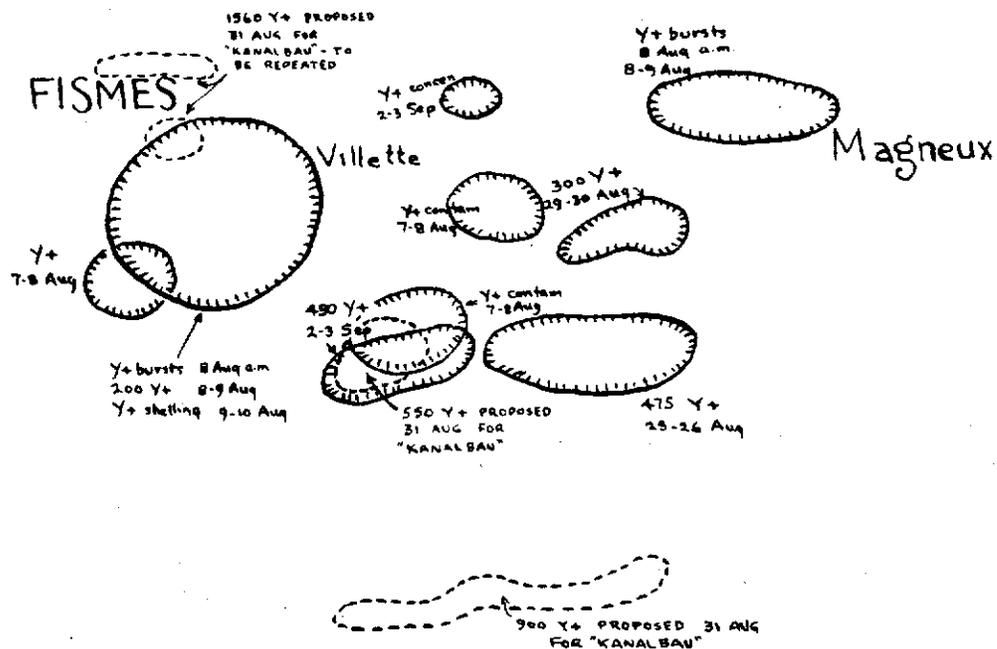
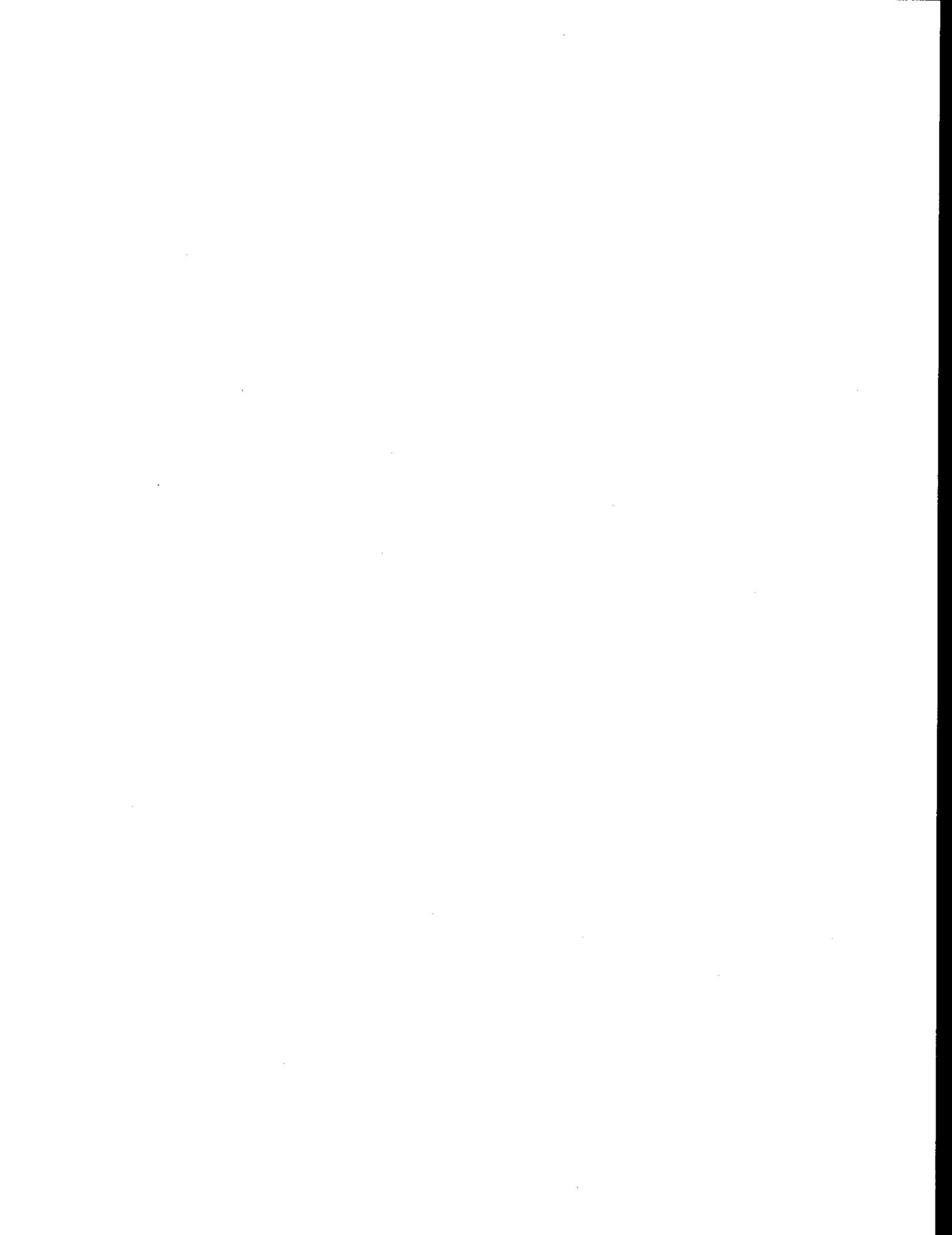


U. S. ARMY CHEMICAL CORPS HISTORICAL STUDIES  
GAS WARFARE IN WORLD WAR I  
THE END OF THE AISNE-MARNE CAMPAIGN  
August 1918



U. S. Army Chemical Corps Historical Office  
Office of the Chief Chemical Officer

Washington, D.C.



The End of the Aisne-Marne Campaign

August-September 1918

by

Rexmond C. Cochrane

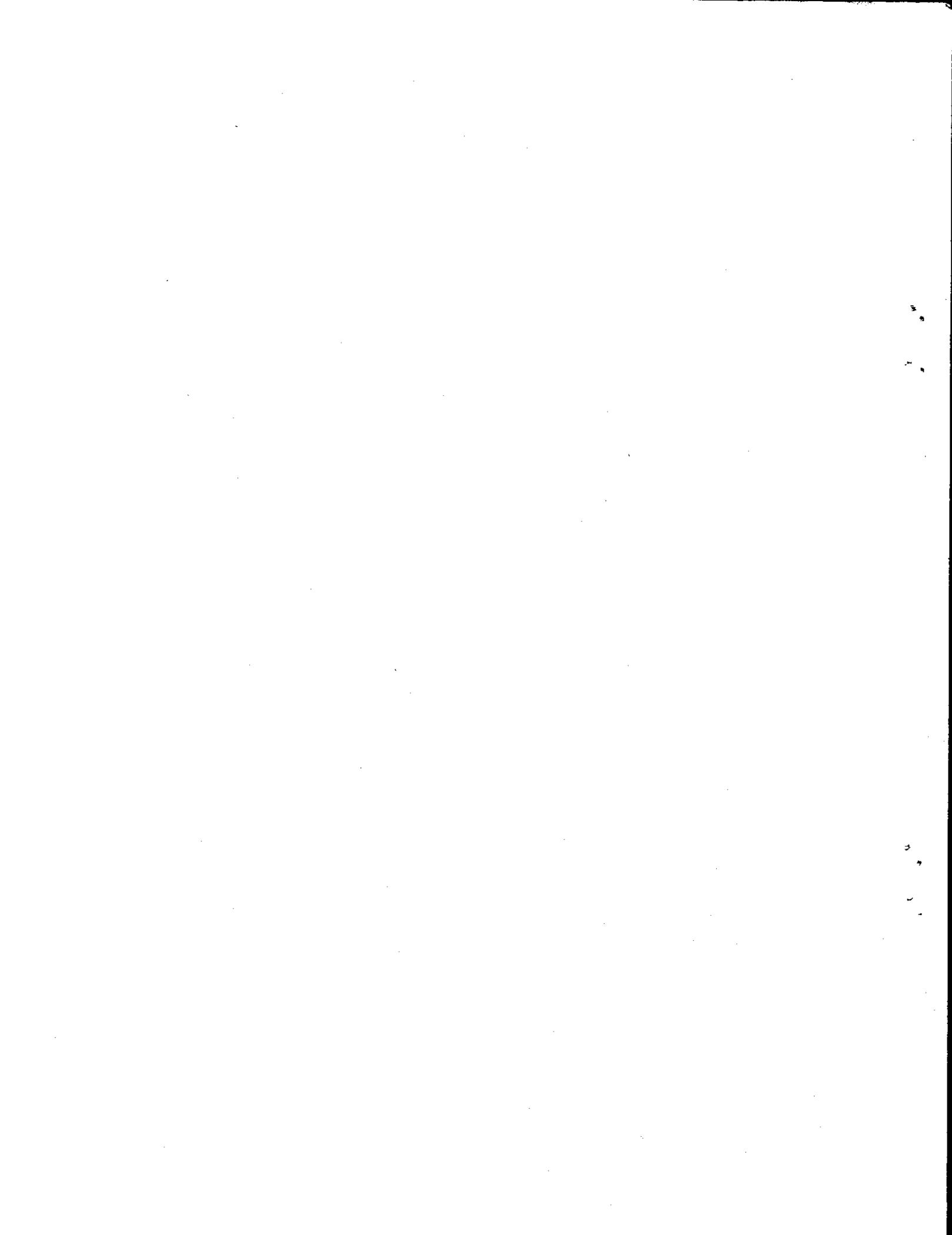
GAS WARFARE IN WORLD WAR I

Study Number 13

U.S. ARMY CHEMICAL CORPS  
HISTORICAL STUDIES

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1960



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Prepared by

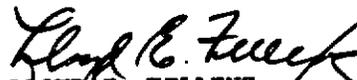
Raymond C. Cochrane, Ph.D.

