd Division alongside, the 77th pushed on through the forest, emerging in the gap before Grand Pré on the night of the 10th. The 77th had advanced a distance of ten long miles through the Argonne Forest.

On 10 October, the First American Army stood before the Kriemhilde Stellung, the line of highly fortified heights and woods along Grand Pré-Champigneulle-Landre et St. Georges-Romagne-Brieulles sur Meuse. By then German divisions on that front had been increased from 20 to 47, hurriedly transferred from the French and British sectors to the west and from the Eastern Front.<sup>16</sup>

In the first of a succession of field orders, First Army directed a continuing attack on the front before it, with 1st Corps to capture Grand Pré and Champigneulle and advance to its immediate objectives, Haute Batis Farm, north edge of Bois des Loges-Alliepont-Inécourt.<sup>17</sup>

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<sup>16</sup>

McEntee, p. 541.

<sup>17</sup>

FO 56, 1st A, 1800 hrs, 10 Oct, par 2C(4); Rpt of Opns, 1st C, Reduction of Argonne Forest and Advance to Meuse (78th Div Box 7).

Repeatedly the 77th, 82nd, 42nd, 32nd, and 5th Divisions of 1st Corps assaulted the Kriemhilde Line but failed to pierce it anywhere. Enemy positions in the Bois de Bourgogne and Bois des Loges proved too strongly organized, and neither Grand Pré nor Champigneulle could be taken. The attacks of 11, 13, and 14 October were fruitless. On the 15th, the 77th Division made one more effort to capture Grand Pré before being relieved. By dusk, a battalion was established on the outskirts of the town.<sup>18</sup>

The First Army field order that directed the relief of the 77th by the 78th Division on the night of 15-16 October also ordered the 17th French Corps, east of the Meuse, and the 1st Corps before Grand Pré to continue their attacks, while the other units on the Army front held fast. The 1st Corps was to resume the attack on the Grand Pré-St. Georges front, to turn the enemy out of the Forêt de Bourgogne, with its objectives Le Mort Homme-Beffu et le Mort Homme-Moulin de Champigneulle-St. Georges. "The BOIS DES LOGES will be gassed under direction of the Commander, 1st Corps."<sup>19</sup>

The line taken over by the 78th Division that night faced the southern edge of Grand Pré-Chevières-Moulin d'en Bas-St. Juvin-Coté 182.

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<sup>18</sup>

Thomas, pp. 243-47, 289-90, 298, 306-07, 323, 326.

<sup>19</sup>

FC 67, 1st A, 1900 hrs, 15 Oct, par 3 D(1), 3 E(2), 3 F.

a front of five and a half kilometers (Map No. 3).<sup>20</sup> Coming into the area, 78th Division units simply took over 77th Division command posts, with General McRae's division headquarters and the 153rd FA Brigade under Brig. Gen. Clint C. Hearn at Châtel Chehery; the 155th Brigade, commanded by Brig. Gen. Mark L. Hersey, at La Besogne; the 156th Brigade, under Brig. Gen. James T. Dean, at La Malassie Ferme; and the four infantry headquarters northeast of Châtel Chehery, at Cornay, Chevières, and Malassie Ferme, respectively (see below, Map No. 8). To the right of the 78th was the 82nd Division, to its left the 17th French Division (XXXVIII Corps).<sup>21</sup>

The enemy units opposite the 78th Division were, from left to right, the 195th Division, to the west of Grand Pré; the 76th Reserve Division, in the Grand Pré sector; and the 2nd Landwehr Division, between Chevières and Agron creek, to be relieved on the morning of the 18th by the 240th Division (Map No. 4).<sup>22</sup>

20

FO 75, 1st C, 15 Oct. Notes: Excellent photographs of this terrain appear in U.S. Army in the World War, Vol. 9, pp. 190, 196, 204, 230, 239. The question of the departure line and subsequent advanced lines is discussed in the postwar ground survey by Col John B. Barnes, GS AEF Hist Sec, Rpt on Opns of 78th Div, 25 May 19 (78th Div Box 3, 18.2).

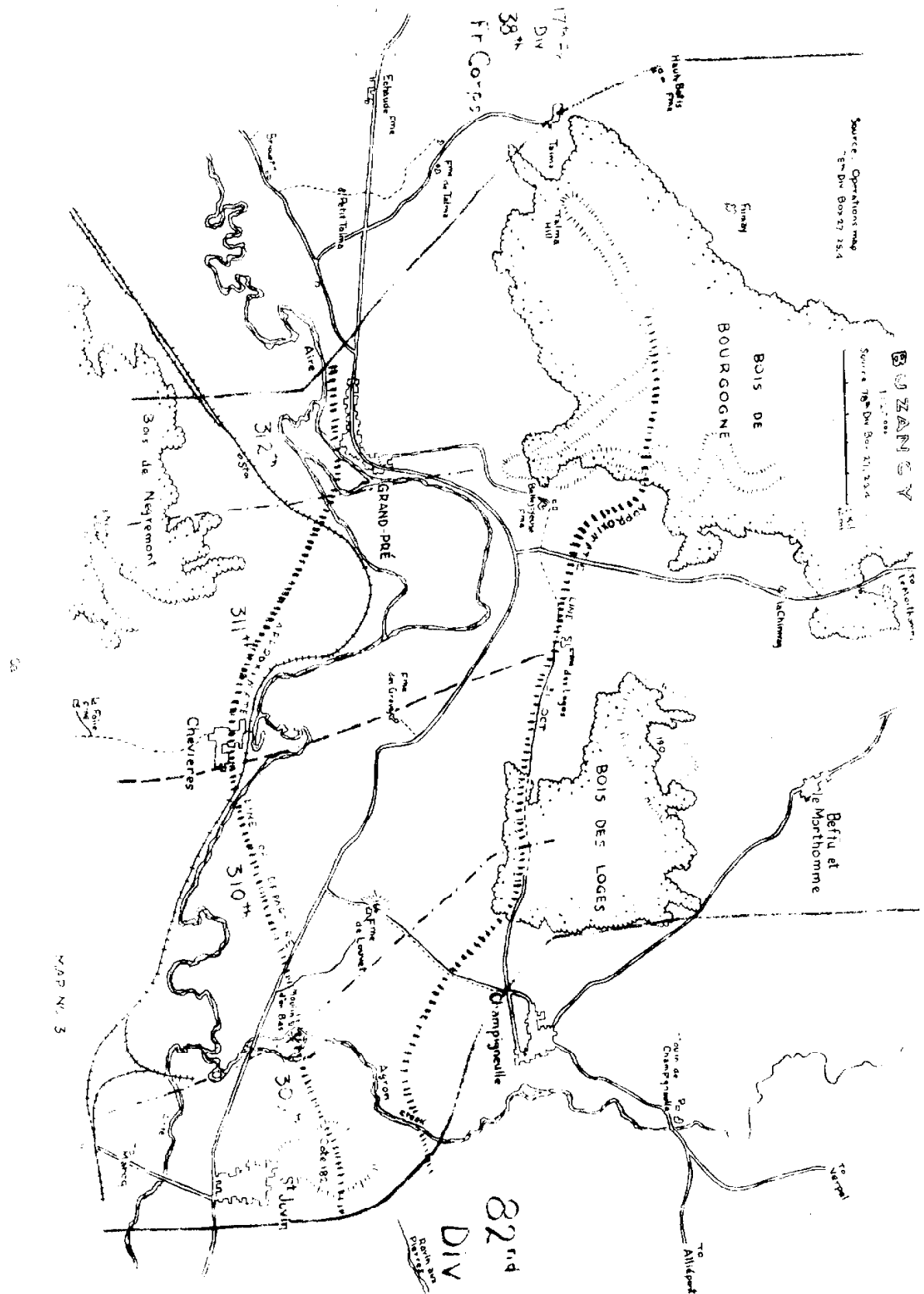
21

FO 25, 78th Div, 1530 hrs, 15 Oct.

22

Div O, 240th Div, 16 Oct (240th Div WD&A, 12 Oct-11 Nov, p. 13, German Files Box 229).

For data on the German divs, see McRae, Lecture on Meuse-Argonne Opns, 3 Feb 19, pp. 45 ff. (78th Div Box 2, 11.4). Lecture is based on ltr, CG 78th Div to CG 1st A, 23 Nov, revised 10 Dec, sub: Rpt on Opns of 78th Div, 26 Sep-11 Nov (78th Div Box 7, 33.6). Ltr and lecture became Tng Memo 130, 26-29 Feb 1919, sub: Tactical Opns of 78th Div, Sep-Nov 1918 (78th Div Box 2, 11.4). Lecture and Tng Memo will be cited hereafter.





The 78th Division coming into the line was assigned the reduction of the Bois des Loges, Grand Pré, and the heights of the Bois de Bourgogne, above Grand Pré.<sup>23</sup> To the 155th Brigade was assigned the Bois des Loges, to the 156th Brigade, Grand Pré and the Bois de Bourgogne. At the direction of 1st Corps, the attack was to be made with all regiments abreast and was to commence at 6:00 a.m. on the 16th, simultaneously with the completion of the relief of the 77th Division. In the preparation, corps artillery would counter hostile batteries in the Bois des Loges and on the east and south edges of the Bois de Bourgogne. 77th Division and 82nd Division artillery, on the right, were to set up concentrations of nonpersistent gas in the Bois des Loges, ending three hours before the attack.<sup>24</sup> This phase of the preparation was omitted, it was later said, when the gas shell failed to reach the batteries.<sup>25</sup>

<sup>23</sup>

FO 76, 1st C, 2100 hrs, 15 Oct; FO 26, 78th Div, 2300 hrs, 15 Oct.

<sup>24</sup>

In accordance with FO 76, 1st C, 15 Oct, and FO 67, 1st A, 15 Oct, par 3E(2).

Records of the 77th Div indicate no intention of firing gas on 15-16 Oct. See FO 12, 152nd FA Brig, 5:15 p.m., 15 Oct (77th Div Box 29, 32.1); SOI, 304th FA, 26 Sep-11 Nov (Ibid., 33.6); Rpt of Opns, 305th FA, 26 Sep-11 Nov (Ibid.); Rpt of Opns, 306th FA, 26 Sep-8 Nov (Box 30, 33.6). These regimental reports indicate only harassing fire on Bois des Loges and vicinity, 3000 HE rounds near Belljoyeuse Fme and woods NW of Grand Pré, and counterbattery fire on Champigneulle that morning.

<sup>25</sup>

Lecture, McRae, p. 5; Tng Memo 130, Part II, p. 3. McRae also said in his lecture that corps FO 76 did not reach him until 12:20 a.m. on the 16th, less than six hours before the attack.

The corps order for the simultaneous relief and attack may have been ill-advised. As General Duncan of the supporting 82nd Division said not long after:

I called up the Chief of Staff, 1st Corps, personally [and] said that in my opinion the order for the attack of that Division for 6 o'clock was impossible of execution, that his [McRae's] troops were still on the road at about midnight, blocking transport with gas shells which were supposed to be fired into the BOIS DES LOGES, and that from the present situation it seemed most unlikely that the gas shelling could be executed preliminary to the attack, or that the 78th Division could get into position.<sup>26</sup>

Under these circumstances, and also because of the stormy night, neither the 77th nor 82nd Division put gas in the Bois des Loges, nor did the 82nd take any action to protect the flank of the 78th. Not until late afternoon of the 16th, as Duncan said in his letter, was he aware that the 78th had begun its attack that morning.

Hours before that, however, corps was pressing the 78th for results. A message from McRae to his brigades at 10:30 a.m. on the 16th said: "Corps states that the Military Situation demands that we reach our objective

26

Ltr, Maj Gen G. B. Duncan, CG 82nd Div to CG 1st C, 20 Oct, sub: Co-operation of the 82nd Div with the 78th Div (82nd Div Box 7, 33.6).

Despite all denials of gas assistance, both the 76th Res and 2nd Ldw reported "heavy enemy harassing fire and gassing of arty positions and rear areas on the night of 15-16 Oct, and the morning rpt of the 2nd Ldw arty comdr said the "countryside, batteries, supply lines, and villages" had been gassed, its casualties "2 officers and a group of crewmen of the 6th Bty, 22nd FA Regt." Opns Rpt, 76th Res, 16 Oct (76th Res WD&A, 26 Sep-27 Nov, p. 11, German Files Box 200). WD Arty CO 148, 16 Oct (2nd Ldw WD&A, 26 Sep-18 Oct, pp. 26-27, German Files Box 144).

A bn of the 76th Res was to report 5 men gassed in its communications platoon and the div itself said 6 of its 35 casualties that day were gas cases. FM 3rd Bn 254th Regt, 17 Oct (76th Res-Sub Units-WD&A, 18 Sep-11 Nov, p. 165, German Files Box 201); WD 76th Res, 17 Oct (76th Res-Sub Units, 24 Sep-11 Nov, p. 21, German Files Box 200).

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I called up the Chief of Staff, 1st Corps, personally [and] said that in my opinion the order for the attack of that Division for 6 o'clock was impossible of execution, that his [McRae's] troops were still on the road at about midnight, blocking transport with gas shells which were supposed to be fired into the BOIS DES LOGES, and that from the present situation it seemed most unlikely that the gas shelling could be executed preliminary to the attack, or that the 78th Division could get into position.<sup>26</sup>

Under these circumstances, and also because of the stormy night, neither the 77th nor 82nd Division put gas in the Bois des Loges, nor did the 82nd take any action to protect the flank of the 78th. Not until late afternoon of the 16th, as Duncan said in his letter, was he aware that the 78th had begun its attack that morning.

Hours before that, however, corps was pressing the 78th for results. A message from McRae to his brigades at 10:30 a.m. on the 16th said: "Corps states that the Military Situation demands that we reach our objective

26

Ltr, Maj Gen G. B. Duncan, CG 82nd Div to CG 1st C, 20 Oct, sub: Co-operation of the 82nd Div with the 78th Div (82nd Div Box 7, 33.6).

Despite all denials of gas assistance, both the 76th Res and 2nd Ldw reported "heavy enemy harassing fire and gassing of arty positions and rear areas on the night of 15-16 Oct, and the morning rpt of the 2nd Ldw arty comdr said the "countryside, batteries, supply lines, and villages" had been gassed, its casualties "2 officers and a group of crewmen of the 6th Bty, 22nd FA Regt." Opns Rpt, 76th Res, 16 Oct (76th Res WD&A, 26 Sep-27 Nov, p. 11, German Files Box 200). WD Arty CO 148, 16 Oct (2nd Ldw WD&A, 26 Sep-18 Oct, pp. 26-27, German Files Box 144).

A bn of the 76th Res was to report 5 men gassed in its communications platoon and the div itself said 6 of its 35 casualties that day were gas cases. FM 3rd Bn 254th Regt, 17 Oct (76th Res-Sub Units-WD&A, 18 Sep-11 Nov, p. 165, German Files Box 201); WD 76th Res, 17 Oct (76th Res-Sub Units, 24 Sep-11 Nov, p. 21, German Files Box 200).

today." A half hour later G-3 queried the brigades: "Corps demands to be informed at once as to location of your front line. How far have you advanced?"<sup>27</sup> The answer was, not very far.

#### The Attack on the Bois des Loges

The objective of the 309th and 310th Regiments, 155th Brigade, was the Bois des Loges, a kilometer square tract of scrub woods, its trees providing sufficient screen against observation for artillery fire without obstructing machine gun fire. The wood was likened to a giant sheet of corrugated iron because of its many gullies running generally east and west. In the Bois, the Germans had set up a system of interlocking machine gun nests, some only forty yards apart, commanding all but the bottoms of some of the gullies. The flanks of this natural forest fortress were protected on the west by enemy forces on Hill 204, at Bellejoyeuse Farm, and Ferme des loges, and on the east by gun positions in the town of Champigneulle and in the ravines east of the town.<sup>28</sup>

There was no time for reconnaissance by the 310th Infantry as it came up to the line that rainy night, and the 309th Infantry was not able to relieve the 77th Division regiment on the line of departure until H Hour itself. Yet the attack was begun, with an advance by the 309th across Coté 182 and the Agron river, halting in the afternoon in a gully

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27

Field Messages, 16 Oct (78th Div Box 5).

28

Tng Memo 130, I. 3.

700 meters northwest of Ferme de Louvet, where it was joined by the 310th Infantry which had come up on the left. General Duncan said in his letter that he could not believe this advance possible, but nevertheless ordered his brigade on the left to advance early the next morning (i.e., the 17th) and seize the heights east of Champigneulle. His advance was stopped just north of Coté 182.<sup>29</sup>

The field order of the 77th Division artillery that night said that between midnight and 3:00 a.m. on the 17th its two regiments of 75's would "execute a gas concentration on [the northern half of] the Bois des Loges....Gas will be fired at the rate of 100 rounds per gun per hour." But the artillery brigade was relieved on the morning of the 17th and no gas was fired. Before it pulled out, the 305th FA fired 750 HE rounds into the Bois des Loges and the three farms to the west and southwest.<sup>30</sup>

On the morning of the 17th, the 309th and 310th Infantry began to move up towards the eastern edge of the Bois des Loges. Shortly after noon, the 309th Infantry reported its advance halted because the 82nd Division element on its right was held up. Corps therefore ordered the attack to be made from the west side of the Bois. Some progress was made by the 310th on that side but by nightfall the advance of the two regiments

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29

FM, left brigade, 82nd Div, 1245 hrs, 17 Oct (78th Div Box 5, FM-17 Oct).

30

FO 13, 152nd FA Brig, 10:00 p.m., 16 Oct (77th Div Box 29, 32.1). Rpt of Opns, 305th FA, 26 Sep-11 Nov (77th Div Box 30, 33.6) said its harassing fire was pursuant to FO 13 but said nothing of gas.

into the Bois had been thrown back and they were dug in on its western side along the Champigneulle-Ferme des Loges road.<sup>31</sup> All that night there was "continual shelling of the roads with HE and gas" by enemy artillery. A "large quantity of gas [was] used [including] some phosgene [on the] lower edge of Bois des Loges."<sup>32</sup>

*German  
used  
phosgene*

Attempting to advance again at daybreak on the 18th, the 309th and 310th Infantry were stopped by a line of some thirty machine guns and then came under enemy artillery fire. The 309th reported at noon: "Our line [is] along eastern edge of Bois des Loges straight south to Hill 166. Have 4 small companies along road from Hill 166 towards St. Juvin. No contact with 82nd. Champigneulle shooting us up with MG's. Urge all artillery fire on this place."<sup>33</sup> Contact with the 82nd could not be made, a liaison message to the 78th was to say, because from 9:45 a.m. on, the extreme left battalion of the 82nd had been pinned down on Cote 182. More difficult to understand is the intense fire from Champigneulle. At 6:10 that morning, in "good" weather, 82nd Division artillery had put down 2,600 rounds of *phosgene*

<sup>31</sup>

Opns Rpt, 16-17 Oct; FM's for 17 Oct, 78th Div; FM 336, Liaison O 78th Div, 1900 hrs, 17 Oct (82nd Div Box 23, 32.16, 157th FA).

<sup>32</sup>

Observ Rpt, 17-18 Oct, OP 8 (78th Div Box 3, 27.8-Obs Rpts); SOI 22, 17-18 Oct. No enemy confirmation has been found for this gassing, but rpts show that three heavy btys of the 45th Res arty (to the left of the 2nd Ldw Div) fired yellow cross on the St. Juvin area on the night of 16-17 Oct, quantity not given (WD 1st Bn Foot Arty Regt, 17 Oct, and WD 45th Res Div, 17 Oct, 45th Res-Sub Units-WD&A, pp. 115, 140, German File Box 194). There is no record of this gassing in division, DGO, or Spencer files, but subsequent rpts of troops gassed while traversing contaminated terrain would support it.