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.



LLOYD E. FELLEENZ

Colonel, CMIC

Asst CCMLC for Planning & Doctrine

## Foreword

This is a tentative study of the gas experience of the 28th and 77th Divisions 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 Mrs. Charlotte M. Bolin and Mr. Guy F. Goodfellow.

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 END OF THE AISNE-MARNE CAMPAIGN

August-September 1918

## Narrative

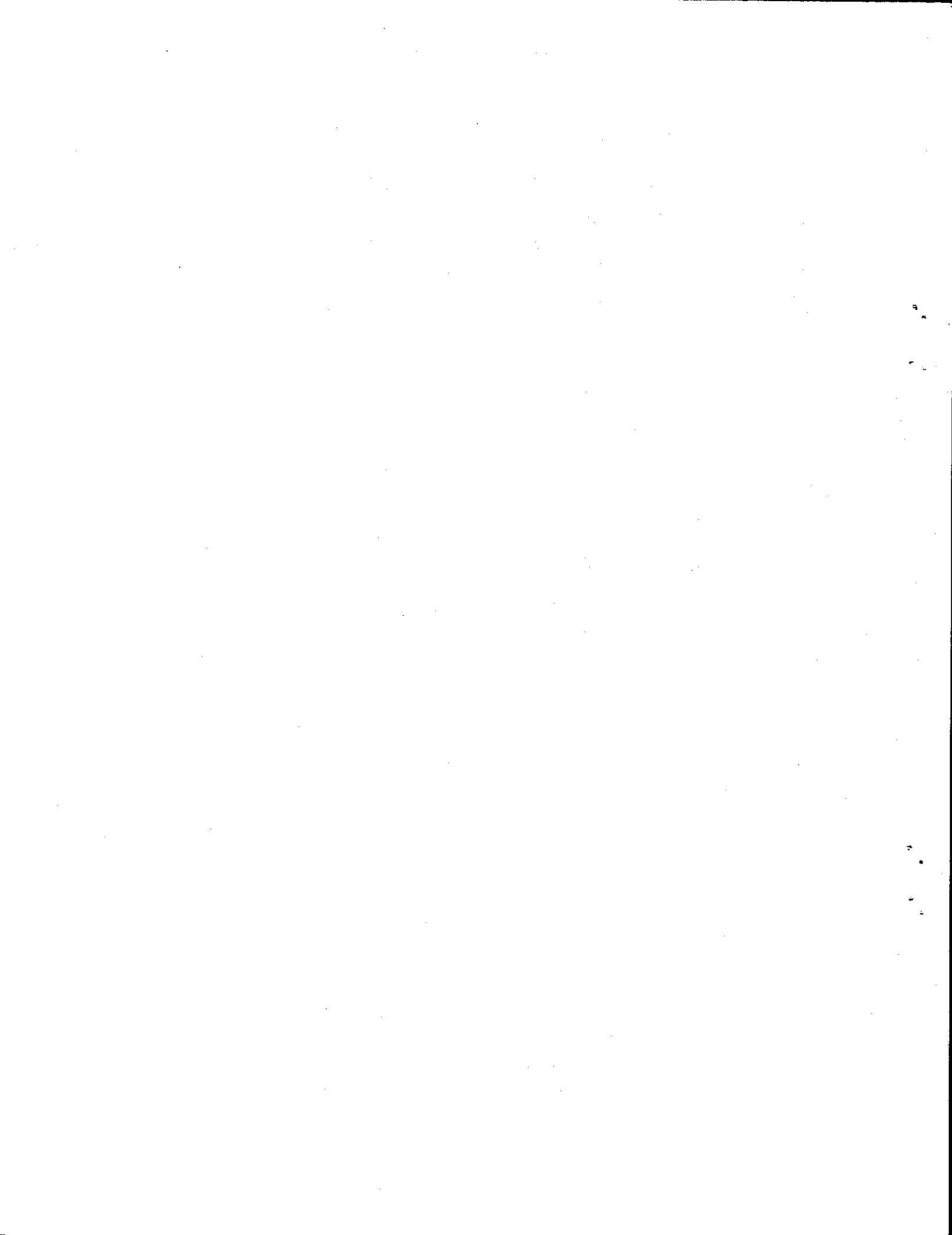
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## THE END OF THE AISNE-MARNE CAMPAIGN

August-September 1918

"Officially the Aisne-Marne Offensive ended on August 6th," a member of the Historical Section, General Staff, GHQ AEF, said, "[although] very severe fighting in continuation of the...operations continued for several days longer in the general effort to cross the Vesle."<sup>1</sup> Essentially correct, this frequently repeated statement in the histories of the AEF nevertheless glossed the facts of the end of the Aisne-Marne campaign.

The campaign began on 18 July when the Tenth and Sixth French Armies, including the 1st, 2nd, 3rd, 4th, and 26th American Divisions, attacked on the west and southwest faces of the Aisne-Marne salient (Map No. 1). Two days later, on 20 July, as the German forces beyond the Marne withdrew over the river, Sixth French Army, including the 26th and 3rd American Divisions, followed the retreating enemy forces as they fell back on successive lines of defense above Chateau Thierry.

By 25 July the retreating Seventh Army had reached the line of the Ourcq. There it held until 1 August, when the pressure of the 42nd, 28th and 32nd Divisions, as well as the successful German evacuation of material and supplies, dictated a further withdrawal. On 3 August the German army was behind the Vesle and there it elected to stand. The high toll, particularly in machine gun and gas casualties, which it had exacted for every kilometer of its retreat from below the Marne, had exhausted the pursuing

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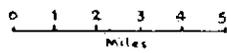
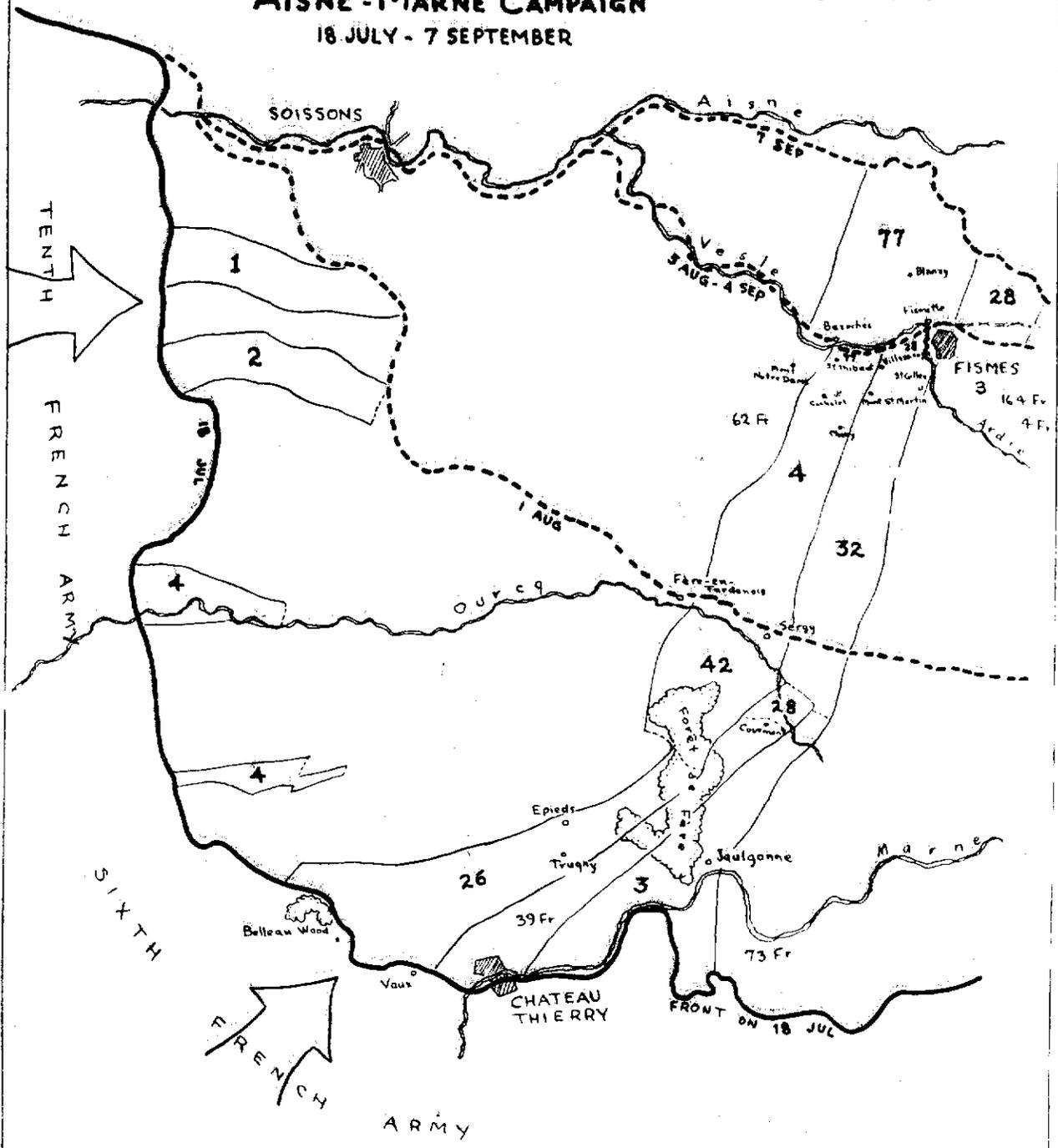
1

Jennings C. Wise, The Turn of the Tide (New York, 1920), p. 236.

# AISNE - MARNE CAMPAIGN

18 JULY - 7 SEPTEMBER

CHEMIN DES DAMES



Source: Based on map in  
Perhing's *My Experiences*  
in *The World War II*, pp. p 210

MAP NO. 1

French and American divisions, one by one. On 6 - 7 August the 32nd Division, after losing almost 2,000 men in two days in its efforts to cross the Vesle at Fismes, had to be relieved by the 28th Division, which had followed in support from the line of the Ourcq.<sup>2</sup>

On 11 August, the 77th Division relieved the 4th Division, which had been on the left of the 32nd, and on 13 August, the 28th Division side-slipped to the right to take over the sector held by the 6th Brigade, 3rd Division, formerly on the right of the 32nd. These two divisions, the 77th and 28th, were to continue the battle at the Vesle, not "for several days," but for a solid month.

The story of that month at the Vesle appears to be a fragment of neglected history. In none of the narratives or histories that have been consulted, not even in the official histories of the divisions concerned, is that story, when mentioned at all, given more than passing treatment. And among the fairly complete documents of the operation, collected in the sixth volume of The United States Army in the World War, is little indication of the nature of the month-long stalemate, and no indication whatever of the magnitude of the German gas operations at the Vesle that were largely instrumental in producing the stalemate.

In the present study the operations of the 77th and 28th Divisions at the Vesle are briefly considered. The emphasis is on the enemy's use

---

2

More detailed accounts of the Allied advance from the Marne to the Vesle appear in Study No. 14, "The 3rd Division at Chateau Thierry;" Study No. 4, "The 26th Division in the Alsne-Marne Campaign;" and Study No. 12, "The 32nd Division Advances to Fismes."

of gas to immobilize these divisions through the month of August, and the equally effective gas tactics he employed during his retreat from the Vesle to the Aisne in early September. It is estimated that German gas exacted well over 6,000 gas casualties among American divisions alone during the month at the Vesle.

#### The German Defense at the Vesle

Detachments of Maj. Gen. Charles H. Muir's 28th Division, caught at Marne when the Germans advanced on 15 July, fought their way out of encirclement, assisted the French in the counterattacks on 16 and 17 July, and re-established the line that had been established below the Marne as the Germans began their withdrawal from the salient. On 22 July its 56th Brigade was sent to assist the 26th Division at Epieds,<sup>3</sup> and on the night of 27 - 28 July, with the 55th Brigade joined, the division relieved the 39th French at Courmont-Cense, crossing the Ourq that day. It was itself relieved by the 32nd Division on 30 - 31 July and followed that division in support. It relieved the 32nd at the Vesle.<sup>4</sup>

At noon on 7 August, as the relief of the 32nd was completed, the 28th Division advanced, with orders to cross the Vesle and continue on to the plateau four kilometers above Fismes. On its left was the 4th Division (I Corps), on its right the 6th Brigade, 3rd Division, in the line assisting the 4th French. The 3rd Division and 4th French with the 28th and

<sup>3</sup>

Study No. 4, "The 26th Division in the Aisne-Marne Campaign," pp. 44

<sup>4</sup>

28th Div Sum of Opns, Amer Battle Monu Comm, 1944. pp. 6 - 7

32nd Divisions, comprised Maj. Gen. Robert L. Bullard's III Corps. Cross the river were the 4th Guard and 216th Divisions of Corps Wichura.

Late that night three companies of the 28th were over the river fighting in Fismette, and the weary 32nd, making its way down to its bivouac area near Clerges, was ordered to turn around and prepare to move up to Lesson Farm in close reserve, to support the anticipated further advance of the 28th.

The 32nd Division artillery had remained in place, in the Fond de Mezières, and had been augmented in the sector by that of the 28th Division for the attack above the Vesle. Corps Wichura knew where it was: "According to reconnaissance reports the principal mass of enemy artillery in the 4th Guard zone of fire (around St. Gilles and in the Orillon valley) has been brought into position. This must be shelled according to plan.... Under favorable weather conditions yellow cross will be spent lavishly."<sup>6</sup>

The German gas missions for the night of 7 - 8 August included infantry as well as artillery targets that German observers had located. 4th Guard reported that early on the morning of the 8th it had shelled the Ardre bottom [Grund] with 655 rounds of yellow cross (mustard gas) and had put yellow cross rafales<sup>7</sup> along the Ardre valley [Tal], in Villesavoie, and in the

<sup>5</sup> FO 10, III Corps, 6 Aug (III Corps Box 19, 32.1); FC 36, 32nd Div, 2100, 7 Aug (32nd Div Box 3, 32.1).

<sup>6</sup> Corps Wichura Arty Order Ia 233, 7 Aug (4th Gd annexes to MD, CFB 147, fol I, p. 210). Note: German Files Box will henceforth be abbreviated to GFB.

<sup>7</sup> Rafale ("squall") fire was a sudden burst of several rounds or more of rapid fire from each of the guns of a battery.

woods southwest of that village. From 0300 to 0500, five field batteries of the 216th Division carried out a yellow cross contamination shoot on the woods and roads south of Villette, and from 0500 to 0530 put yellow cross on the woods east of Fismes and along the northern edge of Magneux. On the night of 8 August three batteries of the 216th again contaminated the woods east of Fismes with 200 rounds of yellow cross, and the next morning repeated the gassing of Magneux and the nearby woods (Map No. 2 and Overlays 1 and 2, inside back cover).<sup>8</sup> Standing orders of the 216th Division read: "The section of Fismes east of the Fismes-St. Gilles-Blanc road and south of the railroad will continue to be held under slight harassing fire....If the weather is favorable, contaminate with yellow cross."

Of this contamination fire the 28th Division on 7 - 8 August reported only that Fismes had been shelled with gas and HE. But the next day the division said that almost 1,000 77-mm. and 150-mm. gas shells had fallen along its front. The enemy artillery was systematic, said G - 2, and obviously had accurate knowledge of all battery and troop positions.

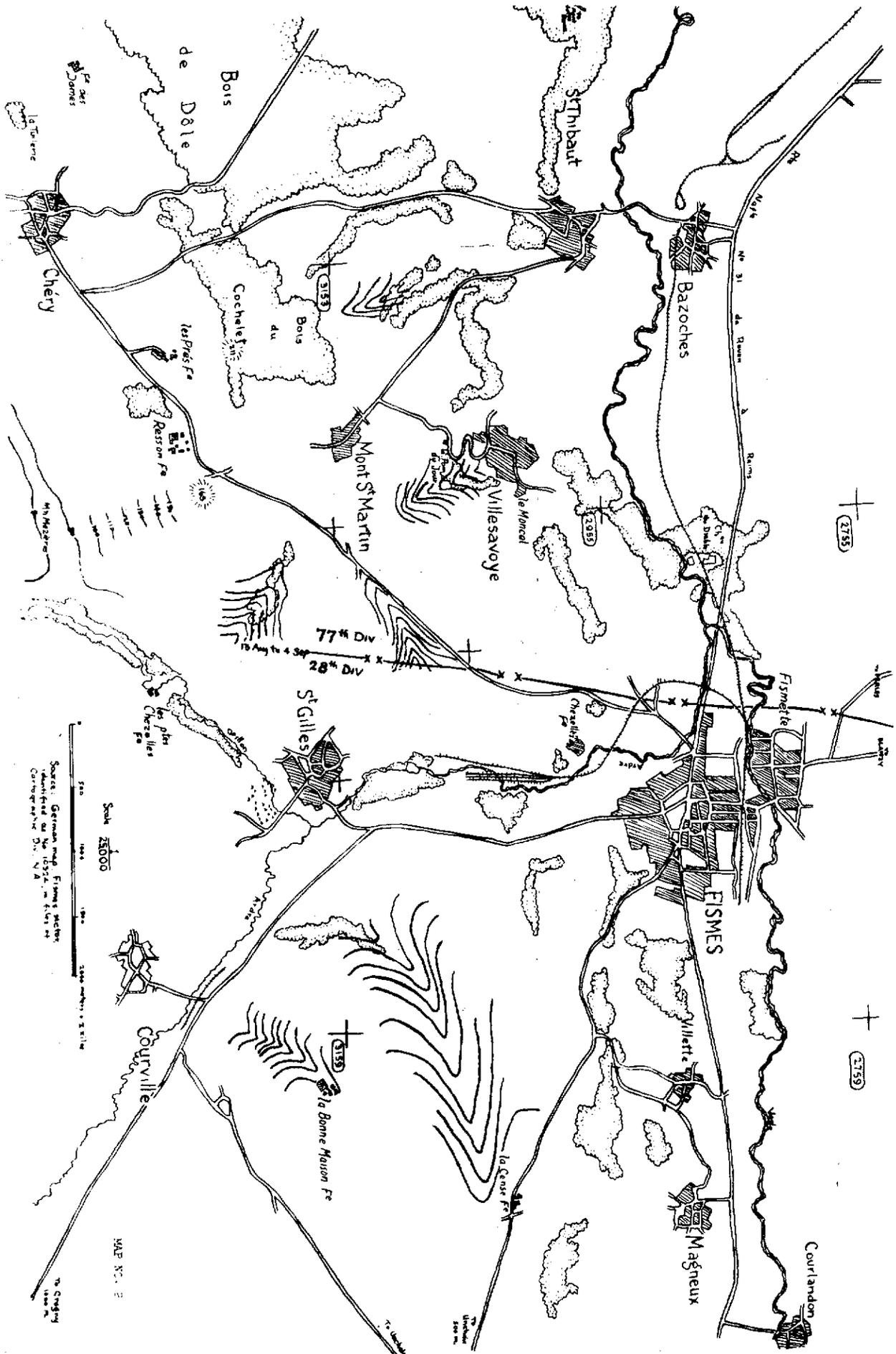
8

Morning rpt, 4th Gd to Wichura, 8 Aug (Corps Wichura WD, GFB 120, fol I, pt 1, p. 183; 54th FA Regt (216th Div) WD, 8 and 9 Aug (GFB 200, fol III, pp. 180 - 81); Evening rpts, 4th Gd and 216th Divs to Wichura, 8 Aug (Corps Wichura WD&A, GFB 121, fol I, pt 2, p. 186).