<sup>33</sup>

FM to G - 2 78th Div, 1145 hrs, 18 Oct.

phosgene in Champigneulle. The phosgene had either not been sufficient or had been misdirected. An additional 1,200 rounds of phosgene were fired into the village at 11:30 a.m., apparently with better effect.<sup>34</sup>

Although two companies of the 310th Infantry, advancing up the western side of the Bois, reportedly came within thirty yards of its northern edge that day, by nightfall the regiments had been pushed back to the southern extremity of the wood. There they were shelled with HE and gas, while machine gun fire raked them from the west, north, and east. "Continuous harassing fire on our attacking troops, support lines, and rear areas, with large quantities of Phosgene and Mustard Gas Shells." "Much shelling with gas on troops, especially on Bois des Loges."<sup>35</sup> The 310th Infantry reported at 12:55 p.m.: "Southern edge of Bois des Loges down to St. Juvin full of phosgene and sneezing gas. Many casualties reported."<sup>36</sup> Field

34

Opns Rpt, 321st FA, 157th FA Brig, 17-18 Oct (82nd Div Box 27, 33.1); Rpt of Opns, 320th FA, p. 18 (82nd Div Box 26, 11.4). See also 82nd Div Box 24, 33.3, Opns-18 Oct, and Analysis.

A regt of the 240th Div that had relieved the 2nd Ldw that morning said: "At 6:30 a.m. a heavy barrage started after a rather quiet night with guns of all calibers against Champigneulle and the valley to the north. High explosive, smoke, and gas shells" (WD 469th Regt, 18 Oct, 240th Div-Sub Units, 7 Oct-11 Nov, p. 6, German Files Box 229). A single German gas casualty is rptd, in the 76th Res Div (Evening Rpt, 2nd Bn 252nd Regt, 18 Oct, 76th Res-Sub Units-WDA, 24 Sep-11 Nov, p. 210, German Files Box 200).

35

SOI 23, 78th Div, 18-19 Oct (78th Div Box 3, 20.1); Opns Rpt, 18-19 Oct. This may be the enemy gassing rptd in the footnote on p. 23 below.

36

FM to G - 2, 18 Oct. Other types of casualties are recorded in the Daily Operations Reports (DOR) but no gas cases appear on that date or at any time during this operation. The report for 17-18 Oct said only that troops for a short time occupied most of the Bois des Loges "but due to heavy gas and HE bombardment" drew back.

hospital admission lists indicate that more than 225 gas casualties were brought in from the 310th Infantry alone on 18 and 19 October.<sup>37</sup>

The withdrawal of an infantry company as a result of excessive gas casualties was the subject of a message from the 1st Corps Gas Officer to the 78th Division the next day. It also appears that the Chief of Staff, 78th Division, asked for gas troops to counter the enemy gas attacks, for the same message reported "No gas Troops available," and requested that this information be given to the Chief of Staff.<sup>38</sup>

On the night of 18-19 October, 78th Division artillery fire was concentrated on the Ferme des Loges and the ridge at the top of the Bois des Loges, the sources of the most intense enemy machine gun fire. A renewed assault on the wood was to be made in conjunction with an attack on Grand Pré, on the left, in which the 311th Infantry (156th Brigade) was to link up with the 310th Infantry (155th Brigade) and take Bellejoyeuse Ferme, another source of heavy fire on the troops attacking the Bois des Loges. If successful, the advance on the left was to continue into the Bois de Bourgogne.

With the intention of protecting the right flank of the 78th, corps ordered the 82nd Division to gas the village of Champigneulle, the ravine to its north, and the trenches to the south, and to put harassing fire on the area east of the Bois des Loges. The 82nd protested that gas would

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37

See Analysis.

38

FM Bonehead 20 for Faraday 20 (and Faraday 3), 19 Oct.

impede its own progress in the valley of the Agron, but the bombardment was nevertheless carried out. Beginning at 8:00 a.m. on 19 October, 1,600 No. 5 (phosgene) and 5,100 No. 20 (yperite) shells were fired into the town and vicinity and it was promptly evacuated by the German forces there.<sup>39</sup>

The yperite attack, reported in the 240th Division War Diary on the 19th, appears to have been highly effective and its contamination widespread, falling on both the 240th and 78th Reserve to its right. The day after the attack, a regiment of the 240th issued a detailed order warning of the dangers of contaminated food and water supplies and said its supply of chloride of lime had been exhausted.<sup>40</sup> Two days later, on the 22nd, the same unit reported that "the abundant use of gas shells" by the enemy had "caused the Regiment not considerable casualties."<sup>41</sup> Earlier, a battalion of the 78th Reserve, to the right, had said that 10 of its 24 casualties on the 19th were gas cases, and two more gas cases

<sup>39</sup>

Both in Gen Duncan's letter of 20 Oct and DOR 90, 82nd Div, 17-18 Oct (82nd Div Box 7, M-A Opns Rpts), the date of the gas mission is given as 18 Oct and the number of shells as 2900 No. 5 and 4500 No. 20. See Analysis, pp. 81 - 84 below. Opns Rpt, 1st C, 19 Oct (1st C Box 24, 33.1) said: "The town of Champigneulle was heavily gassed. It is reported to be deserted by the enemy."

<sup>40</sup>

WD 469th Regt, 19 Oct, and Reg Order, 469th Regt, 20 Oct (240th Div-Sub Units-WDA, 7 Oct-11 Nov, pp. 6, 18, German Files Box 229).

<sup>41</sup>

Est of situ, 22 Oct (Ibid., p. 13).

out of 15 casualties were reported by the brigade the next day.<sup>42</sup>

Following its own artillery preparation on the Bois des Loges and simultaneous with the gas attack on Champigneulle on the morning of the 19th, the 78th Division attacked. The 311th Infantry took Ferme des Loges and reached the edge of Bellejoyeuse Farm before being driven back some 200 yards by enemy artillery fire that afternoon. Connection with the 310th Infantry failed when that regiment was pinned down by machine gun fire from the top of the Bois des Loges. The artillery concentration on the wood had not silenced its guns. The 309th Infantry again attempted to advance up the eastern side of the Bois des Loges, almost reaching the top before it was driven back with heavy losses to its starting point.

"The lines held here were under an unceasing bombardment with HE, shrapnel, and gas shells," said McRae, "while any attempt to advance ran into terrific machine gun fire. Our artillery was ineffective in reducing the machine gun nests despite the heavy fire put down."<sup>43</sup> Or as General

42

Noon Rpt and Rpt of Losses, 2nd Bn 252nd Regt, 19 Oct (76th Res-Sub Units, 24 Sep-11 Nov, p. 23, German Files Box 200). WD 76th Res Brig, 20 Oct (same page and file).

A 76th Res Div summary of losses said that from 11-20 Oct, 3 officers and 53 men had been killed, 3 officers and 145 men wounded, and 1 officer and 44 men gassed (Opn Rpt 76th Res, 20 Oct, 76th Res DCR, 26 Sep-12 Nov, p. 14, German Files Box 200). In the same period, the 78th Div had lost over 3,000 men. But the German 252nd Regt had been hurt: "According to the results of computations the battle worthiness of the regiment has sunk in the last weeks as a result of bloody losses, gas and hospital sickness, especially grippe and colds." (Combat Eff Rpt, 252nd Regt, 22 Oct, 76th Res-Sub Units-WD&A, 24 Sep-12 Nov, p. 91, German Files Box 200).

43

Lecture, McRae, p. 9; Tng Memo 130, II. 4-5.

Duncan suggested, in reporting Germans in the eastern edge of the woods and in the area west of Champigneulle, gassing the town had resulted principally in reinforcement of the woods.

Commenting on the enemy fire, Division Intelligence said: "Their artillery seems to have been re-enforced, and they have plenty of ammunition." As a result, there was "increased artillery fire on all our positions, with large quantities of gas on the afternoon of October 19th...enemy artillery fire is very noticeably superior to ours in volume and is very accurate."<sup>44</sup>

No reserves from brigade or division were available to relieve the troops on the edge of the Bois des Loges, nor had corps any replacements. At 1:00 a.m. on 20 October, the corps commander ordered the 155th Brigade line withdrawn to the Grand Pré-St. Juvin road, between Ferme des Grèves and the Moulin d'en Bas.<sup>45</sup> As the brigade withdrew, observers reported enemy gas shelling of the south edge of the Bois des Loges, heavy gas shelling in the wood an hour later, and gas shells on the right of Chevières and in Champigneulle.<sup>46</sup> In retaliation, and to cover the withdrawal, the divisional artillery put down HE and 32 rounds of gas (probably phosgene) on the edge

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<sup>44</sup>

SOI 24, 78th Div, 19-20 Oct (78th Div Box 3, 20.1).

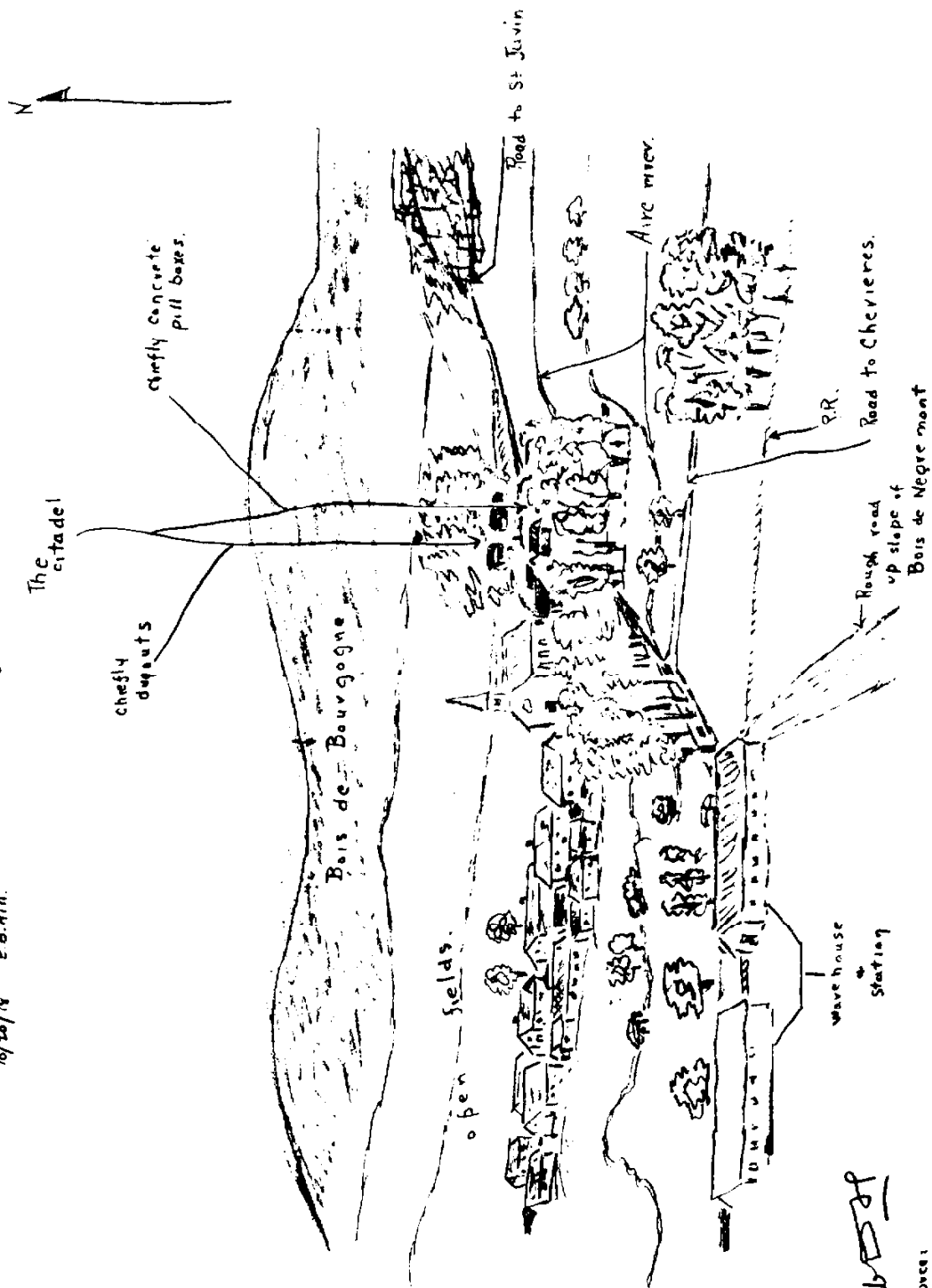
<sup>45</sup>

Opns Rpt, 19-20 Oct; FM 1st Corps to 78th Div, 0001, 20 Oct.

<sup>46</sup>

Observ Rpt, 19-20 Oct, OP 8. No confirmation has been found in German records.

Field Sketch of Grande Pre' (and vicinity) from Bois de Negremont (308 F.A.O.P.)  
 10/20/18 E.B.H.II.



WEP

Source:  
 78a Div Box 27, 22.4

of the Bois des Loges and the trail as the troops cleared the area.<sup>47</sup>

In its four days of fighting, the <sup>155th</sup> brigade had reportedly lost over 2,000 officers and men killed, wounded and gassed, or more than half its effective rifle strength of 3,674. Total gas casualties in the brigade, according to medical admission lists, were 697.<sup>48</sup> The brigade remained in place on the Grand Pré-St. Juvin road, exhausted, until the general attack of 1 November.

#### The Attack on Grand Pré

While the 155th Brigade was assaulting the Bois des Loges, the 156th Brigade, coming up to the northern edge of the Bois de Negremont at 5:45 that rainy morning of 16 October, was charged with the reduction of Grand Pré. Grand Pré, dominated by the "Citadel," a thirty-foot cliff in the center of the town, was the left prong of a crescent salient of strongly fortified high ground extending west through Hill 204 to Talma Hill, the crescent measuring almost five kilometers, though the chord distance was but two. It looked down on the approach across the broad Aire valley (see Field Sketch).

At 6:35 a.m., the 311th Infantry opened the attack with an assault on the town of Chevières, advancing to the Aire north and east of the

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<sup>47</sup>

Opns Rpt. 153rd FA, 6h-6h, 20-21 Oct (78th Div Box 26, 33.1). Confirmed by WD 240th Div, 21 Oct (240th Div WD&A, 12 Oct-11 Nov, p. 3, German File Box 229.)

<sup>48</sup>

Lecture, McRae, pp. 9 - 10; see compilation of admission lists in Analysis.

town. During the night of 16-17 October, troops crossed the stream and approached Grand Pré by way of the bend of the Aire.<sup>49</sup>

At the same time, the 312th Infantry advanced to relieve the 77th Division units at the southwestern edge of Grand Pré. A battalion of the 312th Infantry fought for two days before completing the capture of the town south of the Citadel. Its attempts to take the Citadel by storm, without artillery preparation, failed. To the left, another battalion of the 312th had forded the Aire that morning, advanced to connect with the French at Echaude Ferme, and dug in along the Grand Pré-Echaude Ferme road. All attempts by the French and Americans to advance from there on the 16th and 17th were beaten back.<sup>50</sup>

In crossing the river on the 16th, many of the troops of the 156th Brigade "spoiled their gas masks" and "failed to report in time to change canisters." The first of a series of gas shellings occurred sometime on the 16th, when 25 men of the attack battalion of the 311th Infantry were gassed in a volley of HE, phosgene, and mustard gas shells in the vicinity of Chevières.<sup>51</sup> Then at 6:00 a.m. on 17 October, the same regiment was caught by a burst of phosgene, mustard, and sneezing gas shells above

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49

Lecture, McRae, p. 13; Tng Memo 130, II. 5-6.

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Lecture, McRae, pp. 15-16.

51

The 77th Div rptd "heavy shelling H.E. and gas on Bois de Negremont, LaFolie Fme and area towards Chevieres and Besegne" as the 78th came up to the line (SOI, 152nd FA Brig, 6h-6h, 15-16 Oct, 77th Div Box 29, 20.7).

Chevières. Casualties were reported as approximately 40.<sup>52</sup> At 12:10 a.m. on the 18th, almost 200 rounds of phosgene and mustard gas fell around the battery positions of the 309th FA, causing, apparently, only three casualties.<sup>53</sup> For ten hours through the night of 18-19 October, a series of short attacks with mustard, phosgene, and sneezing gas shell mixed with HE fell on 312th Infantry troops at Grand Pré and along the valley road, resulting in an estimated 29 gas casualties.<sup>54</sup>

The casualty figures for these three days, in the absence of any other gas attacks reported at the time, are contradicted by the Division Surgeon records which show 46 gas cases on 17 October, 74 on the 18th, 208 on the 19th, and 72 on the 20th, for a total of 400 gas cases in the division.<sup>55</sup> But available Division Surgeon records do not, so far as can be determined, account for the large numbers of 78th Division gas casualties who found their way to the 82nd Division gas triage and hospital

52

Rpt on Gas Atk, 18 Oct (GAF-78th Div Atks); Spencer, III. pp. 489-90. WD 2nd Ldw, 17 Oct, said that a battery fired gas on "Strand Ferme / Ferme des Grèves", the ravine below, and the Aire valley and Aire crossings" (2nd Ldw-Sub Units, 26 Sep-18 Oct, p. 28, German Files Box 144).

Notes on Recent Opns, 78th Div, p.3, 21 Nov (78th Div Box 7) says that "On two different occasions, gas masks were ruined by becoming soaked with water while troops were crossing rivers." The other occasion has not been identified.

53

Rpt on Gas Atk, 25 Oct; Spencer, III. 491-92. Enemy orders for the gassing of Marcoq by 2nd Ldw arty and of St. Juvin by 240th Div arty on the night of 17-18 Oct, agents and rounds not given, appear in Div O, 240th Div, 17 Oct (240th Div WD&A, 12 Sep-18 Oct, p. 31, both in German Files Box 144).

54

Rpt on Gas Atk, 19 Oct. No German records have been found to support this gassing.

55

Ltr, DGO 78th Div to C CWS, 25 Jan 19, sub: Rpt in compliance with Cir Ltr No. 89 (GAF-78th Div Sum).

during this period. Between 18-20 October, these gas casualties amounted to 481, all but 6 from the 155th Brigade.

Total gas casualties in the 78th Division for the period 17-20 October, according to gas hospital admission lists, numbered 867, more than twice the casualties recorded by the 78th Division Surgeon.<sup>56</sup> Not until early in November was Capt. Robert F. Smith, the Division Gas Officer, to acknowledge the "exceptionally heavy" gas casualties sustained by the division in the opening days of the attack. Although he did not venture in his letter to report their number, he dismissed the idea that the gassing had any effect on the operation.<sup>57</sup>

With the attack on Grand Pre<sup>1</sup> stopped, heavy artillery was brought up, and at midnight on the 18th, division and corps guns began a two-hour preparation on the quadrilateral about Grand Pre<sup>1</sup>, before assaulting the town again.<sup>58</sup> At 2:00 a.m. on the 19th, the 312th Infantry was to seize and consolidate the ground up to the woods west of Bellejoyeuse Farm and there, joined by the 311th Infantry, which would capture the farm itself, clear out the southern edge of the Bois de Bourgoigne. The 311th Infantry was also to effect and maintain liaison with the 310th Infantry, north of

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<sup>56</sup>

See Analysis.

<sup>57</sup>

See ltr and comment in Analysis.

<sup>58</sup>

No estimate of the rounds fired has been found. The MG company of the 312th Inf expended 15,000 rounds that night (Daily Situ Rpt, 309th MG Bn, 18-19 Oct, 78th Div Box 24).

the Ferme des Loges. With enfilading fire from these points blocked, Grand Pré could then be assaulted from the east and northeast.<sup>59</sup>

The attack of the 312th Infantry on the Bois de Bourgogne failed, and the 311th Infantry, after taking Ferme des Loges, was stopped east of Bellejoyeuse Farm, unable to establish liaison with either the 312th or 310th Regiments.<sup>60</sup> General Hearn, the divisional artillery commander, accepted part of the responsibility for the failure: "The heavy Regiment and two groups of Corps Artillery (155's) fired on the quadrilateral... for two hours. The result of the fire was unsatisfactory as might have been expected. There was no possibility of observation and no chance of adjustment."<sup>61</sup> Colonel Anderson, commander of the 312th Infantry, reported to brigade headquarters:

I firmly believe that had the fog lasted for a half hour longer on the day of our second attack, we would now be occupying the line desired. There are not over fifty enemy machine guns to be considered but his counter barrage must be divided and dissipated unless our heavy artillery can assure domination of his guns...I recommend the demolition of Grand Pré north of the Citadel by heavy artillery...as well as the gas and smoke bombardment of the Bois de Bourgogne as contemplated [in FO 29, 78th Div, 21 Oct] for as long as the bombarding party lasts - which will not be long.<sup>62</sup>

<sup>59</sup>

FO 28, 78th Div, 1050 hrs, 18 Oct.

<sup>60</sup>

SOI 23, 18-19 Oct; Lecture, McRae, pp. 13 - 14, 16.

<sup>61</sup>

Brig Gen C. C. Hearn, Tng Memo 124; Arty Opns in the Argonne, 22 Feb 19 (78th Div Box 4, 32.15, G - 3 Memos).

<sup>62</sup>

Ltr, Col A. V. P. Anderson, 312th Inf to Brig Gen Dean (Fang 1 to Fallow 11), 21 Oct (78th Div Box 7, 33.6 Spec Opn Rpts).

Anderson went on to propose that the main attack be made on Talma Hill, in order to take Grand Pré from the flank. Division was to agree to the necessity of taking Talma Hill, but was also determined to take Grand Pré by frontal assault.

On the morning of the 20th, the 156th Brigade was drawn back to a line conforming to that along which the 155th Brigade was disposed, that is, from Ferme des Grèves to a point one kilometer east of Grand Pré.<sup>63</sup> The division was virtually back where it had started from on the 16th. Nowhere had it made any serious breach in the Kriemhilde Stellung, for the enemy was still holding the line Talma-southern edge of the Bois de Bourgogne-Bellejoyeuse Ferme-Ferme des Loges-southern portion of the Bois des Loges-Champigneulle.<sup>64</sup> At this point, the first phase of 78th Division operations came to an end.

#### Gas Attacks on the 78th Division

While the division, its initial operations thwarted right and left, rested on the 21st and made plans for another assault on Grand Pré, "some phosgene shells East of Grand Pré" that day resulted in 82 casualties.<sup>65</sup>

<sup>63</sup>

SOI 24, 19-20 Oct; Tng Memo 130, II. 6-7.

<sup>64</sup>

Opns Rpt, 17-18 Oct; SOI 27, 22-23 Oct.

<sup>65</sup>

Opns Rpt, 78th Div, 21-22 Oct; Div Surg Office records, in ltr, DGO 78th Div to C CWS, 25 Jan (GAF-78th Div Sum).

The next day, "heavy shelling with gas shells" was reported at noon on the Marcq-St. Juvin road.<sup>66</sup>

Although no gas was reported, and its absence even remarked on in the Summaries of Intelligence for the next five days, observers' reports for that period indicate daily gas shelling. "Heavy gas shelling over Grand Pre to the east" at 1530 hours, wrote the observer at OP Odetta in his report of 22-23 October. And the next day, "Throughout the afternoon and evening there was the usual shelling of the Chevières-Marcq-La Besogne roads with gas and HE, some of 5.9 size," reported OP 8. On the same day, 23-24 October, OP Odetta reported "Five gas shells near Bellejoyeuse, ten at Grèves Ferme, HE and gas on La Folie Ferme." "Large amount of gas and HE in the Grand Pre area," wrote the observer at OP Madelon on 25-26 October, and OP 8 reported gas shells on the southern edge of the Bois des Loges at 1135 hours. Gas shelling, denied by the division intelligence

<sup>66</sup>

SOI 26, 21-22 Oct. Although specific rpts of enemy gas ops for this period are not available, the 76th Res arty was carrying out gas missions then as is evident from this rpt by a 195th Div unit on 22 Oct:

Today at 0430-0515 p.m. . . . a battery (howitzers), apparently a flank battery of the neighboring division, fired rounds from a southeasterly direction considerably short of the north edge of Talma Heights and to the north of Talma Heights, also against the back of my left wing, my 2nd company. Today at 1030-1115 p.m. what appeared to be a field battery fired somewhat short behind my 2nd company in Talma village. One round fell 10 meters from my Battle Troop Commander [K.T.K.] dugout. . . . The battery actually strewed the whole area partly with gas shells. A dugout of the 2nd company was totally gassed so that the connection with the regiment was broken (FM 260th FA, 195th Div WD&A, pp. 50-51, German Files Box 215).

Rpt of a 76th Res arty gas and HE preparation on the 25th is rpted in WD 240th Div (240th WD&A, 12 Oct-11 Nov, p. 4, German Files Box 229); the bridge south of St. Juvin was gassed that same day with yellow cross (WD Arty Comdr, 25 Oct, Ibid., p. 7).

reports, was also observed on 26-27 October.<sup>67</sup>

With or without observer confirmation, the hospital admission lists indicate that gas casualties were brought into the field hospitals of the division every single day between 20 October and 3 November. There were as few as 9 on one day and as many as 95 on another. The aggregate was over 480 in the 15-day period. To what extent this almost daily occurrence of light and random gas shelling affected 78th Division operations cannot at this distance be assessed. That it was an untried division, engaged in an assault operation for the first time, may account in part for its heavy losses, just as prolonged wearing of the gas mask, as a result of the persistent shelling, may account in part for its early exhaustion.

A further discussion of these gas attacks, unacknowledged for the most part by 78th Division Intelligence and ignored in operations reports and Notes on Recent Operations, appears in the Analysis. Here it is only necessary to note, as a possible partial explanation for the generally unsatisfactory reports on enemy shelling, both gas and HE, a G - 2 memorandum on 27 October for brigade, regimental, and battalion intelligence officers: "During the present period of stabilization...a daily report of enemy shelling will be made, to be in this office by 10:00 p.m." It went on to outline the method of preparation and the information desired in the daily report, as though it were an innovation.

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<sup>67</sup>

78th Div Box 3, 27.8-Obs Rpts.

### The Capture of Grand Pré

By now General McRae was convinced that the key to the problem of the 78th was the heights in the Bourgogne woods above Grand Pré, which controlled the Bois des Loges. He therefore secured corps acceptance of his plan to gain these heights and then advance by infiltration through the woods to where the Bois des Loges might be taken in flank and rear.<sup>68</sup>

The two-pronged attack was planned for 23 October, following a destructive bombardment with HE on the northern part of Grand Pré and the Bois de Bourgogne. With the assistance of corps artillery, phosgene was to be put down on known machine gun positions on the southern edge of the Bois de Bourgogne and on the western and southern edges of the Bois des Loges. Counter-battery fire, as well as harassing fire on enemy lines of communication, was to be carried out by corps and army artillery. Two smoke screens were to be laid down with No. 3 liquid phosphorus shell, through which the converging attacks on Grand Pré and Talma Hill would be delivered. The infantry was to make full use of phosphorus and thermite grenades.<sup>69</sup>

An assault team of two companies and a machine gun platoon, advancing with a rolling barrage of artillery and machine gun fire, would take the Citadel, advance to Hill 204 and along the eastern edge of the Bois de

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<sup>68</sup>

Lecture, McRae, p. 17.

<sup>69</sup>

FO 29, 78th Div, 0230 hrs, 21 Oct, par 3F.

Bourgogne. A second assault team would follow the first and extend the line to the edge of the woods on the east slope of Talma Hill. A battalion each of the 311th and 312th Regiments would then advance and take Talma Hill and the ridge in the Bois de Bourgogne, and, fanning out to the east, clear the wood.<sup>70</sup>

In the gas preparation on the 22-23 October, the division 155's put 830 rounds of phosgene shell into the southeast corner of the Bois de Bourgogne from H minus 6 to H minus 3 hours, with corps artillery firing 1,508 rounds of phosgene along the southern edge of the wood. (Map No. 5). The failure of the infantry to reach its objective left the results unknown.<sup>71</sup> There is no record that any gas was put on the Bois des Loges, as planned, and no explanation for the omission.

In the attack on the 23rd, the wall of the Citadel was scaled and Talma Hill was taken by the 312th Infantry but the attack was halted before Hill 204 and the Bois de Bourgogne by the German defenses. Attempts to advance the next day were unsuccessful.<sup>72</sup> Captured Germans stated that

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70

Lecture, McRae, pp. 17-18; Tng Memo 130, II, 7-8, 22; FO 29, 78th Div, 0230 hrs, 21 Oct; Opns O 49, 153rd FA Brig, 21 Oct (78th Div Box 24).

71

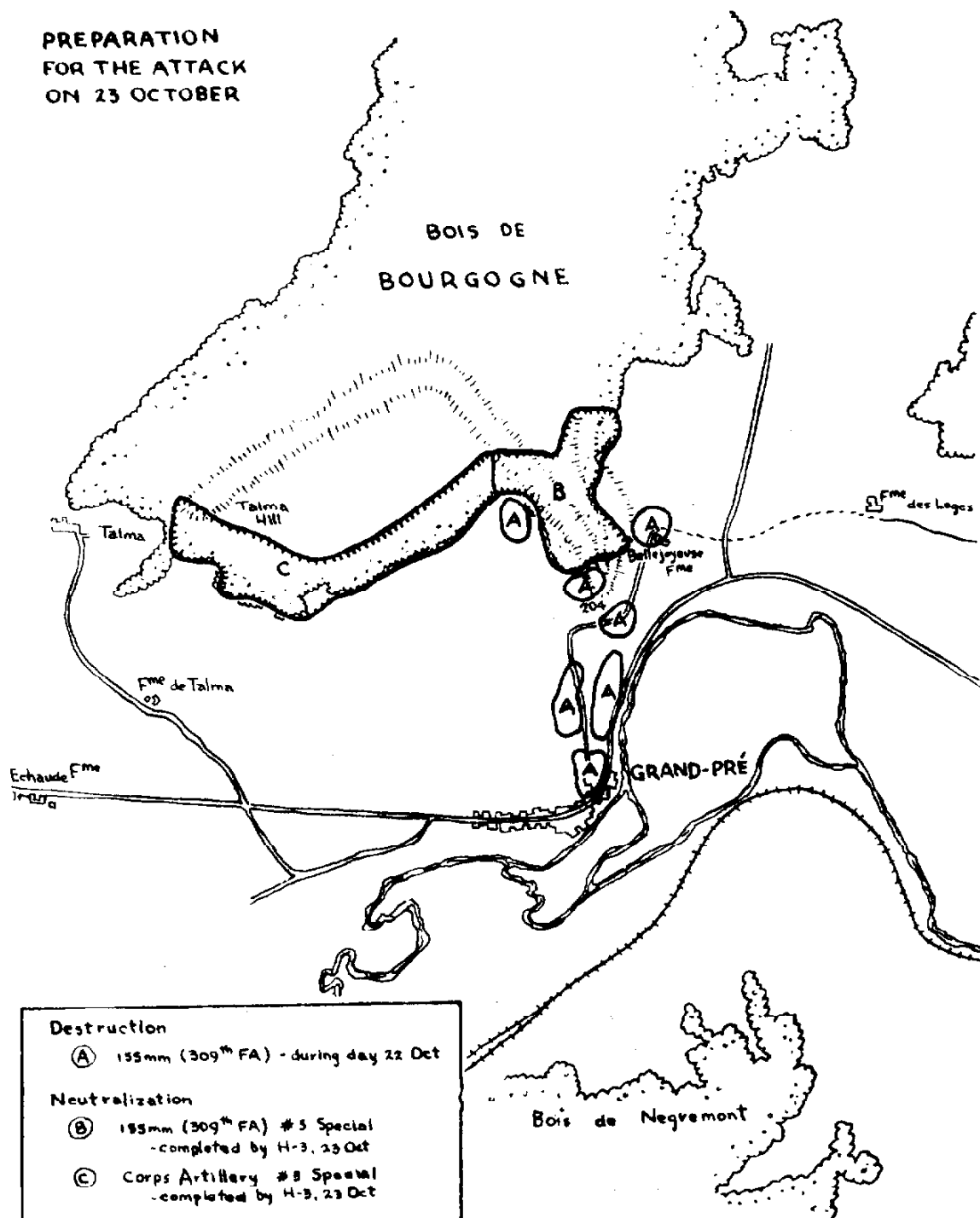
Opns Rpt, 153rd FA Brig, 22-23 Oct (1st A Box 339, Gas Rpts 1st AC); 1st C Arty, Daily Situ of Ammo (1st C Box 38); Opns Rpt, 1st C, 23 Oct (1st C Box 24, 33.1).

The 76th Res rptd 3 gas casualties on 24 Oct and 6 more on the 27th (WD 76th Res Brig, 24, 27 Oct, 76th Res Div-Sub Units-WD&A, 24 Sep-11 Nov, pp. 25, 28, German Files Box 200).

72

Lecture, McRae, p. 18; FO 30, 78th Div, 1930 hrs, 23 Oct; Opns Rpt, 23-24 Oct; FO 31, 78th Div, 1230 hrs, Oct.

**PREPARATION  
FOR THE ATTACK  
ON 23 OCTOBER**



MAP NO. 5

the Bois de Bourgogne was strongly occupied. Their forces were confident of holding it and had heard nothing about withdrawing from the wood.<sup>73</sup>

On the morning of the 28th, a battalion of the 311th Infantry passed through the 312th on Talma Hill and gained the right edge of the Bois de Bourgogne, after the supporting machine gun company of the 311th had put down a one-hour barrage of 13,000 rounds on enemy positions between Bellejoyeuse Ferme and Ferme des Loges.<sup>74</sup> The struggle on the edge of the wood continued through the night and all the next day.

On the afternoon of the 26th, the 240th Division executed "gas surprise attacks on the northwest exits of Marcq and the valley west of Marcq," presumably to interdict 78th Division artillery or infantry reinforcements. The division reported only "A large percentage of heavy caliber shells on our front lines, with no gas," but OP Odetta said, "Gas shells at the rate of two a minute fell in the area west of Grand Pre" between 1500-1600 hours, while OP 8 reported "Gas on Marcq-Cornay road" at 1425, "Heavy caliber and gas on Marcq" at 1615, and observed that the "Enemy send gas on our rear areas apparently nervous on account of lack of our artillery fire."<sup>75</sup>

<sup>73</sup>

FM 312th Inf to G - 3, 1040 hrs, 23 Oct; FM G - 3 1st C to G - 2 78th Div, 1215 hrs, 24 Oct; see also SOI 32, 1st C Arty, 21-22 Oct (1st C Box 26, 60.20).

<sup>74</sup>

SOI 29, 24-25 Oct; Daily Situ Rpt, 309th MG Bn, 25 Oct (78th Div Box 24, DS Rpts).

<sup>75</sup>

WD Arty Comdr, 27 Oct, op. cit., p. 9; SOI 31, 26-27 Oct; OP rpts in 78th Div Box 3, 27.8.

In preparation for a counterattack on Grand Pré on the afternoon of the 27th, the 76th Reserve Division ordered a series of gas attacks on that town and on Ferme des Grèves for the night of 26-27 October. There is no evidence that the gas was fired, and the counterattack itself was repulsed. That same afternoon the flanking battalion of the 311th made contact with the other units of the regiment on Hill 204, thus completing the reduction of Grand Pré.<sup>76</sup>

With the consolidation of the town and the terrain to its north, the front of the First Army was again straightened. The German line that day was reported as north of Fumay-southeast through the Bois de Bourgogne-Bellejoyeuse Farm-Ferme des Loges-southern edge of Bois des Loges-Champigneulle.<sup>77</sup>

In the twelve-day struggle for Grand Pré, the 156th Brigade had lost a reported 47 officers and 1,574 men killed, wounded, and severely gassed, out of an original rifle strength of 3,705. So badly decimated was its 312th Infantry that it was taken out of the line, not to return until the division had moved through the Kriemhilde Stellung. Between 16-17 October, casualties in that regiment alone amounted to 28 officers and 927 men.

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<sup>76</sup>

Div O, 76th Res, 26 Oct (76th Res WD&A, 26 Sep-27 Nov, p. 144, German Files Box 200); FM 311th Inf, 1315 hrs, 27 Oct; Lecture, McRae, p. 19.

<sup>77</sup>

Opns Rpt, 27-28 Oct; SOI 31, 26-27 Oct.

with 95 killed, 632 wounded, 190 gassed and evacuated, 18 captured, and 20 missing.<sup>78</sup>

With the occupation of Talma village on 28 October and Bellejoyeuse Farm on the 29th, the front of the 78th Division extended along the line Talma-Bois de Bourgogne-Bellejoyeuse Farm-Ferme des Loges-Ferme des Grèves. There the division waited, for an immense artillery preparation would be necessary to pound apart the last positions of the Kriemhilde Stellung all across the front and open the way for the advance of First Army to Sedan.

#### The Plight of the Opposing Forces

The 78th Division had been fighting tired but desperate troops. Divisional intelligence summaries in this period present a uniform picture of an enemy in straightened circumstances, his company strength reported by captured troops to number as few as twenty and in almost no case more than seventy-five effective riflemen, with four or five NCO's, and his regiments without units in support and without hope of relief.<sup>79</sup> Yet the enemy machine gun and artillery elements in the Kriemhilde Stellung seem to have been maintained largely intact and supplied with abundant ammunition. As one report said, "Hostile light machine gun detachments, well

<sup>78</sup>

Lecture, McRae, pp. 19-20; rpt, CO 312th Inf to CG 156th Brig, 30 Oct, sub: Rpt of Capture of Grand Pré-Talma salient (78th Div Box 7, 33.6, Spec Opn Rpts).

<sup>79</sup>

FO 56, 1st A, 10 Oct, par 1: "The enemy in his attempts to stop our advance has thrown his divisions into the line by regiments." See also War Diary, 8 Oct, U. S. Army in World War, Vol. 9, p. 545.

entrenched, are almost rooted to the soil."<sup>80</sup> These were the forces that held the 78th Division, and with it the entire First Army, virtually in place from 18 October to 2 November.

But in this fourth year of the war, the German armies were approaching the end, waiting for the order to retreat. On 3 October 1918, at the demand of Ludendorff and Hindenburg, Germany made her first overture to President Wilson for an armistice.<sup>81</sup> On 17 October, two Russian prisoners of war, escaping into First Army lines, reported that while more and more German artillery was being brought into the Briquenay-Thenorgues sector, German corps headquarters had been recently moved from Buzancy to Sedan (see Map No. 1). Moreover, they had "heard of the German request for an armistice, and...the change in the morale of the German troops during the last month [had] been very marked and almost undescribable (sic); so much so that the slogan 'On to Paris' [had] now come to be regarded almost as a huge joke."<sup>82</sup>

80

SOI 31, 26-27 Oct; see also FO 88, 1st A, 27 Oct, par 1(a); Opns Rpt 27, G - 3, 1st A, 29-30 Oct, par 2 (U. S. Army in the World War, Vol. 9, p. 358).

81

By mid-October, while diplomatic notes were still being exchanged, Ludendorff became more sanguine about the military situation (the Americans were being contained, and 600,000 reinforcements were promised soon, by combing out the home front). Even with the dismissal of Ludendorff on 25 Oct, Hindenburg remained and the German Armistice Committee did not cross the front until 7 November.

82

SOI 21, 16-17 Oct. Cf. documents atchd to ltr, CO 312th Inf to CG 156th Brig, 28 Nov 18, sub: Statements of men who escaped from German hands (78th Div Box 57, fol 4).

From the interrogation of prisoners it was learned that there was no defense line between Grand Pré and the Meuse, and that in another assault the Germans were to fall back to the river. A prize captured document in mid-October gave detailed instructions for the withdrawal of German forces to the vicinity of Briquenay, and a prisoner taken on 23 October said that a general withdrawal was already in process, with the railroads to the north turned over entirely to the evacuation of materiel.<sup>83</sup>

These rumors and reports led First Army, in its field orders for 23 October, to ask for the first time that "1st Corps...take special steps to insure early information of any hostile withdrawal." The next day, "all troops" were directed to report any sign of retreat. The orders for the 25th said that in case of withdrawal of the enemy on the Army front, all forces were to pursue at once and keep contact. The route of pursuit in 1st Corps was to be Grand Pré-Briquenay-Authe-Brieulles sur Bar-Tanny.<sup>84</sup>

On the 26th, Army Intelligence reported that recent prisoners were positive that a withdrawal to Briquenay would soon take place, with a second withdrawal to the vicinity of Authe.<sup>85</sup> The next day an unofficial copy of a recent German reply to President Wilson appeared in the Summary

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83

MS Hist of 78th Div, p. 30 (78th Div Box 2, 11.4).

84

FO 83, 1st A, 1000 hrs, 23 Oct, par 2; FO 84, 0925 hrs, 24 Oct, par 3D (2); FO 87, 1800 hrs, 25 Oct, par 1.

85

SOI 32, 27-28 Oct.

of Intelligence, reading in part: "The German government now awaits proposals for an armistice, preliminary to a just peace as characterized by the President in his public statement (i.e., the Fourteen Points laid down in his message to Congress on 8 January 1918)."