Arko 216 WD, 8 Aug (GFB 220, fol III, p. 163), reported only the contamination of the northern part of Magneux on 7 - 8 Aug. 216th Div Order Ia/Ic 1734, 10 Aug (ibid., fol II, pp. 11 - 12), says the Magneux area was gassed again on the morning of 9 Aug.

9

216th Div Order Ia 1728, 9 Aug (GFB 220, fol II, p. 8).



Scale 25000

Source: German and Finnish maps  
 Modified on the 1932 edition of  
 Composite Div. N.A.

MAP NO. 2

To Castry

2755

2759

77<sup>th</sup> DIV  
 28<sup>th</sup> DIV

FISMES

Courville

La Bonne Maison Fr

Magneux

Courlondon

Chézy

Bazoches

Villesavoie

St Gilles

Mont St Martin

St Thibaut

Bois de Dôle

Bois du Cochelet

Fismette

Willarté

La Mancel

Ouvillie

Reisson Fr

la Tourne

1<sup>er</sup> armée

la Genet Fr

la Genet Fr

la Genet Fr

Nr 31 de Basse

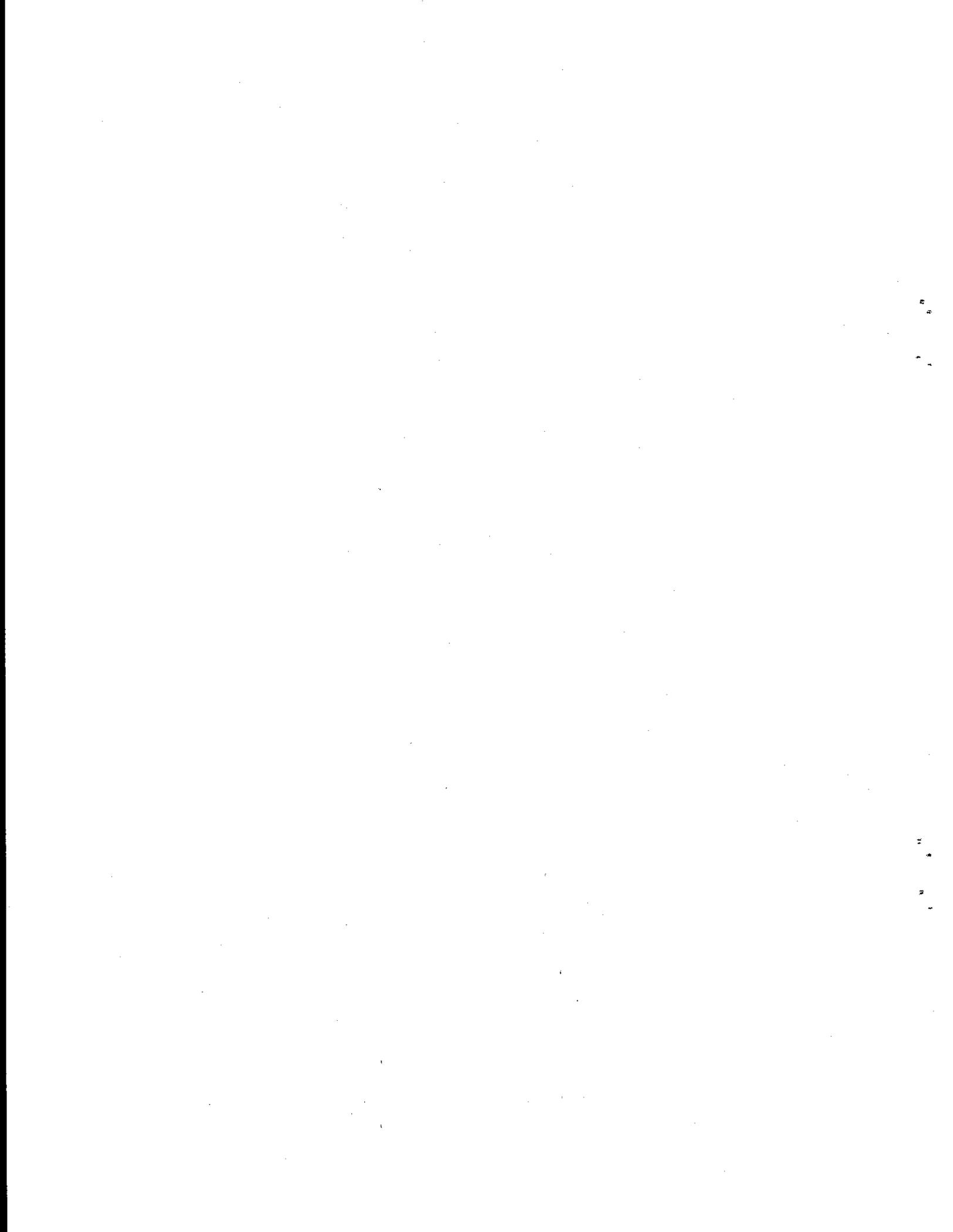
Basse

la Mancel

la Mancel

la Mancel

la Mancel



For the period 7 - 9 August the 28th Division was to report 41 killed and 168 wounded -- almost all occurring in the advance across the Vesle -- and 128 gas casualties. The actual gas casualties on these three days totaled 265, with another 196 on 10 - 11 August.<sup>10</sup>

A week passed while Army and corps orders and messages daily urged the 28th Division and the 164th French to establish more small bridgeheads across the Vesle and send out reconnaissance parties and company-size combat patrols "with a view to deepening and broadening the bridgeheads." The 28th Division, clinging to the cellars of Fismette, could do no more than put a few companies across the railroad tracks below Bazoches and into the Bois de Chateau du Diable. Once across, reliefs and rationing of the men had to be carried out at night, so vicious was the fire by day. On the right, the 6th Brigade, 3rd Division, brought up to assist first the 4th French and then the 164th French, made repeated crossings over the Vesle, but each time was driven back by the machine guns lining the bluffs to the east, north, and northwest of Fismes.<sup>11</sup>

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10

SOI 5 and 6, 28th Div, 7 - 9 Aug (28th Div Box 3, 20.1); Analysis, p.39. Cf. Ltr, Capt Bell, 32nd Div IC with 28th Div to Col [Arthur L.] Conger (G - 2 GHQ AEF, then at 28th Div hq), 10 Aug (32nd Div Box 11, 33.61): "The G - 1 officer gave me the casualties of Aug 8 to Aug. 9 as...133 wounded and 172 gassed. (I found this figure surprising.)"

11

FOs 11 - 13, III Corps, 8, 9, 12 Aug, were the last corps orders issued that month. Bullard, Personalities and Reminiscences of the War (New York, 1925), p. 235; Jnl of Opns, 28th Div, 7 - 9 Aug. For the difficulties of the 3rd Div, see Msgs, 32nd Div IC at IC 6th Brig to G - 3 32nd Div, 7 - 10 Aug (32nd Div Box 5, 32.16).

On 11 August the brigade of 3rd Division was relieved by the 164th French and two days later, as III Corps took over I Corps sector, the 28th Division side-slipped to the right, relieving the 164th, as Maj. Gen. Robert Alexander's 77th Division, fresh from the streets of New York and its training in trench warfare, relieved the 4th and 62nd French Divisions of I Corps on the left. The 77th thus occupied the "few yards," as Bullard called the bridgeheads, across the river, and the III Corps front now spanned 11 kilometers, extending from the north side of the railroad at Bazoches through the Bois de Chateau du Diable, east to the northern outskirts of Fismette, along the railroad to the south bank of the Vesle.<sup>12</sup>

These two divisions, the 77th and 28th, with the 32nd in reserve, were to fight unavailingly through the month of August, their "horses, wagons, supplies, and artillery [crowded] in enormous masses" from the Vesle down to Cohan. With the change in front, the enemy forces opposite them in mid-August were the 17th Division (Corps Schoeler) in the vicinity of Bazoches; the 29th Division, between Bazoches and Fismes; and the 216th Division, between Fismes and Magneux. To the right of the 216th was the 4th Guard Division, which had exchanged positions piecemeal on 11-17 August with the 29th, in order to rest and reorganize on a front away from the Americans at Fismes (Map No. 3 shows the battle order prior to the exchange).<sup>13</sup>

<sup>12</sup> FO 13, III Corps, 1000, 12 Aug; G - 3 Jnl, III Corps, 13 Aug (III Corps Box 28, 33.0). Note: DORs, 77th Div, for period 5-14 Aug are missing (77th Div Box 9, 33.1).

<sup>13</sup>

Bullard, Personalities, pp. 230, 235; Annex IV to SOI 10, III Corps, 12-13 Aug, Recent Histories of Enemy Divs on Our Front (III Corps Box 7, 20.1).