When probing reconnaissances all along the Army front revealed that enemy forces were still offering strong resistance and showed no immediate signs of retreating, Army had to report "No change in the situation....The First American Army will continue its preparation for attack."<sup>86</sup> On 30 October, Army Artillery Information Service said: "With the exception of the extreme left where the activity of enemy patrols appears to have practically ceased, the enemy's alertness [has] increased. Any movements of our patrols were met by heavy machine gun fire. The stubbornness with which the enemy maintains his front and stays with his machine guns tends to discredit the reports of prisoners on the low morale of the enemy troops."<sup>87</sup> Army orders on the last five days of the month confirmed the enemy situation and repeated that there would be no change in the missions of the corps, artillery, or services. Large quantities of gas were to be used in the final assault.

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<sup>86</sup>

FO 89, 1st A, 1000 hrs, 26 Oct, par 2.

<sup>87</sup>

AIS Bul 68 (1st A Box 85, 60/20.4).

### Development of the Army Gas Plan

In Marshal Foch's directive of 11 October to the First American Army in the Meuse-Argonne, he recommended that the principal attack be made on the left flank (1st Corps), as part of a wheeling action to push enemy forces back across the Meuse, when junction of that flank and the Fourth French Army was made in the vicinity of Boulton aux Bois.<sup>88</sup> Foch's plan therefore necessitated the clearing of the woods east of the Aisne and north of the Aire (i.e., the Bois de Bourgogne and Bois des Loges), in order to flank the enemy line on the Aisne.<sup>89</sup>

Daily orders from Army had urged 1st Corps to clear the two woods on its front, with Army artillery offered on the 17th to assist the advance.<sup>90</sup> On the 19th, Army admitted that the general attack begun on 14 October had bogged down. Little had been achieved at high cost, and neither the right flank nor center could advance further until the Bois de Bourgogne was cleared on the left. The Army line meanwhile was "to improve its position preparatory to a general attack."<sup>91</sup>

<sup>88</sup>

Ltr, CinC AEF to Liggett CG 1st A, 16 Oct (U.S. Army in the World War, Vol. 9, p. 276).

<sup>89</sup>

Rpt of 1st A, p. 75 (extracted in above, Vol. 9, pp. 286-87).

<sup>90</sup>

FO 69, 1st A, 1700 hrs, 16 Oct, par 3E; FO 72, 1245 hrs, 17 Oct, pars 3E, 3F(1).

<sup>91</sup>

FO 75, 1st A, 19 Oct; FO 83, 23 Oct, par 2.

Four days after the organization of the Second American Army on 12 October under Maj. Gen. Robert L. Bullard, Maj. Gen. Hunter Liggett assumed command of First Army and, after ordering rest and reorganization for the Army, set about recasting both the tactics and plan of the next advance. Instead of battering "at the naturally strong and heavily wooded Bois de Bourgogne area due north of the Argonne, where also the enemy was in strongest force, Liggett [decided] to drive a broad wedge in the centre and so outflank the Bois de Bourgogne, threatening its encirclement in conjunction with the French Fourth Army to the west."<sup>92</sup> And for the first time, divisions and corps were ordered to use gas lavishly.

On 18 October, Colonel Schulz, the Army Gas Officer, wrote to the Chief of Staff: "It is the present understanding of this office that Yperite bombardments west of the Meuse are prohibited, except by express command of the Commanding General or Chief of Staff, First Army." But in the event that the line is stabilized, he continued, he urged that all obtainable gas be used, and that corps and divisions be encouraged to have it on hand. "It is improbable, in any event, that the quantity of shell obtainable will be sufficient to interfere seriously with any general advance of our army."<sup>93</sup> On 20 October, as the 78th Division disengaged its forces, Army headquarters formally countermanded its order of a month earlier for the use only of

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92

B. H. Liddell Hart, The Real War 1914-1918 (Little, Brown, 1930), p. 68.

3

Memo, CGO 1st A, 18 Oct (GAF-1st C Miso).

nonpersistent gas west of the Meuse. "Yperite, or mustard gas, may be used at the discretion of Corps Commanders within their Corps zones of action, after specific approval by these Headquarters." Corps and divisions were to keep a supply of yperite shell on hand to use when tactical conditions warranted its employment.<sup>94</sup>

The revised First Army plan of attack, approved by Pershing on the 22nd, directed that the main assault be made on the 5th Corps front, with the object of first capturing the heights of Barriocourt and then effecting junction with the French at Boulton aux Bois, on the left. Capture of the Barriocourt ridge would flank the whole enemy position, compelling his withdrawal to the east of the Meuse, and it would avoid "the hard and expensive fighting" of a heavy attack on the 1st Corps front.<sup>95</sup>

Two days later, on the 24th, Army issued a new gas directive to the artillery: "Yperite will be used on hostile battery positions east of the Meuse, north of Villedieu sur Meuse, and in the Bois de Bourgogne, the latter in agreement with the Commanding General, 1st Corps." The directions were made more specific on the 27th, when orders were issued for the general assault, in conjunction with the Fourth French Army, on 1 November.

<sup>94</sup>

Memo, Hugh A. Drum, CS 1st A, 20 Oct, sub: Employment of Yperite (WD Hist Box 300, 33.6); also in U.S. Army in the World War, Vol. 9, p. 306, and 26th Div Box 249, fol 4.

<sup>95</sup>

Rpt of 1st A, p. 80 (extracted in U.S. Army in the World War, Vol. 9, pp. 286-87).

Army objectives were the heights of Barricourt and junction with the French at Boulton aux Bois (Map No. 6).

Gas will be utilized to the fullest possible extent in preparing for and assisting the infantry attack, by inflicting casualties on enemy concentrations; neutralizing enemy battery, machine gun and observation positions, both before and during the attack; harassing enemy movement along lines of traffic; and demoralizing and wearing down enemy troops, including those in support and in reserve.

Yperite will be employed, especially in the neutralization of hostile fire and observation on the heights east of the MEUSE, in the BOIS DE SASSEY, and on the heights in the BOIS DE BOURGOGNE south of LE MORTHEMME.<sup>96</sup>

With both flanks protected by yperite, Army intended to drive through the center, making liberal use of lethal gas on strongpoints of the Kriemhilde Stellung in the Army line of advance. With brief notice of gas operations on the right flank of Army, the account that follows of the final breakthrough will be told principally through the operations of the 78th Division, on the far left.

#### Yperiting the Bois de Bourgogne

Yperiting east of the Meuse by Army and 3rd Corps artillery elements continued all through the latter half of October, with new targets and areas

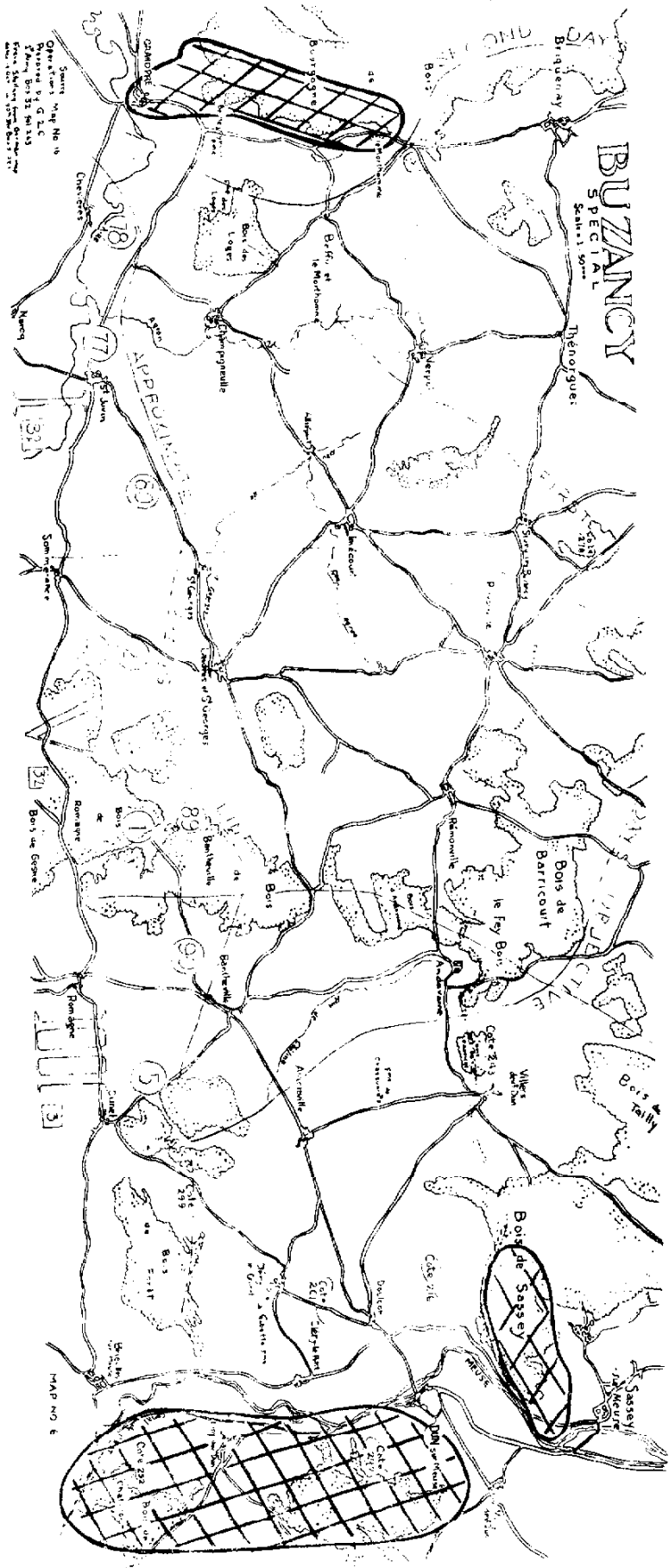
96

FO 84, 1st A, 0925 hrs, 24 Oct, par 3D(2); FO 88, corr copy, 1500 hrs, 27 Oct, pars 2, 3G(5).

It does not seem possible either to date Map No. 6 accurately or to identify it with a particular Army FO. It probably was made sometime between 27 and 30 Oct. The gassing of the Bois de Sassey, indicated on the map, first appears in Army FO 88, 27 Oct; the relief of the 82nd by the 77th and 80th Divs did not take place until 30-31 Oct. However, neither the jump-off line on the map nor the indicated gassing of Grand Pre correspond to the situation on those dates. It is therefore difficult to justify this map other than to say it obviously indicates the existence of an overall gas plan for the final phase of the offensive. It can be assumed that the map is a plan for yperiting, since none of the areas gassed with non-persistent agents on 31 Oct-1 Nov are marked on the map.

# BUZANCY

SPECIAL  
Scale: 1:50,000



Source: Map No. 10  
Revised by G. L. L. L.  
Scale: 1:50,000  
Date: 1940

under interdiction fire almost every other day. The gas preparation for the final battle of the campaign began on the night of 29-30 October when Army artillery put mustard gas on five additional areas across the Meuse (Map No. 7). Army's Verdun-Teissier Grouping fired 5,700 No. 20 shells in the mission.<sup>97</sup> Just west of the Meuse, the principal target of 3rd Corps was the Bois de Sassey, another potential Bois de Bourgogne or Bois des Loges, where four German infantry companies and an artillery regiment had been identified.

On the afternoon of 30 October, 3rd Corps artillery fired 3,000 75-mm. yperite shells into the Bois de Sassey.<sup>98</sup> That night, 3rd Division artillery completed the fire with 2,000 more rounds of yperite in the Bois, and another 1,000 rounds on the night of 31 October-1 November.<sup>99</sup>

97

Daily Rpt of the V-T Gr, 24 Sep-11 Nov (1st A Box 89, 191). These reports show a total of 37,286 No. 20 shells fired in the missions east of the Meuse between 14-23 October.

98

Rpt, CGO 3rd C, sub: Data of Various Attacks of Units in the 3rd AC, atchd to ltr, CGO 3rd C to Corps and Div GO's, 31 Jan 19, sub: Request for Rpt (WD Hist CWS Box 300, 33.6).

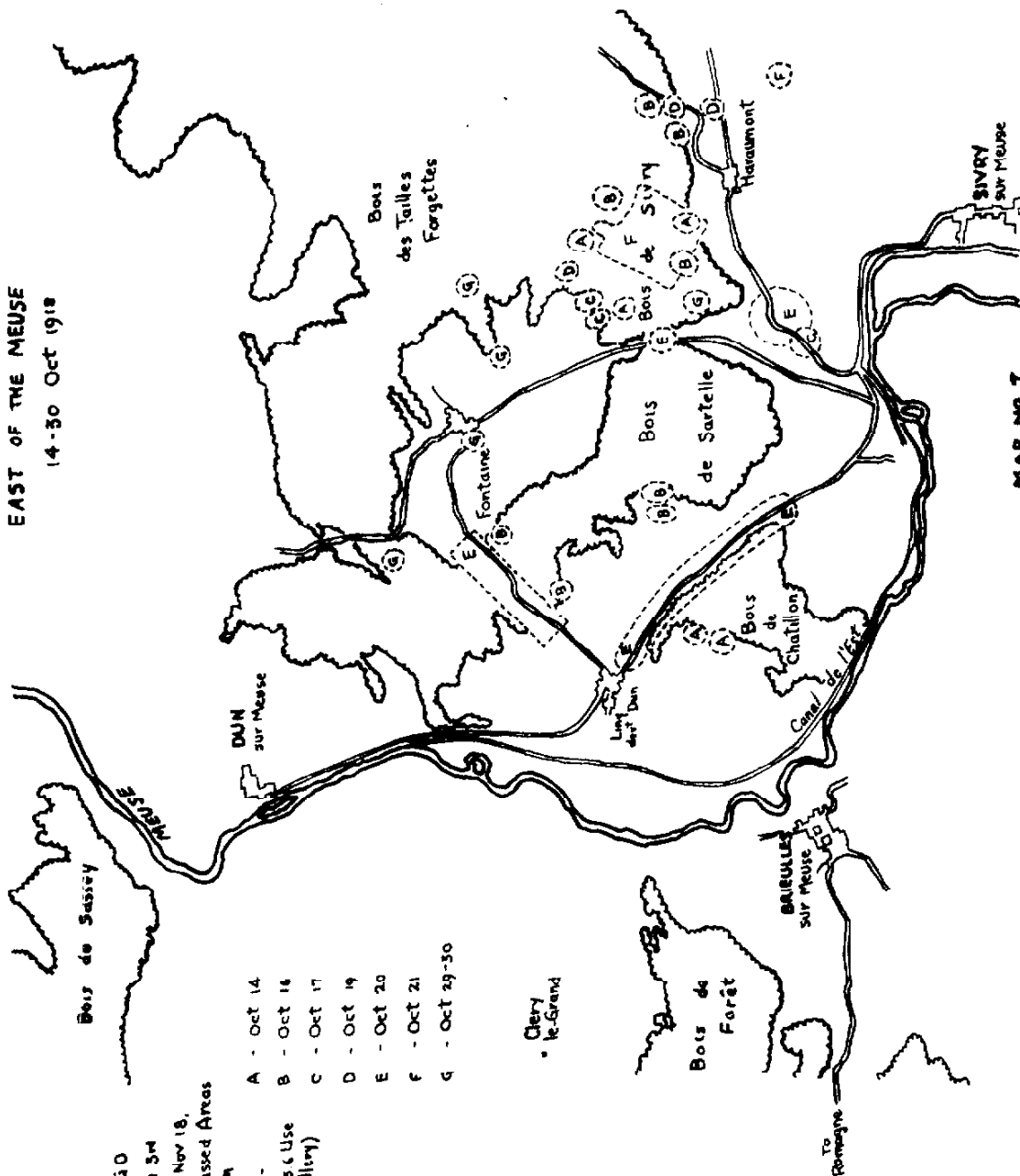
Ltr, CGO 3rd C to CGO 1st A, 3 Nov, sub: Weekly Rpt, said corps arty fired 2,000 rounds of #20 on the Bois de Sassey on 25-26 Oct. There was no mention of the 30 Oct mission (GAF-3rd C).

99

FM 3rd C to 3rd FA Brig, 3rd Div, 1415, 30 Oct (3rd Div Box 51, 32.16, FM-fol 21); Arty O 4, 3rd C Arty, 30 Oct (WD Hist Box 300, 33.6); ltr, CGO 3rd C to C CWS, 12 Nov, sub: Rpt on Gas Activities for Oct (GAF).

Another postwar rpt says the 3rd Div fired 2,000 rounds of #20 into the Bois de Sassey on 26 Oct and 2,000 more on 30 Oct (Rpt on Gas Opns By and Against 3rd Corps Units, CGO 3rd C, 25 Jan 19. WD Hist Box 300, 33.6).

# OPERATING EAST OF THE MEUSE 14-30 Oct 1918



Source:  
Intel to 1st CGO  
1st Army to CG 5th  
Army Corps, 4 Nov 18,  
sub: Mustard Gassed Areas  
North of Verdun

WD Hist-CWS-  
Box 300 (201-33 Use  
of Gas by Artillery)

A - Oct 14  
B - Oct 14  
C - Oct 17  
D - Oct 19  
E - Oct 20  
F - Oct 21  
G - Oct 29-30

Clery  
le-Grand

Just prior to the attack of the 3rd and 90th Divisions on their fronts, the 3rd Division on 31 October put down 500 75-mm. rounds of cyanogen (No. 4) on the Ferme de Chassonne, and the next day 1,000 75-mm. rounds of phosgene (No. 5) on the Bois d' Andevanne, along with 2,750 155-mm. rounds of phosgene and chloropicrin (No. 7) on the Bois d'Andevanne, Bois de Sassey, Bois de Carpiers, Coté 243, and Ferme de Chassonne. On 31 October, 90th Division artillery fired 650 155-mm. rounds of chloropicrin into the Bois d'Andevanne, and on the next day gassed Andevanne wood again with over 600 155-mm. chloropicrin shells and 1,350 75-mm. phosgene shells, and put 250 75-mm. shells into the Ravine de Cheline.<sup>100</sup>

Large quantities of phosgene were also to be used in Army's center, and yperite on its far left. The mission of 1st Corps in the attack of 1 November was to flank the enemy out of the Bois de Bourgogne by envelopment from the right, and then advance to meet the French at Boulton aux Bois.<sup>101</sup> To accomplish this, the 77th and 80th Divisions, which had taken over the 82nd Division sector, were to attack on the five-kilometer front between Champigneulle and St. Georges, while the 78th Division on its six-kilometer front, covered their left flank by advancing through the Bois des Loges towards Briquenay so as continually to face the Bois de Bourgogne,

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<sup>100</sup>

Rpt. CGO 3rd C, above. Ltr. CGO 3rd C to C CWS, 12 Nov, above, says the 90th Div fired 2,861 rounds and the supporting 5th Div fired approximately 4,500 rounds of mixed #4, #5, and #7 on 31 Oct-1 Nov.

<sup>101</sup>

FO 85 corr copy, 1st C, 2400, 28 Oct.

while maintaining liaison with the French near Talma (Map No. 8).<sup>102</sup>

In the first day's attack, the 155th Brigade was to capture the Bois des Loges, while the 156th Brigade, pivoting on Talma, advanced its right flank to cover the left of the 155th. On the second day, the two brigades would advance to a line north of Briquenay, and on the third to Boulton aux Bois.<sup>103</sup> Battle instructions did not underestimate German capabilities. "The enemy facing us has covered his front with a large number of well manned machine guns, closely supported by field artillery. His infantry appears to be deeply echeloned, only small forces being kept in the advance zone."<sup>104</sup> The artillery in the Bois de Bourgogne had been confirmed in a prisoner interrogation a week earlier, when its large number of guns, as well as other batteries located in the woods southwest of Beffu et le Morthomme, were described.<sup>105</sup>

All of the division light artillery, as well as corps heavy artillery, was to be used to carry out Army and Corps orders for the gassing of the

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102

FO 85, above, and also FO 19, corr copy, 155th Inf Brig, 1800, 31 Oct (78th Div Box 13, 32.1).