# OPERATIONS MAP - CORPS WICHURA

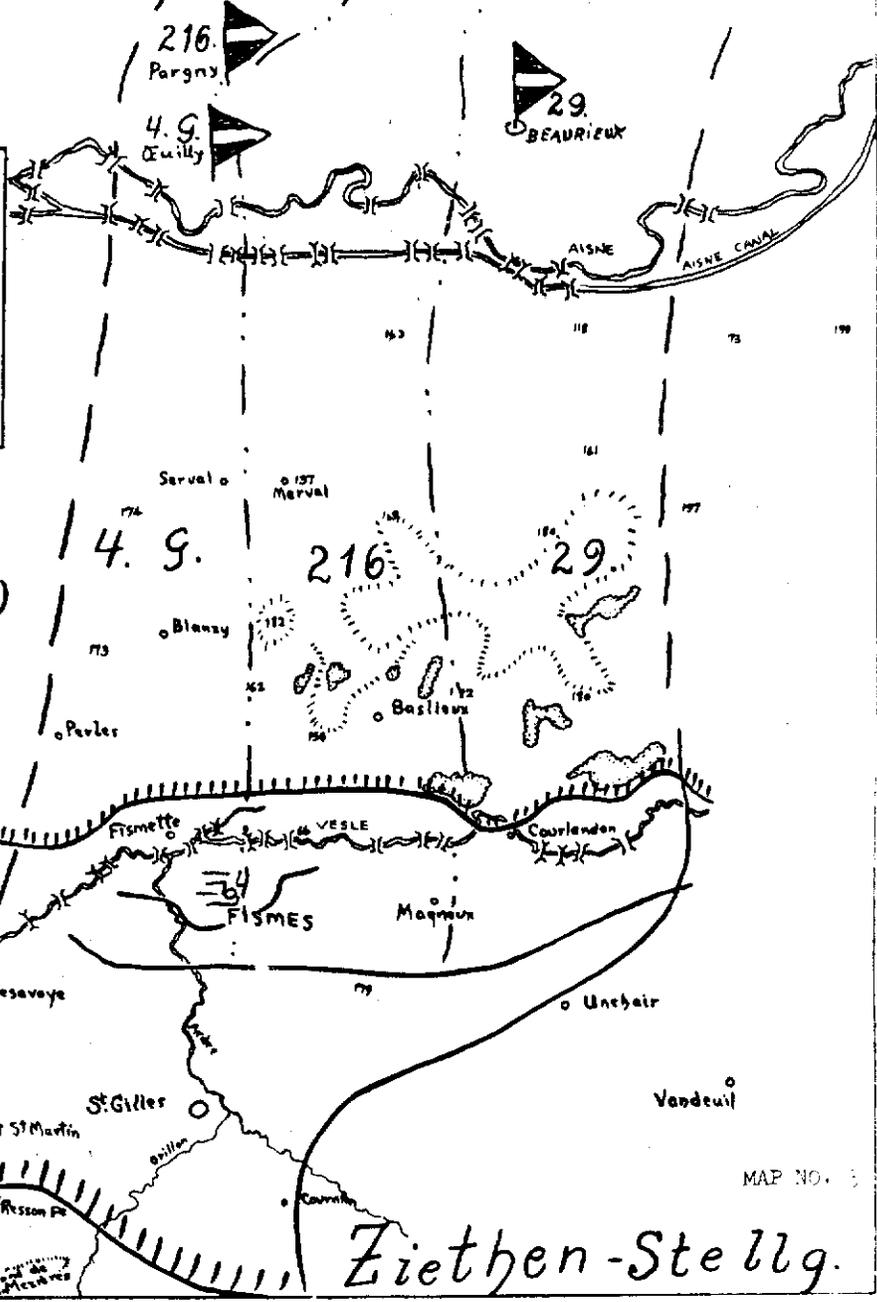
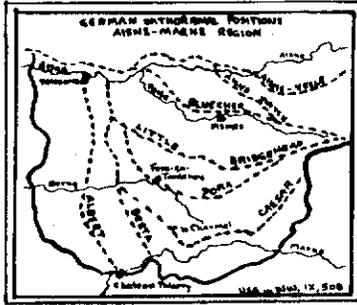
CRAONNE

Zu Korps Wichura Ia 1513  
Karte II-III 30. Juli 1918

Source: composite of maps added  
to Corps order above, in German.  
Files Nos 120, fol 2, pt 2, in map  
Scale: 1:80,000



## Korps Wichura



17.  
(Schoeler)

4. G.

216

29

Blücher. Stg.

Ziethen-Stellg.

MAP NO. 3

No general attack through the positions held by the German forces was possible until the bridgeheads were expanded, and no expansion was possible so long as the enemy's guns commanded both sides of the river. Corps G - 1 described the German defense organization (the Blücher Stellung) as based on infantry companies which were essentially combat groups of light machine guns, with battalion groupings of these units supported by heavy machine gun units. All were skillfully sited, covering the length of III Corps front, and their fire was "directed immediately upon any target which presented itself." As General Bullard said: "Literally a blade of grass or a bush could not sway without calling down hostile fire."<sup>14</sup> Back of these machine guns were near, distant, and enfilade artillery groupments under division control, and further back were corps and army long-range and high-powered artillery groupments.<sup>15</sup>

With the campaign officially over, General Degoutte, the Sixth French Army Commander, could not levy the weapons necessary to counter this defense. Nevertheless, he was "determined to hold these little crossings as bridgeheads, notably the one at the village of Fismes [and kept asking for raids to enlarge them]. In doing so the fighting was made practically continuous, with heavy, steady losses on our side."<sup>16</sup> The daily raids and patrols were

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14

SOI 8, III Corps, 10 - 11 Aug; Bullard, Personalities, p. 249

15

Annex III to SOI 2, III Corps, 4 - 5 Aug; Annex to SOI 16, III Corps, 18-19 Aug. Orgn of German defense lines above the Vesle appear in sketch atchd to Corps Wichura order, 5 Aug (GFB 120, fol I, pt. I).

16

Bullard, Personalities, pp. 229, 235.

costly, the 28th Division explained, "owing to the enemy machine guns and the existence of large quantities of mustard gas in the grass." 17

Through the long month the fight see-sawed back and forth along the river edge. Almost nightly enemy machine gun units slipped across the stream at first one place and then another, to inflict casualties until routed. Day as it would, the 28th could not get above Fismette, and as the days wore on both sides began the construction of defensive works, expanding their fox-holes and rifle pits into networks of trenches. By day enemy artillery and machine guns kept the III Corps sector ablaze, and by night the woods, ravines, and hollows were systematically contaminated with yellow cross gas. 18 Throughout the month the advantage remained with the enemy; his positions were secure, his artillery was superior, and III Corps had little or no gas to return.

Corps Schoeler and Corps Michura records contain fairly complete data on the gas shoots of its divisions, and for the sake of brevity the data have been incorporated in a gas map overlay for each of the German divisions covering the III Corps sector, showing the targets, dates, and where available the number of gas shells put on the targets (see Overlays 1 through 5, inside back cover).

The overlays do not, however, include the two major gas shoots in

---

17

Jnl of Ops, 28th Div, 22 Aug (28th Div Box 6, 33.3).

18

Areas repeatedly subjected to contamination are reported in COI 2-31, III Corps, 4 Aug - 3 Sep (III Corps Box 28, 33.1), and appear in the Overlays to Map No. 2

August, under the code names KANARIENVOGEL and PARADEISVOGEL, fired on 15, 16, and 19 August. The first was part of a special army-wide operation, the second a 29th Division contamination shoot. For neither, inexplicably, is there the specific detail that is available for the nightly gas missions of the enemy artillery, and therefore they could not be mapped.

KANARIENVOGEL, presumably, was a large-scale effort to inflict a maximum of casualties among the allied units crowded on the Vesle front, in order to disrupt any possible plan to breach the Blücher position. It seems clear, despite the absence of any kind of confirmation in available German records, that the Germans believed the 77th Division was to spearhead the assault. Not only was the 77th a major target of the first gassing, but the second was specifically directed on its sector. The similarity of the code names, KANARIENVOGEL (Canary bird) and PARADEISVOGEL (Bird of Paradise), further suggests special interest in the 77th Division, and it is more than coincidence that the massive gassing began within two days after the arrival of that division on the river front.

#### KANARIENVOGEL and PARADEISVOGEL

On 12 August, Seventh Army issued special orders to all its corps for a two-hour yellow cross bombardment of villages and other assembly areas south of the Vesle. "Yellow cross ammunition is to be apportioned in such a way, even to the batteries lying nearest to the front, that the largest possible number of batteries are supplied and can take part in the shoot."

Delayed a day, the shoot was finally scheduled for 0100, 15 August, beginning with a three-minute drumfire of blue cross shell [mit einem Feuerüberfall von 3 min. Dauer mit Blaukreuz in höchster Feuergeschwindigkeit].

followed by the yellow cross bombardment. The bombardment, under the code name KANARIENVOGEL in Corps Wichura, LEIPZIGERMESSE in Corps Schoeler, and GOLDREGEN in Corps Etzel, was to be repeated the next night.<sup>19</sup>

Details of the shoot are fragmentary. At least five batteries of the 4th Guard Division were involved, three of them scheduled to fire 400 rounds of yellow cross in two target areas. Six batteries of the 216th Division had for their targets the woods above St. Gilles and the valley to the southwest. Apparently just two batteries of the 17th Division (Corps Schoeler) took part on the night of 15 August, three in the second night's fire. The most useful information occurs in the report of a 29th Division field artillery regiment, which said its batteries carried out the repeat shoot on the morning of 16 August with 887 blue cross and 2,300 yellow cross shells (diphenylchloroarsine and mustard gas).<sup>20</sup>

On 15 August, Corps Etzel, Schoeler, and Wichura reported to Army that the yellow cross shoot had been "carried out by all divisions according to plan."<sup>21</sup> Divisional reports on the morning of 16 August confirmed completion

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19

Corps Wichura Arty Order Ia 314, 12 Aug, and Arko 4 Order 9994, 13 Aug (4th Gd Div Sub Units, Annexes to WD, GFB 147, fol III, pp. 71, 83).

20

Arko 4 Order 10038, 14 Aug (GFB 147, fol III, p. 118); Arko 216 WD, 15 and 16 Aug (GFB 220, fol III, p. 163); Arko 17 WD, 15 - 16 Aug (GFB 169, fol III, p. 141); 30th FA Regt (29th Div) WD, 16 Aug (GFB 182, fol IV, n.p.).

21

Noon rpt, Wichura to ACK 7, 15 Aug (GFB 121, fol I, pt 2, p. 235); Daily rpt, Schoeler to ACK 7, 15 Aug, and Etzel Order, 15 Aug (both in Corps Schoeler Annexes, GFB 119, fol III, pp. 60, 66). See Seventh Army (ACK 7) WD, 15 Aug (GFB 43, fol 27): "Heavy yellow cross gas fire along the entire front of the army was carried out during the morning hours according to orders."

of the repeat mission.<sup>22</sup> No report has been found of the number of yellow cross shells allotted or fired by the corps in the two shoots, but the 29th Division artillery report suggests that close to 7,000 rounds of yellow cross may have been fired into the III Corps sector each night by the divisions of Corps Schoeler and Corps Wichura.