103

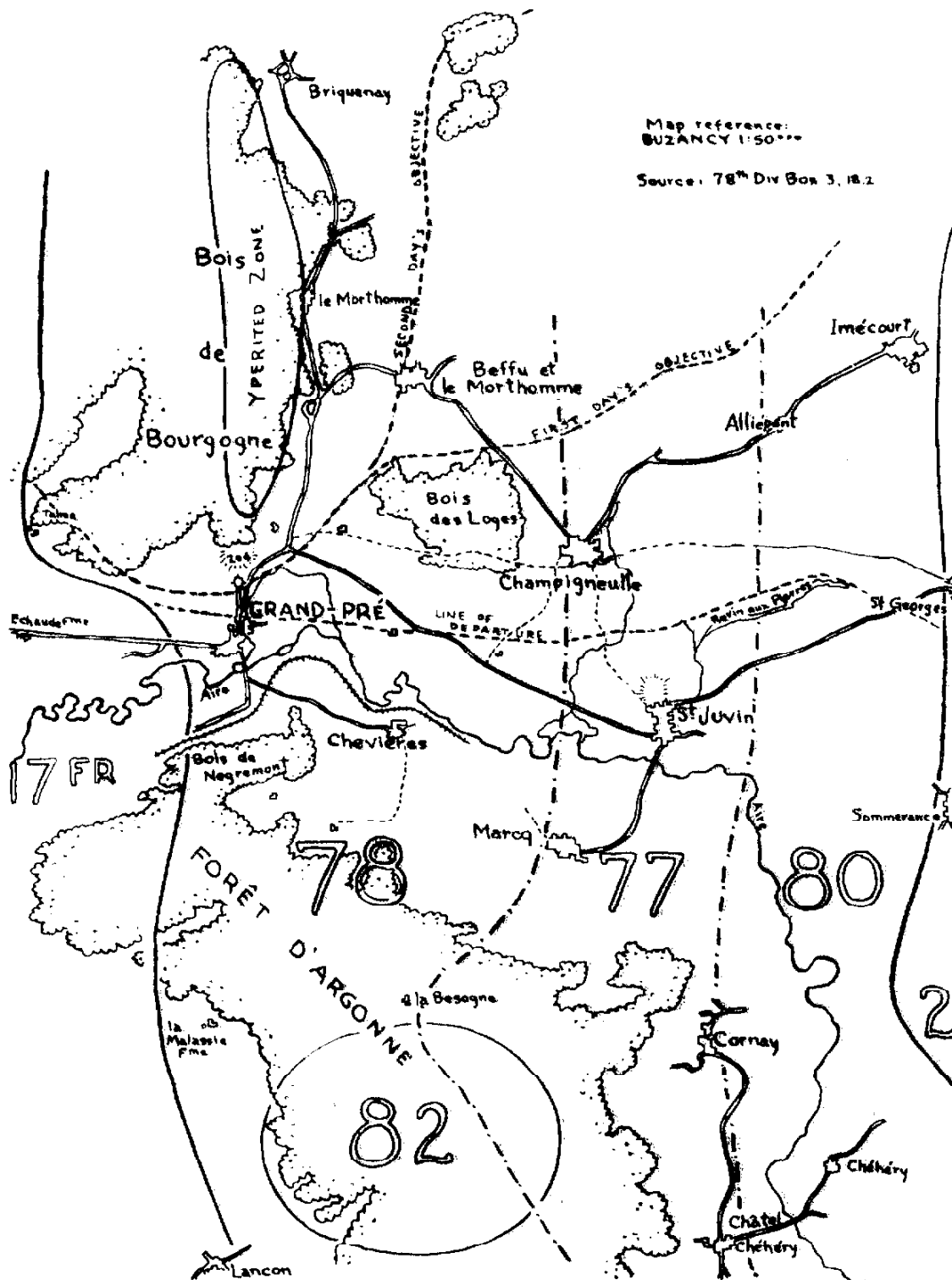
FO 32, corr copy, 78th Div, 1800 hrs, 30 Oct; Lecture, McRae, p. 21; Tng Memo 130, II. 8-9.

104

Annex 5, FO 85, 1st C.

105

SOI 25, 26, 20-22 Oct.



Map reference:  
BUZANCY 1:50,000

Source: 78<sup>th</sup> Div Box 3, 18.2

Map to accompany field order N° 85 - 1<sup>st</sup> AC

28 Oct 1918

MAP NO. 8

Bois de Bourgogne.

On the morning of October 23rd, the Divisional Artillery Commanders were assembled at the P. C. of the Chief of Corps Artillery, 1st Corps, for the purpose of co-ordinating the plan of all Divisional Artillery of the Corps in a general attack of the Allied Armies, and here the general plan for the employment of the artillery throughout the Corps was outlined, one of the salient features of which was the Yperization of the eastern edge of the Bois de Bourgogne.<sup>106</sup>

On the 27th, General Hearn reported: "There is available 36,000 rounds of No. 20 shell. The plan calls for expenditure of but 26,200 rounds. The balance will be expended in the neutralization of enemy batteries whose location will be furnished later."<sup>107</sup> The next day, the 28th, all batteries were moved as far forward as possible in preparation for the attack. Final orders for the "yperization" were received that night.<sup>108</sup>

For the 78th Division preparation, its twelve batteries of 75's and the nine of the attached 238th French FA were increased by two batteries of the 65th CAC (9.2-inch) on 30 October, with nine more batteries of the 247th

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<sup>106</sup>

Hearn, lecture: Arty Opns in the Argonne, 13 Feb 19, p. 8, revised as Tng Memo 124, 22 Feb 19 (78th Div Box 25, 33.6, Spec Rpts.)

<sup>107</sup>

Opns O 52, 153rd FA Brig, 27 Oct, Plan for Offense, Argonne Sector, Neutralization of the Bois de Bourgogne.

<sup>108</sup>

Tng Memo 124, 22 Feb 19.

French FA (75-mm.) scheduled for additional divisional fire on 2 November.<sup>109</sup> On the 78th Division front there was to be a total of 36 batteries of 75's, six batteries of 155's, and two batteries of 9.2-inch guns, as well as several groups of heavy corps and army artillery assigned to divisional fire. Indicative of the importance of the mission of the 78th Division, this was said to constitute "more reenforcements" with "a greater ammunition allowance" than had ever been given "any other divisional artillery."<sup>110</sup>

The preparation was begun on 30 October when all known enemy battery positions in the Bois de Bourgogne and the heights and eastern slopes of the wood were yperited from north of Grand Pré to north of Briquenay (Map No. 9). Almost 40,000 rounds of No. 20 shell were fired by the division's

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109

FO 85, corr copy, 1st C, 30 Oct; Annex 9, FO 32, 78th Div Arty Plan. Opns O 60, 153rd FA Brig, 31 Oct, said reinforcements for D plus 1 would include six 75-mm. batteries of the 238th FA (Fr), five 75-mm. batteries of the 245th FA, and three 105-mm. batteries of the 451st FA.

Of interest is an earlier FO 85, 1st C Arty, 24 Oct, Annex 1, pp. 2 - 3 (82nd Div Box 7, Opns Rpts), which said that on D minus 2, six 155-mm. batteries of the 451st RAL [Régiment Artillerie Lourde] were to yperite the northern and eastern edges of the Bois de Bourgogne and on D plus 1 were to neutralize these same areas with No. 9 bromacetone shell. From H minus 2 to H minus 15 min, six 105-mm. batteries of the 315th RAL (Fr) were to bombard the edges of the Bois des Loges, and from H minus 30 min to H Hour, two 6.2-inch batteries of the 65th CAC were to complete the bombardment of the Bois des Loges. These were Army heavy artillery units, placed under corps but firing on order of the 153rd FA Brigade. No record has been found of any actual gassing of the Bois des Loges in the 1 Nov attack.

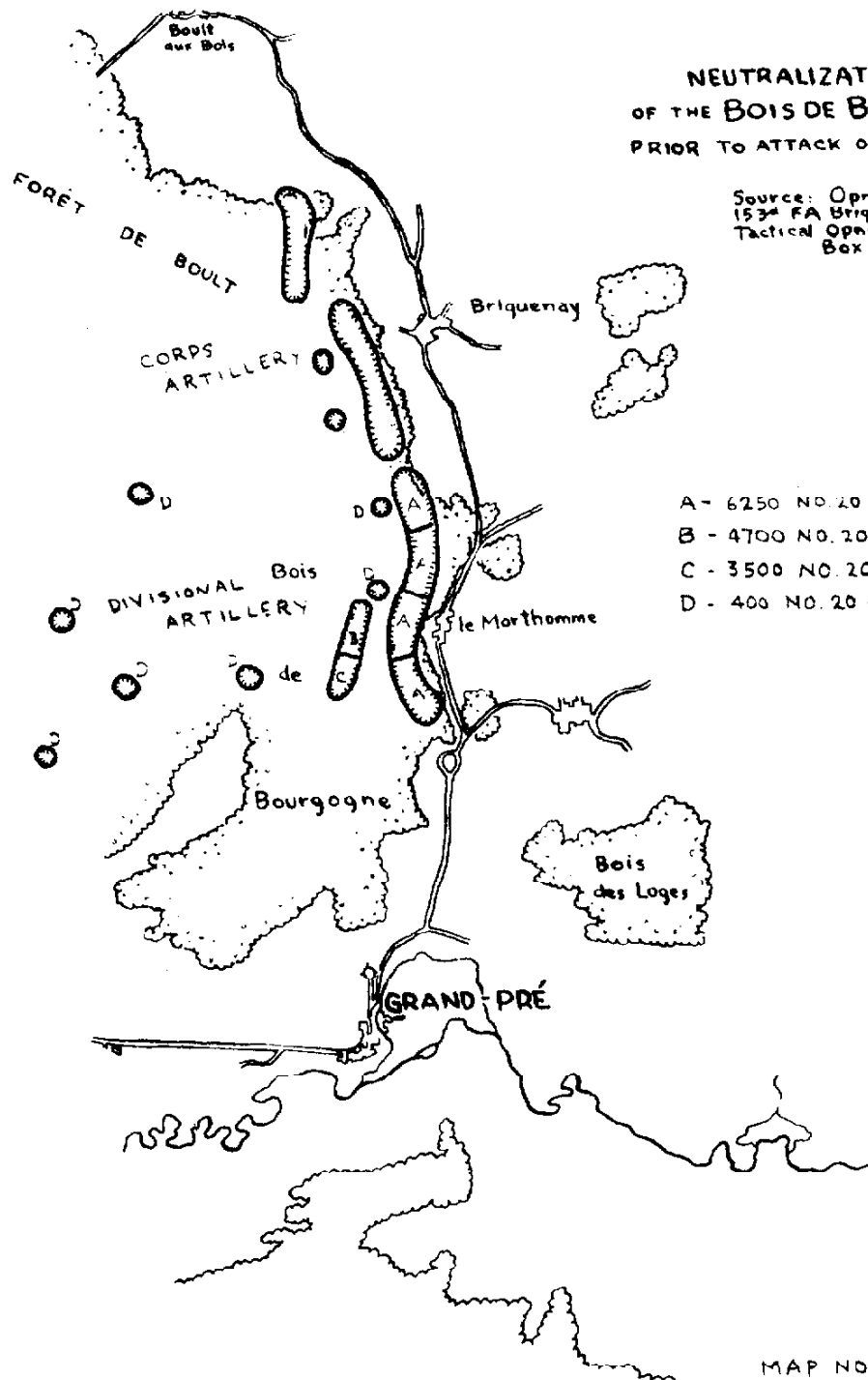
In the same Annex 1, p. 12, 55,000 rounds of 75-mm. yperite shell were to be allotted for 78th Div consumption and 2,000 rounds of 105-mm. yperite for corps heavy arty. No mention was made of 155-mm. yperite shell for the French batteries.

110

Lecture, McRae, p. 21, Tng Memo 130, II. 21-22.

# NEUTRALIZATION OF THE BOIS DE BOURGOGNE PRIOR TO ATTACK OF 1 NOV.

Source: Opns O 52  
153rd FA Bn and file  
Tactical Opns 78th Dn  
Box 2 il. 4



MAP NO. 9

48 field guns at barrage rate over a twelve-hour period.<sup>111</sup> Corps fire on 30 - 31 October consisted of a reported 36,000 rounds of 75-mm. and 155-mm. yperite and 400 rounds of 105-mm. yperite, for a total of 41.4 tons of yperite shell.<sup>112</sup> The mission was carried out under "ideal meteorological conditions," in clear warm weather, with a light wind which "carried the gas back through the woods."<sup>113</sup>

General Hearn said later of his part in the gas bombardment:

In connection with this firing, it may be of interest to note that during the entire time neither of the [artillery] Regiments suffered a single casualty nor was any material damaged by hostile fire nor did any gun of the 48 firing go out of action....but the feature which stands out most as a result is the ineffectiveness of artillery fire when the definite location of objectives is not known and indicates the futility of attempting to employ fire of this character. It affords a lesson which should be taken to heart by every arm and auxiliary of our service ....Targets for artillery must be known.<sup>114</sup>

111

Sum of Opns, 15 Oct-6 Nov, 153rd FA Brig, 23 Dec (78th Div Box 25); lecture, McRae, p. 35.

Opns Rpt, 153rd FA Brig, 6h-6h, 30-31 Oct (78th Div Box 25, 33.1), shows firing of 19,381 #20, 468 #5, and 7,435 mixed #20 and #5, with the rounds of one #20 mission missing - a sub-total of 27,284 gas shells.

Ltr, DGO 78th Div to CGO 1st A, 31 Oct, sub: Opns Using #20 Shell (78th Div Box 24, Opns O), cites Opns Rpt, 153rd FA Brig, 30-31 Oct (corr copy?), as saying its two light arty regiments alone fired a total of 23,214 #20, 471 #5, and 5,600 mixed #20 and #5, the firing of the #20 completed between 0008-2030, 30 Oct.

112

Opns Rpts, 1st C, 30, 31 Oct (1st C Box 24, 33.1 Opns Rpts); Memo, CGO 1st C for C CWS, 5 Feb 19 (GAF-1st C). This agrees approximately with Daily Situation of Ammo rpts of 1st Corps Arty (1st C Box 38) showing 4,185 #20 75-mm. and 24 #5 155-mm. fired on 31 Oct. On 1 Nov an additional 1,290 #20 105-mm., 2,207 #5 155-mm. CS, and 1,338 #5 155-mm. L were fired by 1st Corps Arty.

113

Rpt of DGO (1tr copies out by Spencer, no other data, in GAF-Hist of Gas Atks, Miso).

114

Eng Memo 124, 22 Feb 19.

The general was commenting here both on the safe employment of gas shell by his gunners (a recurring theme in his records) and on the ineffectiveness of searching German artillery fire on his camouflaged units which had come into new positions two days previously. But he seems also to have had in mind his bad show on the night of the 18th, and the later demonstrated effectiveness of the yperiting as compared to the HE fire on 1 November.

Enemy reports reveal the effectiveness of the gas bombardment. Seven out of nine batteries of the Near Bombardment Group of the 78th Reserve Brigade were put out of action, and the 252nd and 254th Regimental Headquarters had to be abandoned, the latter so completely gassed that it had to be relieved completely by the 253rd Regimental staff. Six officers and 55 men were initially reported as gas casualties.<sup>115</sup> Total gas casualties as a result of the bombardment were later admitted to be 210.

On 1 November, the 254th Regiment reported there was still a "slight residue of Gas to be felt" and a "number of people had to report sick because of gas." The 71st Regiment, attached to the 76th Reserve Division, said 5 of its headquarters staff became gas casualties during the withdrawal that day.<sup>116</sup> Estimates of efficiency in the units of the 76th Reserve Division a week later blamed "gassing and continued wearing of gas

<sup>115</sup>

WD 76th Res Brig, 31 Oct, 1 Nov (76th Res Div-Sub Units, 24 Sep-11 Nov, pp. 30, 32, German Files Box 200).

<sup>116</sup>

WD 254th Regt, 1 Nov (76th Res Div, Ibid., p. 69, Box 201); FM 71st Regt, 1 Nov (76th Res Div WDAA, 26 Sep-27 Nov, p. 58, Box 200).

masks due to enemy fire" and "bloody losses and absences from gas sickness," despite reinforcements, as contributing to their poor condition.<sup>117</sup>

Baron Quadt, the 76th Reserve Division commander, said in his formal report on the gas bombardments:

The gassing began on 30 October at 9:00 am. The enemy fired continuously with about 6 batteries from a southeasterly direction. The fog made ground and air observation of the enemy batteries impossible. Later the gassing group in the direction of Chevières was taken under annihilation fire.

The enemy fire was systematic and concentrated, especially on Morthomme, Jaeger Ravine [in the woods west of le Morthomme] and [the Bois de Bourgogne]. The regimental headquarters of the 252nd Regiment and the positions of the 2nd, 5th, 7th and 8th batteries of the 56th Artillery and the 6th Battery of the 24th Artillery suffered.

It is estimated that the enemy fired between 25,000 and 30,000 rounds up to 6:00 pm of 30 October. That night the enemy used spraying ammunition and on 31 October at 6:00 am the gassing was renewed in its former vigor. It lasted all that day.

The calibers varied between 7.5 and 10.5 cm. Heavy calibers were not observed. The gas type was without exception yperite (yellow cross). Dull detonations, small dark grey weak clouds. Another type of gas with a black cloud was observed occasionally, perhaps gas and H.E....

Effect: Immediately after the beginning of the bombardment the units put on gas masks. The gas dispelled rapidly; however, it remained fairly thick in the woods. Certain firing positions were bombarded, many direct hits were made among the guns and the crews were sprayed. These positions were cleared and gas-free areas were sought. After sniffing tests some men took off their gas masks because they had difficulty breathing and their eyes were irritated. It was only towards evening that the majority of gassed men reported in. It was possible to trace back that they had taken off their masks too soon, because they no longer smelled gas or had become insensitive to gas. Some men in the few gas-free areas were surprised by gusts of wind which moved the gas. Repeatedly, men were sprayed with yellow cross and burns were reported by these men.

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117

Est., 252nd Regt., 6 Nov; Est., 76th Brig., 7 Nov (76th Res Div-Sub Units, 24 Sep-11 Nov, pp. 126, 129, German Files Box 200).

In the main the complaints were of sharp eye irritation, vomiting, chest and stomach disorders. The casualties were for the most part not serious. Of 210 gassed men (up to 31 October in the evening) 40 men returned to their units the next day.

Immediate defense measures: Gas masks were donned immediately; the places where the hits were made, the sprayed clothing and equipment and hands were immediately sprinkled with chloride of lime. More chloride of lime was sent forward by the division in trucks and arrived at noon. The division did not have a reserve of clothing or yellow cross defense suits.

The division gas officer inspected the positions at noon and took further available measures. He determined under what precautionary measures contaminated positions could be entered in order to pull out equipment and put it in other positions.

Errors committed: A number of men took off their masks too early after they found places which in their opinion were uncontaminated, despite previous sniffing tests. The gas defense NCO's and gas officers were not immediately at their posts because they were either wounded or, as it has been determined in one case, they were with the train. In part, the gas surprised sleeping men. Gas discipline was reported good by the Gas Officer, however poor it was on the part of the recently arrived reinforcements....<sup>118</sup>

On the morning of the 29th, the day before the yperiting of the Bois de Bourgoigne began, the 78th Division reported 350 mixed gas and HE shells in the northeast corner of the Bois de Negremont. Later that day there was "mustard and phosgene in Noue le Coq. Phosgene at LaFolie Ferme and vicinity." The Division Surgeon's Office reported 51 gas casualties.<sup>119</sup>

That the enemy knew of the coming assault and planned a withdrawal from the Bois des Loges sector seems evident from an artillery order of the

<sup>118</sup>

Rpt. 4 Nov (76th Res Div WD&A, 26 Sep-27 Nov, pp. 60 - 61, German Files Box 200).

<sup>119</sup>

SOI 34, 29-30 Oct; Opns Rpt, 30-31 Oct; DSO data in ltr, DGO to C CWS, 25 Jan (GAF-78th Div Sum).

240th Division on the 29th: "On the night of [29-] 30 Oct. all yellow cross ammunition (including the small amounts in the positions) will be fired. On 30 Oct. at 9:00 am the artillery groups will report by special telephone message that all yellow cross ammunition has been fired. No rounds must be allowed to remain in the positions."<sup>120</sup> The small amounts remaining at enemy positions is reflected in the 78th Division report that the St. Juvin area was shelled on the 30th with 40 unidentified gas rounds by enemy 105's at extreme range. Observers that morning also recorded 99 77-mm. gas and HE rounds southwest of Marcq, and in the afternoon, 233 77-mm. and 105-mm gas and HE rounds on the Chevières-La Besogne road.<sup>121</sup> Their gas was gone, their flank protection in the Bois de Bourgogne was gone, but the German forces on the Bois des Loges-Champigneulle front, untouched by gas, were to continue to hold their positions and inflict high casualties on the forces attacking them.

#### The Bois des Loges Again

The HE preparation on the early morning of 1 November was "the most terrific ever witnessed by American troops."<sup>122</sup> The principal target on

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<sup>120</sup>

Arty O, CO 240th Div Arty, 29 Oct (240th Inf-Sub Units-WD&A, 17 Oct-11 Nov, p. 81, German Files Box 229).

<sup>121</sup>

SOI 35, 30-31 Oct; Obs Rpt, OP 8, 30-31 Oct.

<sup>122</sup>

Lecture, McRae, p. 21. The 321st FA (82nd Div) also called it "terrific," and from their point of view, "perfect" (Hist of Opns of 321st FA, Part III, p. 2, in 82nd Div Box 26, 11.4).

the 78th Division front was the Bois des Loges, which was bombarded for two hours by the French units with the division and by the heavy Army artillery just before the attack. The 75-mm. guns of the division fired an estimated total of 12,625 HE rounds into the one-kilometer-square target in the H minus 2 to H Hour preparation, as well as 650 rounds of No. 3 phosphorus shell, while the 155-mm. guns expended 3,000 HE rounds.<sup>123</sup> A regimental diary, 240th Division was to say: "During the night of 1 Nov. there was lively enemy artillery harassing fire followed by gas. From 4:30 am on, heavy artillery annihilation fire on our positions and artillery positions mixed with irritant gas and phosphorus shells. At 5:10 am the fire let up."<sup>124</sup>

The attack at 5:30 a.m. was preceded by a rolling barrage into the Bois des Loges, with raking artillery and machine gun fire on suspected positions in the wood and its approaches, and searching fire on the

<sup>123</sup>

Opns O 56, 153rd FA Brig, 29 Oct; Opns O 59, Amendment, 30 Oct; Opns O 57, 30 Oct, Plan of Ammo Supply (78th Div Box 24, 32.12-Opns O).

In the H minus 2 to H Hour prep, the target of the organic arty was the Bois de Bourgogne south of the yperited area, while the 238th and 247th Fr FA fired on the south and east edges of the Bois des Loges, the 317th RAL (155-mm.) fired on the interior of the Bois des Loges, and the 9.2's of the 65th CAC fired on deep dugout targets (Lecture, Hearn, p. 10, 13 Feb 19, 78th Div Box 25, 33.6).

The heavy Army arty in the 78th Div sector appears to have been the 60th CAC (155-mm.) which fired 205 #9 shells and the 87th RAL (155-mm.) which fired 251 #5 shells into the Buzancy area on 1 Nov (data in Ammo Rpts, Aisne Gpg, 1st A Box 100, 60/44).

<sup>124</sup>

WD 471st Regt, 1 Nov (240th Div-Sub Units-WD&A, 7 Oct-11 Nov, p. 38, German Files Box 229).

Briquenay road between Bellejoyeuse Farm and Le Morthomme.<sup>125</sup> But when the troops of the 155th Brigade reached the Bois des Loges, they learned that the massive artillery and machine gun preparation had done little or nothing to silence the machine gun nests in the wood. Captured prisoners said later that losses from the artillery fire had been slight, the machine fire far more annoying.<sup>126</sup>

The two infantry regiments of the brigade advancing into the Bois were stopped at once on the Champigneulle-Ferme des Loges road by the machine gun nests to their front. Division reported: "Enemy in strong position, especially in the Bois des Loges, well supplied with machine guns and intends to hold his position. We have made Corps objective on left, but up to present (noon, 1 Nov) have not reached it from right because of failure of artillery fire to break up machine gun nests."<sup>127</sup> For an hour at noon on 1 November, the southern edge of the Bois des Loges, Chevières, Grand Pré, and east of Ferme Des Grèves were subjected to intense shelling by enemy artillery, but no gas was used. A message from the liaison officer with the French forces on the left said there was no indication that the

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125

Opns O 51, 153rd FA Brig, 27 Oct; Annex 9, Arty Plan, FO 32, 78th Div; Lecture, McRae, p. 23.

126

Opns Rpts, 30-Oct-1 Nov; lecture, McRae, p. 24.

127

FM 310th Inf to Div G - 3, 0715, 1 Nov; SOI 37, 1-2 Nov; Opns Rpt, 31 Oct-1 Nov. Actually the German units in the wood had been issued an extra number of MG's shortly before the attack (FM G - 2 to G - 3, 78th Div, 1340, 1 Nov).

enemy had withdrawn anywhere on their front.<sup>128</sup>

That afternoon, a division report said, "the enemy continued his stubborn gun resistance in the Bois des Loges and the Ridge to the West." The 309th Machine Gun Battalion, two of whose companies had put down an intensive barrage that morning on the Bois des Loges and the valley between Bellejoyeuse Ferme and Ferme des Loges, reported: "The Infantry was held up by MG and artillery fire after making slow progress. In the afternoon Co. B engaged the nose northwest of Ferme des Loges in response to a call from the 155th Inf Brig who were held up by fire from that point."<sup>129</sup>

Meanwhile, on the right of the 78th, the 77th Division in its attack that morning failed to take the town of Champigneulle as planned, and as a result, it was later said, the 309th Infantry could not attempt a

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128

SOI 37, 1-2 Nov; FM Liaison O, 38th Fr Corps to 78th Div G - 2, 1 Nov.

129

Opns Rpt, 1-2 Nov; Daily Situ Rpt, 309th MG Bn, 1 Nov (78th Div Box 24, DS Rpts).

Questionable is the rpt of gas on 1 Nov by a regt of the 240th Div in the Bois des Loges area:

Enemy fire continued the whole morning [of 1 Nov] and got heavier towards 2:30 pm. From time to time they fired heavily with gas which caused heavy losses from gas sickness, especially in Company 3....The 1st and 2nd Companies as a result of the artillery fire suffered heavy losses ....Because the Battalion was greatly weakened from these losses and received no support, despite repeated requests, the enemy was able to break through here in a renewed attack at 3:30 pm after the heavy machine gun which was spraying the endangered glade was put out of action by a direct hit. He reached our second line.

WD 1st Bn 471st Regt, 1 Nov (240th Div-Sub Units-WD&A, 7 Oct-11 Nov, p. 54, German Files Box 229).

flanking movement on the Bois des Loges from the east.<sup>130</sup> At nightfall, the 309th Infantry was still on the road in the Bois des Loges, the 310th Infantry only slightly beyond.

This statement of the responsibility of the 77th Division in the attack on the Bois, in the form it appears in the postwar Training Memorandum of the 78th Division, cited above, seems to have been the source of Shipley Thomas' account in The History of the A.E.F. (p. 341): "The failure of the 77th to make any advance prevented this division (i.e., the 78th) from taking the Bois de Loges." The records do not support it. At the time, the 78th Division was far more certain that the failure of its artillery fire was responsible for its difficulties in the wood. The massive bombardment of the wood had had little effect on its defenders, in contrast to the effect of mustard gas on the enemy positions in the neighboring woods. The cost in casualties that day in the assault on the Bois des Loges was 18 officers and 501 men, a "deplorable waste of life."<sup>131</sup>

To the left of the 155th, the two infantry regiments of the 156th Brigade advanced on schedule up the ravine between the Bois de Bourgogne and the

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130

Tng Memo 130, II, 9. Although the 82nd was reportedly relieved by the 77th on 28-29 Oct, FM 155th Inf to G - 3 78th Div, 0845, 1 Nov, speaks of the attack of the 82nd as being stopped east of Champigneulle that morning.

131

Lecture, McRae, pp. 24 - 25; Liggett, below, pp. 56 - 57.

Bois des Loges without meeting any resistance whatever from the mustardized wood.<sup>132</sup> Not a single casualty resulted from the advance of brigade units past the gassed area. The commander of the 312th Infantry later said: "Enemy dead dotted the road and its vicinity and a trench near le Mort-homme containing some thirty bodies, apparently gassed, was reported."<sup>133</sup> Nearing the top of the Bois de Bourgogne that afternoon, units of the 156th Brigade turned to assist the 155th by a flanking attack on the Bois des Loges from the northwest.

By the time their attack was ready, their help was no longer needed. Between 7:00 p.m. and midnight on 1 November, the German forces in the Bois des Loges had silently and skillfully withdrawn from the wood.<sup>134</sup> The

<sup>132</sup>

FM 156th Inf to G - 3, 0846, 1 Nov (78th Div Box 5); lecture, McRae, pp. 26, 38.

Capt Smith, DGO, is rptd to have said: "...no resistance was encountered from any part of the yperited wood" (ltr copied out by Spencer, no other data, in GAF-Hist of Gas Atks, Miso). Opns Rpt, 1st C, 1 Nov, said: "There was little or no artillery fire from the Bois de Bourgogne. One battery near Briquenay was reported in action" (1st C Box 24, 33.2 G - 3). But Frederick Palmer, in Our Greatest Battle (p. 592), has perpetuated the story that "...though the Bourgogne Wood was thoroughly gassed, it poured in a strong flanking fire, and even sent out one counter-attack."

<sup>133</sup>

Rpt of Opns, 312th Inf (Anderson to Dean), 27 Oct-5 Nov (78th Div Box 7, 33.6).

<sup>134</sup>

With the entrance of an element of the 203rd Div on the night of 31 Oct-1 Nov, the German Fifth Army units on the 78th Div front on 1 Nov were the 195th Div, the 76th Reserve, single regiments of the 103rd, 203rd, and 240th Divs, and the 45th Reserve (Tng Memo 130, II. 14). At last contact, on the afternoon of 1 Nov, opposing units were reported as the 195th Div, a regiment of the 14th Div, and the 202nd, 203rd, and 240th Divs. The orders for their withdrawal are cited in U.S. Army in the World War, Vol. 9, pp. 571, 573.

gassing of the Bois de Bourgogne and its consequent evacuation had made the Bois des Loges untenable. Reports elsewhere agreed that the front had been abandoned: "The enemy seems to have withdrawn his artillery on the whole front."<sup>135</sup> Orders had come for the retreat of the German forces to the line north of Briquenay. It was the first stage of the great Kriegsmarsch, the withdrawal of the German armies to the Meuse.<sup>136</sup>

Only light, long-range machine gun fire was met as the 155th Brigade went straight through the Bois des Loges on the morning of the 2nd and emerged at its northern edge. Germany had begun her retreat from France and Belgium, planning to turn and stand when she reached her own border.<sup>137</sup>

General Liggett was later to say of events on 1 November:

The American-French attack of November 1...resulted in a great break in the hostile front exactly as planned. We had caught Von der Marwitz [Fifth Army commander] as I expected to -- braced for the attack on his

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135

Opns Rpt, 1-2 Oct.

136

See U.S. Army in the World War, Vol. 9, pp. 561, 564 - 65, 575, 580, 584.

137

"Owing to the penetration made by the First Army farther to the east, the German High Command at 4:50 p.m. (on 1 Nov) ordered a withdrawal in the zone of action of the 78th Division to a line, Buzancy-Malmaison Ferme-la Fosse à l'eau, northeast of Briquenay" (78th Div Sum of Opns, Amer Battle Monu Comm, USGPO 1944, p. 41. Quoted from Kriegstagebuch, Gp Argonne, Third Army, and 76th Res Div, 1 Nov).

The disintegration of the Central Powers had already begun when on 14 Sep, Austria-Hungary asked for a peace conference. On 25 Sep, Bulgaria requested an armistice; on 26 Oct, Austria sued for peace; and on 30 Oct, Turkey was out of the war. By 1 Nov, the Central Powers were no more and Germany stood alone.

French civilians in Authie reported that over a thousand guns and 14,000 German troops had passed through there in the previous week, and that many of the troops of one of the units "had apparently been gassed recently, because their eyes were almost closed and they marched with difficulty."<sup>144</sup>

78th Division headquarters moved from Châtel Chehery to Beffu et le Morthomme on 3 November and the next day on to Briquenay and Brieulles sur Bar. By then the front line units of the 78th were exhausted from the 21-kilometer advance. There had still been no contact with the enemy when brigade reserves took over the pursuit early on the 4th. At about noon, the reserves reached the northern edge of the Bois de Sy, where machine gun fire from the town of Sy and artillery fire from the Bois du Fay brought the chase to a temporary stop. All through the night, enemy artillery poured shells into the towns of Verrières, Brieulles sur Bar, and Les Petites Armoises, occupied by 78th Division troops, and gas was put down in the valley south of Verrières.<sup>145</sup>

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<sup>144</sup>

SOI 40, 4-5 Nov; Tng Memo 130, II. 10-11. A document quoted in Hist of the CWS, AEF, France, Vol. V, p. 45 (SOS Hist Box 249) says: "Two field hospitals at Verrières had 300 gas cases November 1st, and 20 of these men died that day." Also rptd by Lt Col Louis E. Robbe, 1st Army Gas Officer, lecture: Gas Warfare, n.d. (1st A Box 337, 70-Lectures, p. 43).

However, Maj Geo. A. Hunt, 1st Corps Gas Officer, in Memo to G - 3, 1st C, 15 Nov (1st C Box 41, 63.33), says these gas cases were rec'd from below St. Georges and Landres et St. George (i.e., from the 2nd Div sector).

<sup>145</sup>

Opns Rpt, 4-5 Nov.

On 5 November, after the 78th had cleared the Bois de Sy and taken the towns of Tannay and Sy, the 42nd Division came up the road to Chemery and there relieved the 78th.<sup>146</sup> The Lightning Division turned and began its long march to the south for rest and refitting, arriving at Les Islettes as the war ended.

The continued pursuit by the 78th of the retreating German forces on 3 November appears to have been a decision contrary to a prior corps plan. At 11:00 a.m. that day a message from Colonel Frink, Division G - 3, to General McRae said:

General [Malin] Craig [Chief of Staff, 1st Corps] just called up and stated that this Division must be withdrawn from the line at once and assembled in the vicinity of BRIQUENAY in compliance with Corps orders. P. C. should be at BRIQUENAY. Our mission is now to connect with the French and comb BOIS DU BOURGOGNE. Failure of Division to withdraw, as ordered, and lack of telephonic communications forward, indicated poor management for which some one might have to answer. He also stated that this Division is now operating in area assigned to another Division (i.e., the 42nd).<sup>147</sup>

The combing of the Bois de Bourgogne, operated four days previously, was begun at once by patrols of the 311th Infantry.

Patrols were late in starting due to non-arrival of special Gas protection. Finally they went without it.

A patrol of one squad and one Gas M.C.O. led by Lt. Mills left TALMA FME at 1:00 p.m. on Nov 3rd 1918 and patrolled the woods north of our old positions returning at 4:10 p.m. going as far as Gassed Area. Found only scattered M.G. Ammunition and small artillery ammunition. Worked in conjunction with Company I Patrol.

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<sup>146</sup>

FO 90, 1st C, 1700, 4 Nov; Shipley Thomas, p. 350.

<sup>147</sup>

FM Faraday 7 to Faraday 1, 3 Nov.

A patrol of one squad and a Gas N.C.O. was taken out by Lt. Foss at 1:10 p.m. from TALMA FARM. It worked in conjunction with like patrol from K COMPANY led by Lt. Mills. No enemy were met. No information of value was gained. Scattered small lots of enemy M.G. and light Artillery ammunition were found. Our course was outward along slopes of valley, East of Fumay, to north end of the valley and back through Fumay Farm patrolling west slope of valley. We arrived back at 4:15 dark. Found enemy dugouts and emplacements but nothing of importance in them.

A patrol of two men left Talma at 11:30 a.m. (4 Nov?). We worked out through Talma Village and about 25 meters in from the edge of the woods in a Eastward direction up to the northern part of the valley back through Fumay Farm and the west slope of the valley. No valuable information was gained only enemy M.G. and light artillery ammunition was found, also many deserted dugouts and a few wagon carts. We arrived back at 4:15 p.m. 148

The next day, the Division Gas Officer, in protective clothing, went into the gassed area.

On November 5th, 1918, my two assistants and myself, in anti-gas clothes, patrolled the area of the Bois-de-Bourgogne that was yperited by our artillery. Very light pockets of mustard gas were still present and it was necessary at one time to wear masks. Two enemy 155mm [sic] battery positions were found with a small amount of ammunition, but the guns had been moved. We followed a 60cm railroad for quite a distance. On either side of this railroad, we found elephant huts that had been very recently constructed, but they were empty, except for a small quantity of small arms ammunition and an occasional box of hand grenades.

On November 6th, an area north and west of Briquenay was covered. One 155mm [sic] battery position was found along a road where the guns could be hastily pulled out. The guns had been removed and only a small quantity of ammunition left behind. A 210mm battery position, with a small quantity of that size ammunition was found. At that position there were several uncompleted dugouts, which showed the enemy had evidently contemplated remaining there.

No dead were encountered on either day and surprisingly little material was found. 149

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148

Memo, Fancier 1 (3rd Bn, 311th Inf) to Fallow 11 (156th Brig), 4 Nov (78th Div Box 26, 32.16, FM 307th FA).

149

Memo, DGO 78th Div for G - 3, 13 Nov (78th Div Box 57, 470.6).

If the report of yperite casualties passing through Anthe is accurate, then troops rather than materiel appear to have been the principal casualties of the yperiting of the Bois de Bourgogne.

#### ANALYSIS

##### 78th Division Casualties in the Kriemhilde Stellung

The Army Almanac (1950, p. 666), Ayres (p. 117), and the American Battle Monuments Commission study of the 78th Division (pp. 16, 46) report only total campaign casualties, 8 September-11 November. They do not distinguish gas casualties or report captured and missing. Their figures are, respectively:

KIA	1,530	1,359	-
WIA	5,614	5,800	-
	<u>7,144</u>	<u>8,157</u>	<u>7,050</u>

The available figures on the casualties sustained by the division in its twenty-one days of combat in the Meuse-Argonne offensive do not agree much better. The Commission study above, perhaps the most authoritative for present purposes, reports total killed and wounded from 7 October to 11 November as 5,015. The Statistical Section of the division reported for the period 11 October-5 November a total of 4,691 casualties, including 446 killed or died of wounds, 2,616 slightly or severely wounded, 1,629 missing or undetermined. Gas casualties are apparently included among the wounded.<sup>150</sup>

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150

Stat Sec 78th Div, 5 Nov, Casualties-Argonne Sector, 11 Oct-5 Nov, atchd to ltr, CG 78th Div to CG 1st A, 23 Nov, sub: Rpt on Opns, 78th Div (78th Div Box 7, 33.6 Spec Rpts of Opns).

In his lecture on 3 February 1919, General McRae reported, "as a fair indication of the severe fighting for Talma Hill, Grand Pré, and the Bois des Loges," that between 15 October and 5 November there were 5,211 casualties, with 775 killed or died of wounds, 4,249 wounded or severely gassed, 174 missing, and 13 captured. Training Memorandum 130, 26-29 February 1919, which was based on the lecture, had almost the same total as the lecture, 5,212 casualties, but a quite different breakdown: 802 killed or died of wounds, 6 disease, 2,903 wounded, 1,501 missing, captured, or undetermined.<sup>151</sup>

A compilation from Daily Operations Reports for 15 October-2 November shows a total of only 2,071 casualties over that period: 190 killed, 1,567 wounded, and 314 missing. However, it reports only 60 casualties for 17-18 October, when casualties are known to have been high. On 18-19 October, in place of a daily figure for the 155th Brigade, the DOR reported that two battalions of the 309th Infantry had taken 1,041 casualties since the 15th, but there were no data for the battalion in the Bois des Loges. The 310th Infantry had in those same four days suffered approximately 730 casualties, and the 308th Machine Gun Battalion had had 102 casualties.

There are no figures in the DOR's for 31 October-1 November, although casualties that day were "known to be heavy, but no reports received." On 1-2 November, 213 casualties are reported for the 155th Brigade, none for the 156th Brigade. (McRae said there were over 500). The only gas casualties recorded were 27, all on 29-30 October. DOR figures are in general

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<sup>151</sup>

Lecture, McRae, p. 30; Tng Memo, II.16.

worthless.