In the area occupied by III Corps, the 77th Division, still organizing its positions along the river front, was hardest hit by the two gas bombardments. According to General Bullard, "It had...been said of this division that, until it came to France, its soldiers had never seen a dark night... In their first appearance on our front line on the south bank of the Vesle they received a tremendous gassing from enemy guns north of the river and suffered something like eight hundred or one thousand casualties before their officers could lead them out of the hollows on to the knolls."<sup>23</sup>

1st Lt. H. D. Snyder, the 77th Division Gas Officer, said that when the attack came elements of three regiments were occupying the side of a valley through which their relief and supplies had to come, and during the attack the next night a relief was in progress. The first attack occurred between midnight and 0530 on 15 August during which some 500 diphenylchloroarsine and phosgene shells, followed by more than 2,000 mustard

---

22

"The gas shoot...by all artillery of the group was repeated the night of 15/16 Aug" (216th Div Ic/Ia Rpt 1802, 15 - 16 Aug, GFB 220, fol II, p. 191).

23

Bullard, Personalities, p. 249. The 77th had been gassed once before, in the trenches in the Baccarat sector on 24 June, where a bombardment of mustard gas and diphosgene claimed over 200 casualties. See Spencer, "History of Gas Attacks upon the AEF" (15 Feb 1928), III, 456 - 60 (in CMLHO).

gas shells, fell in and around Mont Notre Dame, Villesavoye, Mont St. Martin, and in the Bois de Cochelet. On the following morning between 0200 and 0400, while reliefs were being made across the river in Bazoches and in the Bois de Chateau du Diable, the forward area was "completely drenched" with more than 3,000 mustard gas shells, fired in three barrages of mixed gas and HE. While making the relief under the gas bombardment, said the 305th Regimental Gas Officer, "the men were forced to ford the river at Villesavoye on account of lack of bridges and their masks were either lost or got wet." 24

The villages of Mont Notre Dame and Chery-Chartreuve were both heavily gassed that second morning, but Villesavoye and St. Thibaut were so completely contaminated that they had to be evacuated. According to the Division Gas Officer, no evacuation other than of these villages was considered, and this, together with the fact that there were no gas-proof dugouts anywhere in the sector, resulted in more casualties than might otherwise have occurred. Almost six hours elapsed after the end of the second bombardment before the evacuation was ordered, since, as had happened the previous morning, the Division Gas Officer was not immediately notified of the gas attack. Even then he had difficulty in getting the men out of areas where the liquid agent was not visible but the odor of mustard gas was still strong. "The officers of the command [were] not thoroughly awake to the danger of gas, although every effort has been made to teach them," and they refused to believe that light concentrations of gas might be dangerous, or

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<sup>24</sup> Ltr, DGO 77th Div to C of Gas Serv, 18 Aug, sub: Rpt of Gas Attack of Aug 15 (1st Army Box 341); Ltr, 305th RGO to DGO 77th Div, 20 Aug, sub: Gas Report (GAF-77th Div).

that removing the facepiece of the mask exposed the eyes to contamination.<sup>25</sup>

Sometime on 16 August the Division Surgeon reported that 448 gas cases had been received at the hospital over the previous 24 hours. Few cases were severe, he said, but most of them showed evident signs of arsenical poisoning. Whether these signs were in addition to mustard gas burns, he did not say. Many of the men admitted to him that they had "got tired of their masks" and removed them too soon, in some cases at the order of their officers.<sup>26</sup>

By 18 August the Division Gas Officer had counted a total of 1,060 gas casualties as a result of the two attacks: 321 in the 305th Infantry, 235 in the 306th, 434 in the 308th, 51 in the machine gun battalions, and 19 others. Approximately 30 percent of the men, he said, had body burns, 60 percent eye complications, and 10 percent lung complications, the result of having to remain in the drenched area because of the tactical situation, of removing the facepiece of the mask after an hour or two, failing to wear the mask in light concentrations, or removing it after seven or eight hours when continued wearing became intolerable.<sup>27</sup>

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25

Ltr, 18 Aug, above; Memo, DGO 77th Div for CofS 77th Div, 26 Aug, n.s. (1st Army Box 341).

26

Memo, Div Surg 77th Div for CofS 77th Div, 16 Aug, n.s. (War Dept Hist Box 297, 12.3).

27

The Corps Gas Officer said 50 percent of the casualties had burns "not due to non-wearing of the mask" (G - 3 Jnl, III Corps, 17 Aug, III Corps Box 28, 33.0).

The Corps Gas Officer reporting the two-day attack said that the 306th Ambulance Company of the 77th had alone handled 1,209 gas casualties up to 18 August,<sup>28</sup> and in the same period (15 - 18 August) received 295 other casualties, as a result of almost continuous HE shelling and machine gun fire. From 60 to 70 percent of the gas cases were burns and "as such...not preventable," presumably because neither evacuation of Villesavoie or St. Thibaut, where the majority of these casualties occurred, nor removal of contaminated clothing, could be effected in time. The high ratio of gas to wound casualties thus "indicated the great danger in occupying the low area [at] Villesavoie in force."

Since there was no question of evacuating the gassed areas, corps directed the division to "cause passageways to be made through the mustard gas zones" using chloride of lime, and to redouble its gas defense instruction in order to hold down further casualties.<sup>29</sup>

<sup>28</sup> Two DGO Rpts on Gas Attack, both dated 29 Aug, for the attacks of 15 and 16 Aug, report a total of 6,500 gas shells and total casualties of 1,282 out of 4,050 men exposed (in GAF-77th Div). Note: Spencer, "History of Gas Attacks upon the AEF," III, 462 - 66, treats these 29 Aug rpts as in addition to the attack reported on 18 Aug, resulting in a total of 2,342 gas casualties in the two bombardments. This is not so.

Spencer also reports only one other gas attack against the 77th, on 21 Aug, when 150 shells on the 305th FA resulted in "a few men slightly gassed" (Spencer, II, 467). This was the last gas attack on the 77th during the war, according to Spencer.

<sup>29</sup> Ltr rpt, CGO III Corps to CofS III Corps, 18 Aug, sub: Rpt of Gas Casualties in the 77th Div; Ltr, CG III Corps to CG 77th Div, 18 Aug, sub: Gas Casualties in the 77th Div (War Dept Hist Box 297, 12.3); U.S. Army in the World War (Washington D.C., 1948), VI, 172.

Note: The published History of the 77th Division, ed. Maj J.O. Adler, 306th Inf (New York, 1919), p. 44, says nothing of this gas attack except that "the Vesle had to offer...airplane bombs and machine guns, hand-grenades,

Three days after KANARIENVOGEL, the gas shoot PARADELSVAGEL, a similar two-hour gas bombardment ordered by Corps Wichura was carried out by the close-range group of the 29th Division. The purpose does not appear in any of the German records and it can only be guessed that the 2,422 yellow cross shells fired on the morning of 19 August were to complete the destruction of the new American division begun with KANARIENVOGEL. The targets were not designated, and nothing has been found on the attack in 77th Division records except the Division Surgeon's report of 47 gas casualties on 19 August and 114 more during the next three days.<sup>30</sup>

The overlays, as well as comparative gas casualties, make it clear that considerably more of the gas shelling at the Vesle was directed at the 77th Division than at the 28th, probably because the 77th was a new American division on that front and had taken over from the 28th the most sensitive bridgeheads across the river. KANARIENVOGEL, on 15 - 16 August, resulted in a little over 200 casualties in the 28th Division, a fifth of those suffered by the 77th. On the first morning the division reported only

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29 (continued)

rifle bullets, flame-throwers and gas shells." A table on p. 136 indicates that almost 85 percent of the division's gas casualties during the war occurred at the Vesle.

Apocryphal may be the story, for no confirmation has been found, that just prior to its departure on 23 - 25 Aug, the 57th FA Brig (32nd Div), in retaliation for the gassing of 12 - 16 Aug, "wanted to give the Boche a parting shower of gas, but the gas shells were a kilometer away and there was no conveyance to get them to the battery, so all the men without exception carried shells on their backs to the battery." MS. History of the 57th FA Brig, p. 31 (32nd Div Box 24, 11.4), does not say where or whether the battery fired the gas shells.

<sup>30</sup> 30th FA Regt (29th Div) WD, 18 and 20 Aug (GFB 182, fol IV); Daily Rpts, Div Surg, 77th Div (Med Dept Box 3829, fol 4). See Table No. 2, Analysis, p. 39

about 100 shells in the area between St. Gilles and Courville, half of them gas, but "too weak for fatal effects," and 300 gas shells the next morning on infantry and battery positions in the same area.<sup>31</sup> The 28th Division was not the object of PARADEISVOGEL on 19 August, but supporting gas missions by units adjacent to the 29th Division resulted in at least 40 casualties. Altogether, the division suffered over 1,100 gas casualties that month, its gas hospital reporting admissions every day without exception. The state of gas discipline in the division may have been equal to any single gas bombardment but not to gas fire day after day. And as had been observed in other divisions, incessant gassing over a period of time tended to breed a degree of morbidity in the troops.

This was the opinion of Capt. Howard C. Harper, the 28th Division Medical Gas Officer, who attributed the large number of gas casualties that month to the fact that

many of the men were experiencing their first prolonged exposure to gases and not...being able to differentiate between a short inhalation of a slight concentration and the slight inhalation of a more concentrated gas, many men consequently when they first felt the slightest constriction of the chest with some disturbance in breathing and eye involvement, considered themselves gassed and became somewhat panic-stricken. Hence, their first instinct was to resort to the hospital for relief, when....a few hours removal from the gassed areas would have been sufficient to have returned many of them to duty.

He reported a total of 1,105 gas casualties, 474 of them mustard gas cases. Of this total, 634 were evacuated, 449 were returned to duty, and the balance remained in the division gas hospital. "We feel," Captain Harper concluded,

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31

SOI 12 and 13, 28th Div, 14 - 16 Aug (28th Div Box 3, 20.1).

"that while gas casualties are bound to occur, there is no doubt many could have been avoided by greater precautions and stricter adherence to gas discipline." 32

Considering the demands of the tactical situation, it is difficult to see how the mustard gas casualties at the Vesle, any more than the shell wound casualties, could have been avoided. The official history of the 28th Division said of this period:

"High explosives, shrapnel and gas shells of all calibres were...poured into the valley...[and the troops] were forced to stand fast and endure the slaughter without an opportunity to fight back." 33

#### The Loss of the Bridgeheads

Little of the German gas that month appears to have been fired in retaliation. Its use was integral in the defense of the line of the Vesle.