The Battle Monuments Commission figure of 5,015, as total battle casualties of the 78th Division at the Kriemhilde Stellung, is perhaps the most acceptable for purposes of computation.

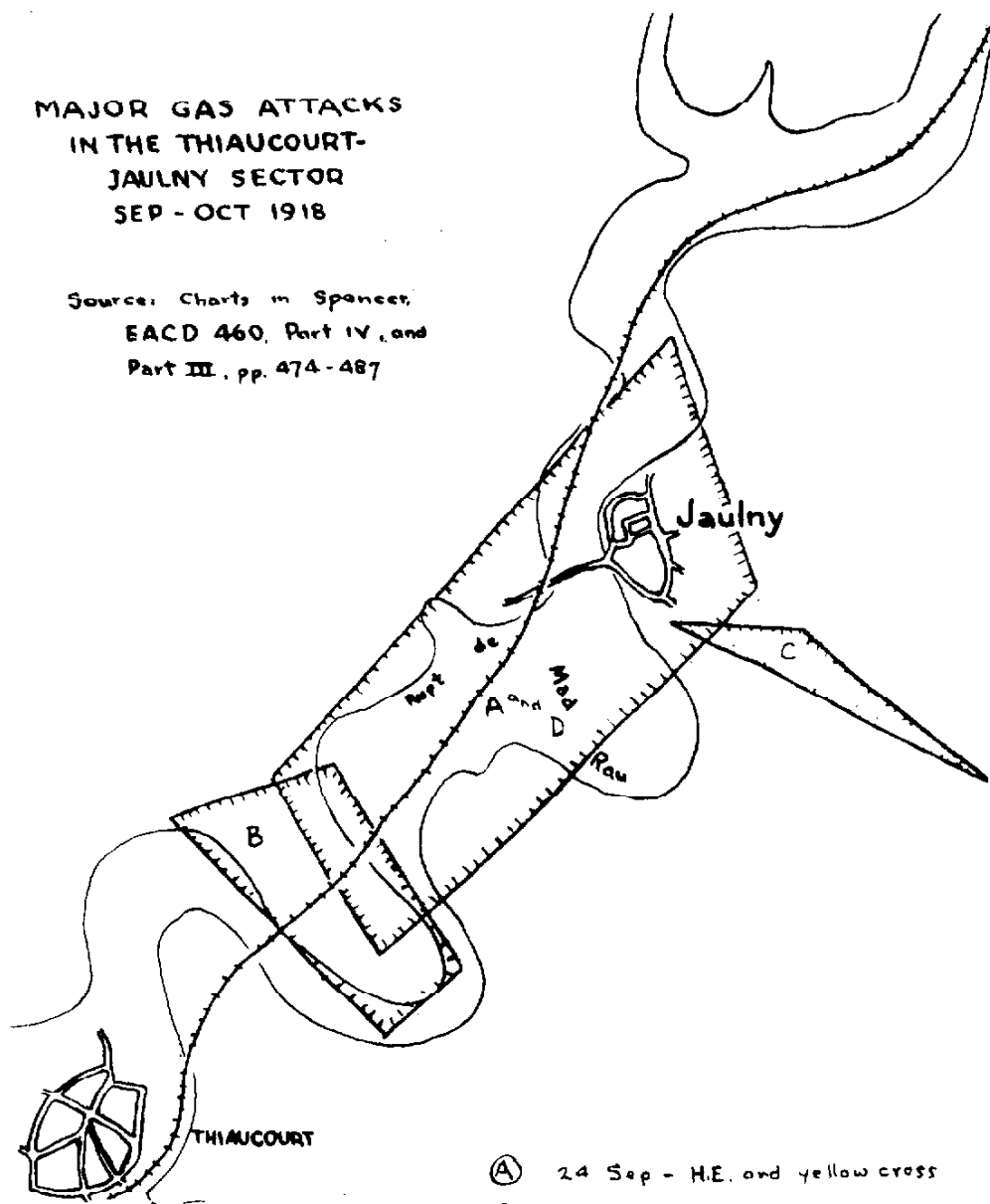
#### Gas Attacks and Gas Casualties

Only bare mention is made of enemy use of gas at St. Mihiel and in the Argonne campaign, and no accounting whatever of gas casualties, in the frequently printed training document of February 1919, based on General McRae's lecture and earlier report of operations to First Army. Yet the division suffered almost 400 gas casualties in the St. Mihiel area, and between 900-1,300 before Grand Pré and the Bois des Loges.

78th Division Summaries of Intelligence for 15 September-4 October, while in the St. Mihiel area, indicate that gas shells fell in the Division sector on fourteen of the nineteen days on that front, with 200 or more gas shells on seven different days. Interdiction of the towns of Thiaucourt and Jaulny, where the 310th and 309th Regiments had their command posts, began almost at once upon the arrival of the troops. Shattering HE bombardments were followed by mustard gassing for three days, 21-23 September, when approximately 1,200 yellow cross shells fell on those towns and the nearby woods. On the night of 27-28 September, almost 450 gas shells landed in and around Jaulny, and on 30 September-1 October almost 1,000 mixed gas and HE shells were fired into the two towns. On 3-4 October, following a raid of the German lines, Jaulny was struck by

MAJOR GAS ATTACKS  
IN THE THIAUCOURT-  
JAULNY SECTOR  
SEP - OCT 1918

Source: Charts in Spencer,  
EACD 460, Part IV, and  
Part III, pp. 474-487



- (A) 24 Sep - H.E. and yellow cross
- (B) 29 Sep - Yellow cross
- (C) 1 Oct - Blue cross (diphemylchlorarsine)
- (D) 3 Oct - H.E. and yellow cross

Notes: Spencer's dates do not agree  
with divisional data in text

MAP NO. 10

2,000 HE and gas shells [3,000 yellow cross shells, the DGO estimated] (Map No. 10).<sup>152</sup>

The divisional DOR's for 15 September-4 October indicate that 111 officers and men were killed, 965 wounded, 131 gassed, and 185 missing in that period, making a total of 1,383 battle casualties. The probable total is over 2,000.<sup>153</sup> There are two Monthly Reports of Gas Casualties for September, one based on hospital records showing a total of 295 gas casualties, the other on Statistical Section records showing 277 cases.<sup>154</sup> But the postwar report of the Division Gas Officer, with data based on the Division Surgeon's records, reveals 325 gas casualties for the period 17-30 September, and an additional 73 gas casualties for 1-4 October.<sup>155</sup> Comparative total evacuated casualties for these two periods are 1,030 and 332. Gas casualties thus constituted almost 30 percent of total hospitalized casualties in the period.

<sup>152</sup>

SOI Nos. 1-19 (78th Div Box 3, 20.1). See gas atk rpts in GAF-78th Div Atks and Spencer, Part III.

"The shelling of Thiaucourt with yellow cross begins tonight" (FM Gp Gorze to Army Det C, 10:40 p.m., 20 Sep, Item 614/23, Annexes to WD, Army Det C, German Files Box 107).

<sup>153</sup>

DOR's in 78th Div Box 7; 78th Div Sum of Opns (Amer Battle Monu Comm), p. 16, shows 2,035 killed and wounded at St. Mihiel.

<sup>154</sup>

GAF-78th Div Casus.

<sup>155</sup>

Ltr, DGO to C CWS, 25 Jan 19 (GAF-78th Div Sum). Spencer's account of 17 gas attacks in the period 17 Sep-3 Oct (EACD 460, Part III, pp. 468-488) show a total of 210 gas casualties.

Gas shell was apparently used by the 78th Division just once in the St. Mihiel area, in a brief barrage with yperite, put down on the night of 25-26 September, prior to the corps-wide demonstration on the German lines. The sole record of the mission is an exchange of memoranda concerning the failure of one of the batteries to "get its mustard concentration off in time."<sup>156</sup>

In the fight at the Kriemhilde Stellung, the 78th Division did not meet with any of the relatively heavy German gas bombardments, involving 1,000 or more rounds on a single target, that were experienced by American troops between May and September 1918. The supply of German artillery gas shell became critical in October, one result of which was a succession of changes in enemy gas tactics. These were noted in Captain Smith's Report on Gas Attack of 18-19 October:

German gas tactics have changed from small attacks of three or four shells in a small area to the constant dropping of gas shells in different parts of the town [of Grand Pre]. As a result the town is soaked with light concentrations of gas in every cellar and low place. It is impossible to avoid running into these faint concentrations. The men evacuated were those who were near shells when they exploded. They received severe amounts of gas.

As a consequence, casualties were said to be unavoidable, despite the good gas discipline of the division. A later report added: "The enemy has made continuous use of large quantities of gas all along our whole front and back areas - a few shells at a time, with equal amounts of Blue, Green,

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156

Memo, Actg Opns O, 308th FA for CO 1st Bn, 27 Sep, n.s.; Memo for CG 153rd FA Brig, 27 Sep, sub: Rpt of 308th FA in the opns of Sep 26th (78th Div Box 27, 32.12).

and Yellow Cross.<sup>157</sup>

Of the series of gas attacks between 17-19 October, which Captain Smith, the Division Gas Officer, reported as causing 72 casualties, while the Division Surgeon counted 400 and hospital lists reveal 867 (narrative, pp. 22, 23, 24), Smith said later:

The gas casualties on October 18th were exceptionally heavy due to the exhausted condition of the men, the fact that they were attacking and the use of gas shell mixed with H.E. by the enemy in his counter barrage. Our men went into the line on a rainy, cold night - there was considerable confusion - they were to attack the next morning and had to proceed over ground which they had never seen and were in an exhausted condition. They went forward and advanced meeting greater difficulties than gas. Consequently some of the men did not wear their respirators where they knew they should have done [sic], due to having their vision impaired while advancing through heavy shell fire. Even under these conditions, the greatest percentage of casualties that were sent in as "gassed" were rather more exhausted than gassed. A small number of casualties were due to the masks being damaged by shell fire. Many were due to men having to advance through a river, where the water was shoulder deep and the canisters were ruined. A small percentage of casualties was also due to both men and officers neglecting to appreciate the danger of light concentrations of mustard gas.<sup>158</sup>

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157

Ltr, DGO to C CWS, Def Div, 21 Oct, sub: Use of Gas by the Enemy (GAF 78th Div Sum). See also ltr, CGO 1st C to C CWS 10 Nov, sub: Monthly Rpt, October (GAF-1st C).

The exhaustion of stocks of German gas shell is discussed in A. M. Prentiss, Chemicals in War (McGraw-Hill, 1937), p. 490. Here may be added the observation of the CGO 1st A, who said that the increased use of gas by American artillery between 26 Sep and 11 Nov was because our infantry "feared less the possibility of retaliation by the enemy" (Hist of CWS, AEF, Vol. V, p. 26, based on Rpt of Opns, CGO 1st A to CG 1st A, 25 Nov, in SOS Hist Box 249).

158

Ltr, DGO to OC CWS Def Sec SOS, 2 Nov, sub: Monthly Rpt (1st A Box 341, 78th Div).

Captain Smith's account appears to imply that most of the gas casualties were incurred during the attack in the early morning of the 18th, while the records indicate that the first of the gas attacks was not observed until later in the day, when the rain had stopped. He said nothing in his report about a final count of casualties and, as seems evident, showed no awareness of their real number or the effect of this loss to the division on the subsequent course of the campaign.

In his weekly report for 19-26 October, Captain Smith said that gas shells were being included in every HE bombardment, but that the amount of gas was steadily decreasing. The daily gas casualties admitted to the gas hospital over the past six days (20-25 October) had numbered 46, 44, 39, 5, 16, 8, with five deaths. Half of the admissions, he said, were probably exhaustion cases rather than gas casualties.<sup>159</sup>

After the war, the Division Gas Officer summed up the recent experience of the 78th: "The number of gas shells actually used in the Argonne sector cannot be estimated, although a very large amount of gas was encountered. The enemy used more or less gas in every HE bombardment over our entire forward area, and troops were almost constantly exposed to a greater or less concentration."<sup>160</sup> The same letter repeated

<sup>159</sup>

Ltr, DGO 78th Div to CGO 1st C, 27 Oct (GAF-78th Div, Summaries). The Corps Gas Officer seems not to have used Smith's figures; "On account of the scattered nature of the attacks (this week) it has been difficult to ascertain the exact number of casualties. The 78th Division reports 118 casualties, mostly light with five deaths" (ltr, CGO 1st C to CGO 1st A, 31 Oct, sub: Rpt of gas attacks for week ending 18 hrs Oct 26. In 1st A Box 339, Gas Rpts, CGO 1st AC.

<sup>160</sup>

Ltr to C CWS, 25 Jan 19 (GAF-78th Div, Summaries).

the meager gas data of the Summaries of Intelligence, and gave a fairly complete account of the gas training of the division while at Camp Dix and in France with the British Army. It does not seem necessary to recapitulate the training story here.

Daily Reports of Casualties to the Office of the Chief Surgeon, 1st Corps, for the period 15 October-8 November show only hospitalized casualties: 1,522 wounded, 521 gassed, 154 injured and 1,580 sick.<sup>161</sup> However, the small total of 22 wounded, 16 gassed, 8 injured, 56 sick, for the period 15-19 October, when the initial costly assaults on the Bois des Loges and Grand Pré were made, tends to throw considerable doubt on the above totals.

The Monthly Reports of Gas Casualties, prepared by the Division Gas Officer, show a total of 674 gas casualties and 7 deaths at the Kreimhilde Stellung in October and 35 gas casualties in the first week of November, or 709 gas casualties.<sup>162</sup> But in his letter to the Chief, CWS, on 25 January 1919, Captain Smith reported gas casualty figures copied from Division Surgeon records of 910 gas cases received by the division gas hospitals between 1 October and 8 November and 43 additional cases from other divisions. There were also 7 gas deaths.<sup>163</sup> A comparative figure

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<sup>161</sup>

1st A Box 250, CS G - 4 (sic).

<sup>162</sup>

GAF-78th Div Casu.

<sup>163</sup>

GAF-78th Div Sum.

of 3,272, as the total evacuated casualties for the period, is also given. With these data, gas casualties represented a little over 28 percent of total evacuations. Even if the more or less official figure of 5,015 combat casualties in the 78th Division at the Kriemhilde Stellung is used, the result is 16 percent, a fairly high proportion considering the persistent reluctance of the division or the Division Gas Officer to acknowledge gas casualties.

One other source of data, the gas hospital admission lists for the 78th and 82nd Divisions, shows considerable variance with the previous figures of 709 and 910 gas casualties. The total of these gas admission lists is 1,279 (see chart, page 69).

The discrepancy between the three gas figures lies principally in the records of gas casualties in the opening days of the attack. It is not impossible to see how the Division Gas Officer, thinking in terms of gas attacks and resultant gas casualties in the divisional sector, failed to record gas cases treated by neighboring divisions; but the Division Surgeon files have partial records at least of these casualties. Nevertheless, the histories and other reports of the office and units of the Division Surgeon contain remarkably little gas data for the operation, and what medical data are available appear for the most part in Division Gas Officer correspondence. No report or mention has been found of a Division Medical Gas Officer in the 78th Division.

Gas Casualties - Field Hospital Admission Lists

	309	310	308	311	312	309	303	308	309		TOTAL
	Inf	Inf	MG	Inf	Inf	MG	Eng	FA	FA	Other	
17 Oct	2	3		25	8						38
18	65	75	14	36	18	2		2			212
19	242	154	53	44	9	4			3		509
20	36	45	8	5	5	3	1	1		4	108
21	30	18	7	4	33			2		1	95
22	7	10	1		25	3	4		1	11	62
23	2	2		1	2				1		8
24				1	9	1	1	1	2		15
25	2			2	5					1	10
26	2	1		2	39				1	3	48
27	2			1	13					3	19
28	3			4	5	8		2			22
29	3		3	11	3	2				1	23
30		3	22				17				42
31		2	4	22		5	3		1		37
1 Nov	1	2								6	9
2	6	4	1				1			1	13
3	2	1					1			5	9
	405	320	113	158	174	28	28	8	9	36	1279 *

\* Based on daily casualty admission lists of 309th FH (Med Dept Box 3860), 310th FH (Box 3862), and 326th FH (Box 3905). Gas casualties received by the 326th FH (82nd Div) and included in the chart above were as follows:

	309	310	308	311	
	Inf	Inf	MG	Inf	TOTAL
18 Oct	62	67	14	0	143
19	188	108	4	3	303
20	16	11	5	3	35
21	15	4	0	0	19
22	1	2	0	0	3
	282	192	23	6	503

It is known that the 310th Field Hospital opened at Lancon on 16 October, with its dressing station at Malassie Ferme.<sup>164</sup> The 309th Field Hospital opened at Apremont on 17 October, with its dressing station at Marcq.<sup>165</sup> It was planned to make the 310th Field Hospital the division gas hospital, but the roads were such that 78th Division gassed and wounded from north of the Aire (i.e., the 155th Brigade) drained into St. Juvin where the 82nd Division gas hospital was located.<sup>166</sup> The 309th Field Hospital was at once directed to accept gas cases as well. As a result there were three, later four (i.e., the 42nd Division), hospitals in the area collecting 78th Division gas casualties.

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164

"Immediately after arriving there the gas patients started coming in....No less than 445 gas patients were handled at Lancon with seven deaths, the result of very badly gassed conditions of patients." Hist of FH 310 (Med Dept Box 3842, fol 34).

165

"Between Oct 17th and Nov 3rd we handled a large number of gas cases under very trying conditions." Hist of FH 309 (Ibid., fol 31). For an account of the gassing of the 3rd Bn aid station, 309th Inf, at St. Juvin on the 17th, see draft of lecture by Div Surg, Medical Work in the 78th Div in France, 10 Apr 19, in Med Dept Box 3842, fol 8).

Severely gassed patients at Lancon and Apremont were transferred to the gas hospital at Jubecourt, 29.8 km away, and then either to Gas Hospital No. 4 at Rarecourt, 39.3 km, or Amer Red Cross Hosp No. 110 at Villers-Daucourt, 40.1 km.

166

Ltr, Col G. M. Ekwurzel, Div Surg to C Surg AEF, 31 Mar 19, sub: Historical rpt (Med Div Box 3841, fol 1). See also ltr, Dir Field Hosp to Col B. K. Ashford, 4 Apr 19, sub: Questionnaire (Med Dept Box 3842, fol 30) who said that 10% of men tagged as gassed "turned out with other causes." Of the gas casualties 40% were asphyxiation cases, 60% mustard cases.

The above chart therefore represents a compilation of gas casualties accepted by the 309th and 310th FH (78th Division) and the 326th FH (82nd Division). The total here of 1,279 should be further increased by 41, representing 309th and 310th Infantry gas casualties triaged by the 42nd Division, on the right of the 82nd.<sup>167</sup>

Turning for a moment to the German records, the total acknowledged gas casualties in the enemy units opposite the 78th Division, as reflected in their available records from 16 October to 7 November and cited in the narrative, are only between 250 and 300, an apparently ridiculous figure considering the large quantities of gas expended by the artillery of the 78th and 82nd Divisions, as well as corps and army artillery. The figure of 210 casualties on 31 October appears low enough, but it seems improbable that there could have been no more than 3 gas casualties produced by the 2,338 rounds of phosgene fired into the Bois de Bourgogne on 23 October. German gas casualties are still the best kept secret of the war.

There is, on the whole, little consistent agreement between German and American reports of gas attacks, and only the most meager data. An estimation of the total number of gas rounds fired by German artillery between 16-30 October is therefore largely guesswork. If, as the 78th Division Gas Officer said, "The enemy...made continuous use of large quantities of gas all along our whole front and back areas - a few shells at a time," then it may be assumed that the bombardment with 300 yellow cross shells reported

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<sup>167</sup>

Ltr, Div Surg 42nd Div to Div Surg 78th Div, 26 Oct, sub: 78th Div Casualties triaged by the 42nd Div (Med Dept Box 3844.)

on the night of 28-29 October was one of the largest single enemy gas shoots. By accounting for every report of gas fire, enemy and friendly, it may be assumed that a minimum total of between 3,000 and 4,000 gas rounds were fired by the enemy during the period.

No estimate of the total amount of HE fired by the German guns, rifles, and mortars can be made and therefore no comparison is possible with HE wound casualties, but on the basis of 3,000-4,000 rounds of gas shell, at a cost to the 78th Division of over 900 gas casualties, it seems clear that a gas casualty was produced with the expenditure of every three to five gas shells.

Perhaps the best commentary on the effectiveness of German gas shelling on the 1st Corps front in October 1918 appears in a report of the 82nd Division Gas Officer on the gas casualties inflicted in that division, which entered the line on 7 October and after 15 October fought alongside the 78th. (Note that this report appears to corroborate the data in the 78th Division gas casualty chart, page 69).

There have been no straight gas attacks put over by the enemy during the time the 82nd Division has been holding this present sector, but gas shells mixed with H.E. have been put over both in the front line and back area every day and night during this period. Also, weather conditions and character of terrain have been such as to increase the persistency of gasses used, more so than would ordinarily be the case....

To date (i.e., 7-23 October), 2315 cases of gassing or suspected gassing have been passed through the 326th Field Hospital....Of these cases, 1443 were 82nd Division men and 872 men from other organizations.

It has been impossible to make an exact analysis, but the following figures are considered as being conservative, giving a fairly accurate summary of actual conditions, an estimate, however.

Gas deaths. . . . .	9
To hospital . . . . .	1443
Returned to duty . . . . .	102
Ready for duty after	
10-day rest . . . . .	1196
Lightly gassed. . . . .	79
Severely gassed . . . . .	66

After the men had been in the line for a few days, living and fighting almost without protection, in continuous bad weather and with varying concentrations of gas almost continuously about, their resistance was much lowered and they were more easily knocked out by slight concentrations of gas. Added to this, large numbers who had whiffed gas, but who in reality were suffering from exhaustion or physical collapse, were sent back to the Hospital. The resultant confusion because of the large numbers constantly coming in prevented any systematic segregation and in consequence they were nearly all evacuated as gas casualties....

Gas defense discipline within the Division is good. All units are being kept properly equipped, the men understand how and when to use their respirators and appreciate the protection against gas afforded thereby.<sup>168</sup>

Like the 78th, the 82nd Division was subjected to attrition of its forces as it mounted attack after attack on the enemy troops holding the Kriemhilde Stellung. So exhausted and reduced were its forces at the end of October that 1st Army ordered the 82nd to reserve on 30 October and on 2 November the division was "relieved as Corps Reserve...and...withdrawn from the front for rest, refitting, and training."<sup>169</sup> It could take no part in the subsequent pursuit of the retreating German army.

<sup>168</sup>

Ltr, DGO 82nd Div to CG 82nd Div, 24 Oct 18, sub: Gas Casualties (1st A Box 341, 82nd Div).

<sup>169</sup>

FO 95, 1st A, 30 Oct; FO 34, 82nd Div, 1100 30 Oct, reported its relief by the 77th and 80th Divs on the night of 30-31 Oct (82nd Div Box 7, 33.6, Spec Rpts of Opns).

### First Army Employment of Gas

The principal evidence for assuming that the yperite of the right and left flanks of the Army front was a deliberate plan of First Army headquarters is the pattern established by the succession of field orders in September and October 1918, and the map included here as Map No. 6. Not a word of this gas plan or pattern, described in the narrative (pp. 37 - 40), appears in the 66-page Summary of Operations prepared by the First Army shortly after the war. This summary, furthermore, says nothing about the effect of enemy gas on the Meuse-Argonne campaign or about the extensive employment of gas by Army itself on enemy forces and terrain. Yet enemy gas was a principal factor in the delays and difficulties of that campaign, and accounted for 20 percent of the total casualties.<sup>170</sup> And First Army artillery and its corps and divisional components fired a total of 85.8 tons of gas shell in the campaign.<sup>171</sup>

<sup>170</sup>

Memo, ACS G - 4 for CGO 1st A, 25 Nov 18, sub: Gas Casualties in the Argonne-Meuse Opns (Hist of CWS AEF, op cit, pp. 150-153). Between 27 Sep-16 Nov, 18, 570 of the 92,022 battle casualties admitted to hospitals were gas cases.

<sup>171</sup>

An unsigned, undated memo in GAF-1st A gives a breakdown of special shell (fillings not given) allocated for the Meuse-Argonne Opn, 26 Sep-11 Nov, as follows:

	75mm gas shell	105mm gas shell
1st Corps	101,402	389
3rd Corps	74,977	1,380
5th Corps	65,630	630
Army Arty	12,666	-
French Arty	19,815	-
	274,490 [sic]	2,399

The only references to gas warfare in the Army's Summary of Operations are to the gas shelling of positions on the right flank by enemy batteries east of the Meuse, at the beginning of the operation, and to the enemy gas-  
sing of the Aire Valley on 4 October.<sup>172</sup>

Although Army and Corps interest in the use of gas in the offensive seems clear from the records examined, Army did not achieve until late in its operations, and then largely by force of circumstances, a real understanding of the use of gas, particularly persistent gas, in an offensive operation. The initial field order for the St. Mihiel operation early in September, for example, had no gas plan whatever. The sole reference in the order for the attack began, "If gas is used...."<sup>173</sup> The Army order for the Meuse-Argonne operation, on 20 September, indicated awareness of the need for firmer gas direction, in its order to use persistent gas on the right flank and non-persistent gas on the left and center. In the

171 (cont'd)

Based on rpts of GO's, 1st, 5th, and 3rd C, DGO's and 1st Gas Regt, a memo from Lt P. W. Meserve, CWS, OCGO 1st A, for CGO 1st A, 11 Jan 19, sub: Statistics on Gas Offensive Opns, Meuse-Argonne Opn (GAF-1st AC), said that gas fired in that Army offensive totaled 85.8 tons, with 79.5 fired by arty, 6.3 by 1st GR. This memo shows a total of 35,800 #20 75-mm. shells fired, but no #20 105-mm. or 155-mm. shell, and would therefore seem to be incomplete.

1st Corps data for the Meuse-Argonne campaign are in memo, CGO 1st C for C CWS, 5 Feb 19, and show an estimated 6,180 75-mm. lethal shell and 46,040 75-mm. yperite shell fired by arty, a total of 33.92 tons of gas. With 0.76 tons of lethal gas fired by the projectors and mortars of gas troops, the total gas tonnage in 1st Corps alone was 34.68 tons (1st A box 339, Gas Rpt 1st AC).

172

Mimeo Rpt, Summary of Operations, pp. 10, 48 (1st A Box 52).

173

FO 9, 1st A, 7 Sep, par 3b(6), and repeated in the same arty annex. See Study No. 5, this series, The Use of Gas at St. Mihiel.

seeming vacillation in its directives to corps, Army was slow to acknowledge the use of mustard gas on an attack front, or else it yielded to divisional fears of endangering its troops. (Witness McRae's and Hearn's obvious incredulity that no gas casualties occurred among their artillerymen during the shoot, or among their riflemen while passing the yperited area).

Army's most important decision, dictated by circumstances, to yperite both its flanks for the drive through the center, is mentioned as such nowhere in any Army, corps or division record examined. Beyond the fact that all three corps were assigned, or themselves set up, gas missions, there seems to be no cognizance of an overall plan. Nothing, for example, has been found in 78th Division records to indicate that the division was aware that its gassing of the Bois de Bourgogne was part of a larger Army plan. Although both the commanding general and the artillery commander of the division were proud and vocal over the success of their gas operation, they report it only as a tactical mission of the division. A possible exception to the demurrer may be read into the statement of Maj. George A. Hunt, 1st Corps Gas Officer:

Army Headquarters took over the preparation of the artillery gas program in the third phase of the operation and great emphasis was justly laid on the use of mustard gas. The Bois de Bourgogne, which was to be flanked and not immediately entered by the First Corps, was subjected, along with other important points, to a terrific mustard gas bombardment on the day previous to the attack....The results were...highly gratifying. The gas everywhere caused heavy casualties and in some of the units especially concentrated upon, the losses were as high as 75 percent of their combat strength, according to the official Intelligence Reports.<sup>174</sup>

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174

Ltr copied out by Spencer, no other data, in GAF-Hist of Gas Atks, Misc.

The disproportionate number of pages of First Army's Summary of Operations given to detailing the difficulties of the 77th Division in the Argonne and of the 78th Division before Grand Pré indicates the importance of their operations to the Army mission. From the point of view of the French war leaders, the progress of the First American Army on the Meuse-Argonne front was unsatisfactory. Clemenceau is said to have complained of the slowness of the American Army advance and to have suggested to Foch that Pershing be relieved. Foch, who knew the terrain under First Army attack, and of the German reinforcements on that front, counselled otherwise.<sup>175</sup> In this light, First Army's summary report may be read as a reply to French criticism, and on account of Army gas operations would be beside the point.

#### Divisional Employment of Gas

It is intended here to recount principally the plans for gassing the Bois des Loges. The failure to neutralize this small wood, apparently considered by 1st Corps and Army to be the key to the advance on the First Army front, would seem to have been a tactical error with results out of proportion to its size. Nineteen days were required by the 78th Division to get through the wood, and then only because the enemy had abandoned it.

Frustrated in the initial assaults on the Kriemhilde Stellung, corps said in an erratum to its order of 13 October: "The Corps objective is Coté

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<sup>175</sup>

McEntee, p. 540. Liggett says he knew of the threatened relief only by hearsay. See A.E.F. Ten Years Ago in France, pp. 200 - 03. Cf. Gen Peyton C. March, The Nation at War (Doubleday, Doran) 1932, p. 261.

182-Chevières....Lethal gas will be used to the fullest extent possible in preparing for and assisting the infantry attack, and in causing casualties in rear areas and along lines of communication."<sup>176</sup> When the enemy resistance continued, necessitating the relief of the 77th Division, Army specifically directed the gassing of the Bois des Loges, and its order was implemented by Corps: "The artillery of the 78th and 82nd Divisions will make concentrations of non-persistent gas in the Bois des LOGES until 3 hours 16 October."<sup>177</sup>

While the 78th Division artillery was in no position to fire gas in preparation for the attack, an hour before midnight on 15 October the 82nd Division issued orders for its mission in the corps assault: "Artillery preparation will commence at once. The BOIS DE LOGE will be gassed with non-persistent gas until 5 hours, 16th October."<sup>178</sup> At 1:45 a.m. on the 16th, a 157th FA Brigade (82nd Division) memorandum to the regiments requested notification when the No. 5 gas shell was at their positions. "When the command for fire is given all batteries will fire at the rate of one hundred rounds per gun per hour until each regiment has laid down 3000 No. 5 gas shells in its area." In the margin of this memorandum is the notation: "Cancelled at 3.20."<sup>179</sup> The rain and fog that morning were reasons enough to call off the mission, but it is more likely that the commanding general of the 82nd Division, convinced that the 78th could not attack on time, saw no point in a gas attack.

<sup>176</sup> Erratum to FO 72, 1st C, 1400 hrs, 13 Oct, par 3e (82nd Div Box 7, Opns Rpts).

<sup>177</sup> FO 67, 1st A, 1900 hrs, 15 Oct; FO 76, 1st C, 2100 hrs, 15 Oct, par 3d. Corps was premature in the first par of this order in saying, with reference to the 77th Div unit at Grand Pré: "We have driven the enemy out of Grand Pré."

<sup>178</sup> FO 27, 82nd Div, 2300 hrs, 15 Oct, par IIIc (82nd Div Box 7, 33.6).

<sup>179</sup> 82nd Div Box 24, 33.3; also in Box 23, 32.15 Brig Memos. An overlay shows that the whole of the east side of the Bois des Loges was to be gassed.

Nevertheless, the 82nd Division Daily Report of Operations for 16-17 October reported: "4100 gas shells in BOIS de LOGE and adjoining woods in sector."<sup>180</sup> This is further confusing since this report covers the period from noon to noon, 16-17 October, which would indicate that the Bois des Loges was gassed on the morning of the 17th, rather than the 16th, as ordered. Yet General Duncan of the 82nd, in his letter justifying his inaction on the morning of the 16th, says nothing of gassing the Bois des Loges either that morning or the next, nor do the records of the 78th Division mention it anywhere. It may be assumed that 82nd Division operations reports are in error and that at no time did it gas the Bois des Loges.

The gassing of Champigneulle and vicinity by 82nd Division artillery on the morning of the 18th, in support of the advance of the 78th, is also a confused story. The field order for the mission did not specify the type of gas, but it will be remembered that although 1st Corps had yperite shell, not until 20 October is there formal record that Army lifted its ban on the use of yperite west of the Meuse.<sup>181</sup> The 82nd Division anticipated the revocation by one day.

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<sup>180</sup>

DOR 89 (82nd Div Box 7, M-A Opns Rpts). This rpt seems partially confirmed by Opns Rpt, 17 Oct, 320th FA Regt (82nd Div Box 26, DOR), which reads: "During the night of October 16-17, 2500 rounds gas shell were fired into the wooded areas as ordered by Albany A-1 (i.e., CG, 157th FA Brig) at 1 and 3 o'clock."

Rpt of Ammo, 82nd Div, 1800 hrs, 16 Oct, shows 14,153 rounds of gas shell on hand but none fired that day or the next (82nd Div Box 24, 33.3).

<sup>181</sup>

FO 29, 82nd Div, 2000 hrs, 17 Oct; narrative pp. 43 - 44.

There seems to be no record of any scheduled gas mission by the 82nd on the morning of 18 October (as related in the narrative, pp. 15 - 16), but a gas schedule of its 157th FA Brigade for 18-19 October indicates that a total of 5,100 No. 20 and 1,600 No. 5 shell was to be fired on the 19th on Champigneulle and the areas to the north and southeast. The firing of this mission, with this number of gas shell, is confirmed in a letter from the commander of the 157th FA Brigade to 1st Corps Artillery:

Fire upon this target was executed at 3 hours October 19th, 1918 and the same lasted for one hour and forty-five minutes, forty-eight guns in all participating....The bombardment was started with No. 5 gas, the object being to secure as many casualties as possible by surprise effect. 1600 rounds of No. 5 gas were used followed by 5100 rounds of No. 20 Yperite.... The ravine to the north of Champigneulle was gassed at the same time as the village as our observers had reported that whenever the town was heavily bombarded the Bosche would retreat to the ravine. The approximate area covered by the gas bombardment was two hundred and eighty thousand square meters.<sup>182</sup>

Gas missions on both 18 and 19 October are supported by The Official History of the 82nd Division, AEF: "During the nights of October 17-18 and October 18-19 heavy concentrations of both mustard and non-persistent gas were placed in Champigneulle in connection with the attacks on the Bois des Loges by the 78th Division, which had relieved the 77th on our left."<sup>183</sup> But a history of the 157th FA Brigade, apparently written shortly after the war, said only, referring to these dates: "During the night of Oct. 17-18,

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<sup>182</sup>

82nd Div Box 24, 33.3; ltr and sketch, Maj Gen C. D. Rhodes to CG 1st C Arty, 24 Oct, sub: Gas Bombardment (1st A Box 339, Gas Rpt 1st C).

<sup>183</sup>

Indianapolis: Bobbs, Merrill, 1920, p. 239.

Champigneulle was given 4000 rounds of #20 mustard gas. On the morning of the 18th, the 78th Division...was to make an attack on the Bois des Loges.... The artillery placed concentrations of high explosives on Champigneulle and the areas of BOIS DE LOGES and AGRON RIVER were fired upon, but the 78th did not advance."<sup>184</sup> Here, as in General Duncan's letter and elsewhere, the first phosgene mission is omitted, the date is erroneous, the number of yperite rounds varies, and the mixed character of the second gas mission is not reported.

Available reports of operations of the two light regiments of the 157th FA Brigade would indicate that both the phosgene and phosgene-yperite missions were fired, At 6:10 a.m. and again at 11:30 a.m. on 18 October, a total of 3,800 rounds of phosgene was recorded as fired into Champigneulle and its vicinity, and beginning at 3:00 a.m. on 19 October, 4,600 rounds of yperite and 2,900 more rounds of phosgene were put down on and near that village (narrative pp. 15 - 18).<sup>185</sup>

These dates and data appear reliable and seem to tally with the experience of the 78th. That is, while no reports of results have been found, the phosgene put down on Champigneulle on the 18th, while inadequate in

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<sup>184</sup>

82nd Div Box 22, 11.4.

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Rpt Opns, 320th FA, p. 18 (82nd Div Box 26, 11.4); Rpt Opns, 321st FA, 17-18 Oct (82nd Div Box 27, 33.1, DOR); Hist of Opns, 321st FA, Part II, p. 9 (82nd Div Box 26, 11.4). These figures differ considerably from those of General Rhodes of the 157th, quoted in the brigade history, above.

volume, seems to have taken the pressure off the 78th Division troops before the Bois des Loges, temporarily, at least. But the phosgene and yperite put on Champigneulle the next morning does not seem to have been well advised, for it reportedly hampered the 82nd,<sup>186</sup> and 78th Division operations had shifted to the west side of the Bois des Loges, which was then reinforced with the evacuees of Champigneulle.

The confusion of accounts in after-action and postwar historical reports of the 82nd Division concerning this period, it is suggested, may have been owing to the fury of the fighting at the time and the nearly complete exhaustion of the entire 82nd, from the command on down.<sup>187</sup>

Turning once more to the aborted plans to gas the Bois des Loges, Army and Corps orders to put down phosgene preparatory to the attack on the morning of 16 October were unquestionably cancelled by the circumstances: "The night was dark and rainy; the 78th Division was new to the area, and many commanders were without maps; contradictory orders were issued as to routes of advance....The result was considerable confusion and delay in relief."<sup>188</sup> 82nd Division reports of gassing the Bois on the night of 16-17 October seem in error.

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<sup>186</sup>

FM 383, Gen Duncan to Col Whitman, 1333 hrs, 19 Oct (82nd Div Box 23, 32.16).

<sup>187</sup>

See FM 308, Duncan to G - 3 1st G, 16 Oct (82nd Div Box 23, 32.16, 157th FA FM).

<sup>188</sup>

78th Div Sum of Opns in World War, p. 21.

No new corps order was necessary for the 78th Division plan to gas the western and southern edges of the Bois des Loges for the attack of 23 October (narrative, pp. 29 - 30), and there is no explanation for the failure to use gas in the artillery preparation. It was not a matter of weather, for it was reported "good," with visibility "poor to fair."<sup>189</sup> Moreover, the Bois de Bourgogne was gassed with phosgene that morning. It may have been a problem of supply, although 78th Division records do not say so, nor do they mention the failure to carry out the field order.

In a postwar ground survey of the Bois des Loges, a First Army artilleryman sharply criticized the original Corps plan to neutralize "the edge of the wood by gas and HE without attacking the center of the wood." "The center of the wood is so much higher than the edges that it is possible to fire in places from the center beyond the edges. The neutralization of the edges of the wood was not, and could not be, sufficient to warrant sending infantry around it. It might be interesting to ascertain whether the First Corps plan was prepared from the Plan Directeur or from an actual reconnaissance of the ground."<sup>190</sup> He did not deny the necessity for gassing the Bois des Loges but only the intended target for the gas. He was doubtless aware that the repeated heavy bombardments of the wood with HE had had little or no effect on its defenders, and that the cost in men and time to both the

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<sup>189</sup>

Opns Rpt, 78th Div, 22-23 Oct (78th Div Box 6, DOR).

<sup>190</sup>

Col Conrad H. Lanza, FA, Notes on the Bois des Loges (78th Div Box 3, 18.8).

78th and 82nd Divisions had been excessively high.

Considering that the Bois des Loges was almost the last important obstacle to be cleared in the First Army attack of 1 November, the continued failure to gas that wood with adequate phosgene or mustard reasonably calls for an explanation. None has been found. Gas shell seems to have been in adequate supply in the corps dumps. The mortars and projectors of the 1st Gas Regiment, with their highly efficient projectiles, were available in the 77th and 80th Division sectors. They might well have been used.

A final word on the gassing of the Bois de Bourgoigne. General Pershing, in a rare comment on gas in his memoirs, My Experience in the World War, said of that operation: "Special arrangements were made for the artillery to employ persistent (mustard) gas against the eastern edge of the Bois de Bourgoigne and other selected points."<sup>191</sup> The operation is not mentioned at all in the official American Battle Monuments Commission report on the 78th Division, nor does Liggett, who planned it, mention it in his memoirs.

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<sup>191</sup>

F. A. Stokes, 1931, 2 Vols. II. 373.