32

Memo, DMGO 28th Div for Div Surg 28th Div, 2 Sep, sub: Rpt of Gas Casualties, 5 - 31 Aug (War Dept Hist Box 297, 12-3, and Med Dept Box 3626, 201 2). For comparison, of the 1,504 gas casualties in the 77th Div in Aug, 845 were evacuated and 487 were returned to duty (List of Gas Casualties handled by 306th Hqs, 1st Army Box 3414).

33

The 28th Division in the World War, five volumes compiled by Col Edward Martin, ed. E.S. Wallace (Pittsburgh, 1923-24), I, 88. This is an unaided collection of unit narratives without documentation. Gas is mentioned frequently but with few details and no casualty data. Exceptional is the paragraph: "The number of men reported evacuated as a result of gas [along the Vesle] was large, although small in comparison to that of the French on our right and the 77th Division on our left....That the number...was smaller... may be attributed to...the care exercised in treating [contaminated] ground... and the use and care of the masks; second, many officers and men refused to be evacuated, determining to remain with their units" (V, 197).

Thus, only slight provocation was provided by Company B of the 1st Gas Regiment which came into the sector on 20 August and that night carried out the first of five projector and Stokes mortar shoots, using small quantities of thermite and, later, phosgene and chlorpicrin, on enemy machine gun nests in and around Bazoches and Courlandon.<sup>34</sup> Without any declared purpose other than punishment of the enemy, such small-scale shoots tended to be tactically useless.

Equally useless were the 300 gas shells fired by the 77th Division's 304th FA on the night of 21 - 22 August. Whether they were phosgene gas shells or, more likely, tear gas, the fact that they were fired over a period of six hours vitiated any effectiveness they might have had.<sup>35</sup> Available German records do not mention this "retaliation".

One shoot by Company B of the 1st Gas Regiment was a screening operation with 200 smoke shells, laid down between Villette and Magneux on the morning of 1 September, "to simulate an infantry operation and stir up the enemy." A German order some time previously had said that "When a smoke screen appears between us and the enemy, it should be fired into at the highest rate of fire." The smoke screen was no sooner established, the 28th Division reported, than the screen and the whole area behind it drew a hurricane of fire from enemy

<sup>34</sup>

Ltr, CGO III Corps to C GWS, 3 Oct, sub: Rpt of Gas Activities (1st Army Box 340). The gas missions, with a total of 130 drums, occurred on the nights of 27 - 28 Aug and 2 - 3 Sep. For further details of the operations, see War Dept Hist Box 305, 33.1; GAF-77th Div; and MS. History of the First Gas Regt, pt III, sec 3 (CMLHO).

<sup>35</sup>

Spencer, III, 467.

artillery, machine guns, and grenadiers.<sup>36</sup> It discouraged any further plans there may have been to use smoke on that front.

During the month-long struggle at the Vesle, the Bois de Chateau du Diable changed hands several times. Finally, on the morning of 22 August, under the code name AMERIKA, a large-scale patrol action by the 112th Regiment, 29th Division, succeeded in retaking the entire wood. For the operation all wooded areas immediately below the Vesle were gassed with blue cross on the four nights preceding the attack, and the 10-cm. cannons of the 17th, 29th, and 216th Divisions shelled battery positions in the Resson Farm area with blue cross for half an hour just before the sortie (Overlay 4 to Map No. 2).

The Germans reported capturing 2 officers and 31 men of the 308th Infantry, 77th Division, in taking the wood, while they themselves admitted losing 18 killed, 101 wounded, 20 gassed (by their own blue cross?) and 17 missing.<sup>37</sup>

Counterattacks that day and the next by the 77th Division resulted in partial recapture of the wood, and as reprisal, Villesavoie was ordered gassed. In an hour beginning at 0200, 24 August, the southern part of Villesavoie down to the Point du Jour was contaminated with 340 rounds

36

17th Div Order Ia 995, 16 Aug (GFB 169, fol III, p. 43); Jnl of Opns, 28th Div, 1 Sep.

37

Proposal, 112th Regt to 58th Brig, 18 Aug (GFB 182, fol II, p. 50). Division and arty orders and combat reports are in same file, fol I, pp. 14, 20; fol II, pp. 57, 86.

of yellow cross, all that was then on hand. On 29 August the 29th Division artillery fired another contamination shoot, rounds unknown, into Villesavoie and in the woods above Chezelles Farm. 38

The latter contamination fire in Villesavoie followed the recapture of most of Bazoches and Fismette on 27 August. Under the code name BADEN, and with a blue cross preparation similar to the AMERIKA operation, 29th Division troops cleared Fismette to the river edge, reportedly capturing 2 officers and 144 men of the 112th Infantry, 28th Division, in the action. The German division did not report its own losses.<sup>39</sup>

With the recapture by the Germans of the greater part of du Diable Bazoches, and Fismette, hopes for these bridgeheads were lost. At the end of the month the front line was approximately where it had been on 6 - 7 August (Map No. 4).<sup>40</sup>

"The German Method of Using Gas  
in Open Warfare"

In a report later published by First Army under the above title, Capt. Charles E. Wooddell, the 28th Division Gas Officer, described the experience

38

29th Div Order 172, 23 August (GFB 182, fol I, p. 27); 30th FA (29th Div) WD, 24 and 26 Aug (ibid., fol IV); 29th Div WD, 29 Aug (ibid., fol I).

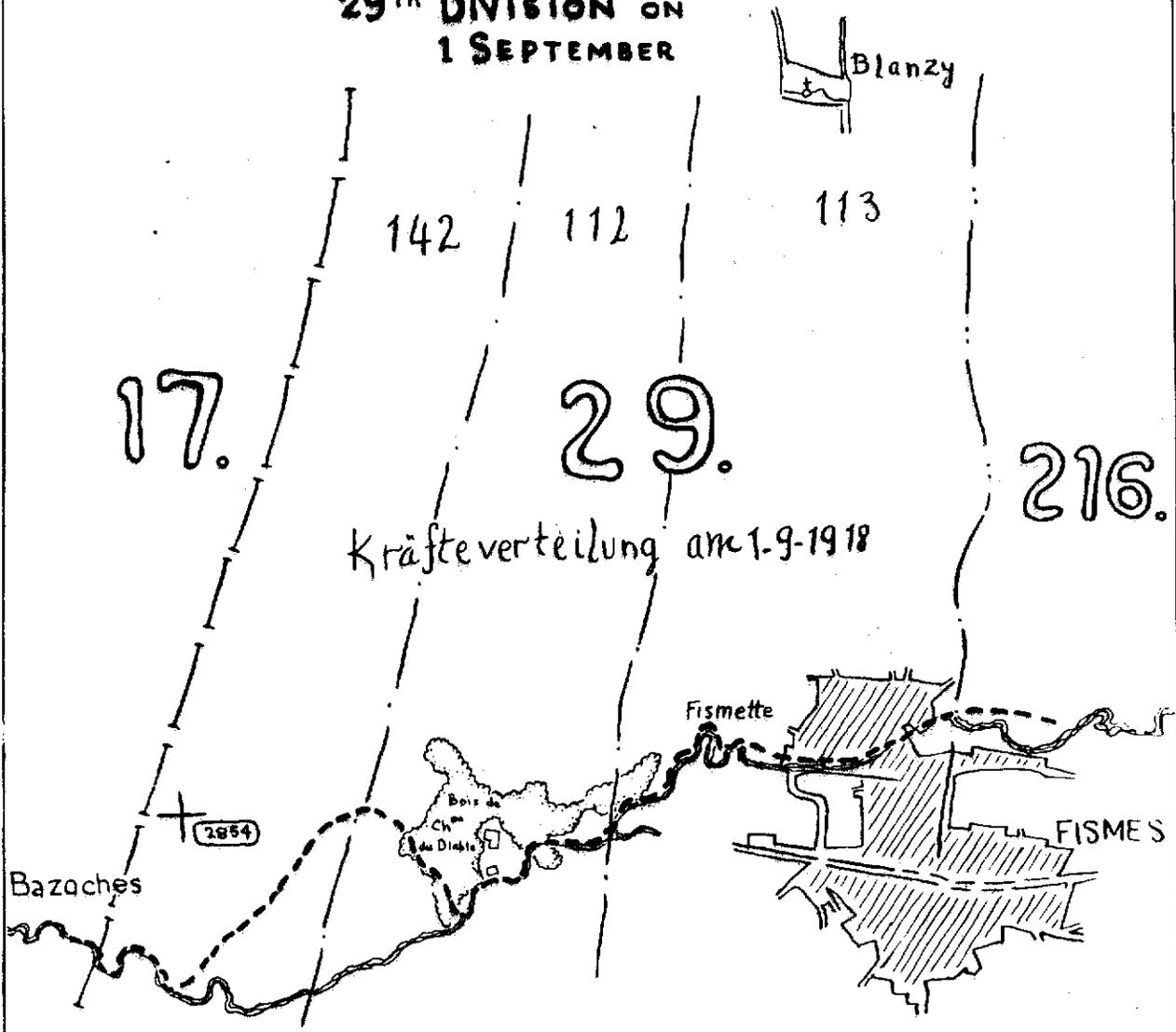
39

Arko 67 Order for Baden, 24 Aug (GFB 182, fol II, p. 135); 29th Div WD, 27 Aug (same file, fol I). See ltr, CG III Corps to CofS GHQ AEF, 28 Aug (USA in the War, VI, 96 - 98, 111).

40

See DORs, III Corps, passim (III Corps Box 7, 20.1); SOI 25, III Corps, 27 - 28 Aug (III Corps Box, 33.1).

DISPOSITION OF  
29<sup>th</sup> DIVISION ON  
1 SEPTEMBER



Source: 29<sup>th</sup> Div Sub Unit WD&A  
German Files Box 182, fol II, p. 23

MAP NO. 4

of the 28th and by proximity, the 77th Division along the Vesle:

The 28th Division was located in and on the sides of the two valleys extending towards the south from St. Gilles, north of which town they open up into the valley of the Vesle, south of Fismes....The character of the terrain held by both the Germans and Allied troops was somewhat similar....Imagine a letter "T" with the leg split into an inverted "Y", the Germans holding the top of the "T" (representing the valley of the Vesle) and the Allies holding the... inverted "Y" position (representing the district to the south). On each side of these valleys are a series of wooded ravines...all rising to cultivated plateaus. Both the Germans and the Allies had their troops in these wooded valleys and ravines.

During the time prior to the enemy retreat, he maintained a constant harassing artillery fire on the allied area. The back towns were shelled with H.E. and the towns, valleys, and ravines occupied by our troops...were shelled with H.E. and gas of various kinds. In only a few instances, however, did he shell with gas any of the Vesle valley, and then very lightly. This harassing fire kept our troops always on the alert and the shells were constantly claiming a few victims, 35 percent of which were gas cases....

The single attempt to retaliate in kind for the enemy's punishing gas fire occurred

On the morning of August 28th...[when] our own artillery used great quantities of gas, covering the wooded positions on the Vesle slopes northeast of Fismes and northwest of Courlandon. This action on our part had the effect of silencing his artillery for the ensuing thirty-six hours....[It] must have been disastrous to the enemy, as the strength of a German retaliation is generally indicative of how badly he has been treated.<sup>41</sup>

Division and corps disagree on the weight of the gas shell fired. The 28th Division reported that it fired over 8,000 shells between 0900-1200, 28 August, including 840 75-mm. and 700 155-mm. gas shells, contents unidentified, on three ravines in the vicinity of Baslieux, in the 216th Division sector. The Corps Gas Officer was to say the mission comprised 1,190 HE and 4,800 gas shells, more than half of the latter yperite. The afternoon report of the 216th Division did no more than confirm the gas and HE fire:

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41

Wooddell Rpt, n.d., in 1st Army Box 340.

Enemy delivered bursts of fire between 10 a.m. and 1 p.m. in the division area as far back as Merval. Between 200 and 1000 rounds, one quarter HE and three-quarters gas which smelled of garlic.<sup>42</sup>

The wide disparity in these accounts cannot at present be reconciled. The 29th Division also reported gas that day, on Fismette and the draw at Perles, but this fire, like that in a number of other reports of gas in the German records during the month, was unquestionably carried out by the neighboring French.

Overlooking the damaging gas attacks against the 28th Division on 8 - 9 August and the KANARIENVOGEL shoot of 15 - 16 August, Captain Wooddell continued in his report:

On the night of August 30th the enemy sent over his first concentrated gas attack, in the ravine and valley southwest of St. Gilles. There were about 1,800 troops in this area and these were subjected to about 1,900 blue cross, mustard, and phosgene shells. The attack started early in the evening with blue cross, followed by a heavy yellow cross and phosgene concentration from 10:00 P.M. until 12:30 A.M. and from 4:00 A.M. until 7:00 A.M., August 31st.

The interval between the heavy attacks was taken up by the regulated fire of blue cross and H.E. shells in the nature of a harassing attack. In this attack, troops could be moved and were moved after the second concentration.

The admission lists of 28th Division field hospitals show 57 gas casualties brought in on 31 August and 70 more during the next two days (as compared with almost 200 following KANARIENVOGEL), but as is obvious from

42

G - 3 Jnl of Opns, III Corps, 28 and 29 Aug; DOR 22, III Corps, 28 - 29 Aug; Rpt, 216th Div to Wichura, 28 Aug (in 29th Div WD&A, GFB 182, fol I, p. 133).

Ltr, CGO III Corps to C CWS, 3 Oct, sub: Rpt of Gas Activities (1st Army Box 340), said the mission of the 53rd FA Brig (28th Div) was on 27, not 28 Aug, when between 0900-1030 2,500 75-mm. No. 20 yperite shells and 1,340 155-mm. No. 5 phosgene and No. 9 hydrogen cyanide shells, with 960 HE shells, were put down on 4th Guard troops around Baslieux. Between 1530-1630 that day an additional 625 No. 20, 335 No. 5 and No. 9, and 230 HE shells were fired on the same target.

Wooddell's report of subsequent events, the almost continuous gas fire through the next week complicated in the extreme the reporting of gas attacks and casualties.<sup>43</sup>

Captain Wooddell's narrative resumes with the German gas tactics during the subsequent German withdrawal from the Vesle to the Aisne. The event that loosened the German grip on the Vesle was the attack of Mangin's Tenth Army above Soissons, launched on 20 August in an effort to encircle the Chemin des Dames and cut off Seventh Army forces between the Vesle and Aisne. The 32nd Division, relieved from reserve in the Fismes sector on 24 August, took part in the attack four days later, cutting the Soissons-Chauny road by its capture of Juvigny (Map No. 5). Although the enemy defense quickly blunted the French penetration, the threat was sufficient to force Seventh Army to withdraw from the line of the Vesle.<sup>44</sup> In its movement back to the line of the Aisne, the enemy's rear guard defense completed the exhaustion of Bullard's III Corps forces.

The German withdrawal was carried out under the code name KANALIBAU, under orders issued 29 - 31 August. In conjunction with that withdrawal, Corps Wichura said, "We must in the coming days make especially difficult the construction of bridges and the securing of outpost areas by the enemy

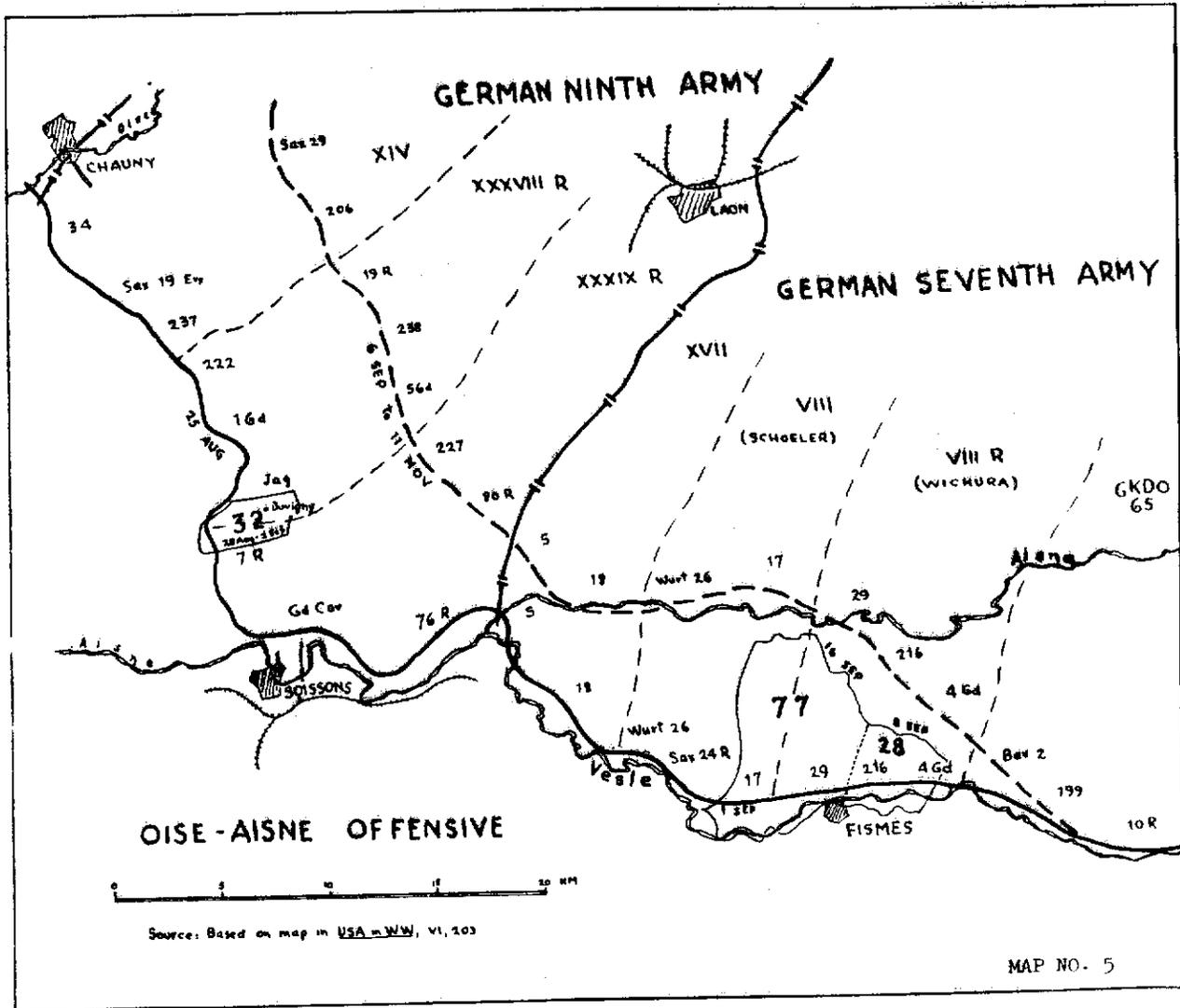
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43

This is the only gas attack on the 28th Div during the campaign reported in Spencer (II, 260-62). Wooddell is quoted as saying that this was a retaliation attack, and was the second concentrated attack on the division while in the sector. Spencer reports 2 officer and 98 men as casualties (82 of them in the 109th MG Bn), of which 58 were evacuated to the rear.

44

USA in the WW, VI, 18, 21; Howland, A Military History of the World War (Fort Leavenworth, Kan, 1923), p. 345. For the German defense between the Vesle and Aisne and the fall of Juvigny, see rpts in 216th Div WD&A, 17 Aug - 15 Sep (GFB 221, fol I, pp. 108, 130).



crossing the Vesle by good and practical organization of annihilation fire with plentiful [reichlich] use of yellow cross." The proposals only of the 216th Division for its yellow cross shoots have been found (see Overlay 2 to Map No. 2), with the comment: "Considering the ammunition supply, one repeat of the gas shoots is contemplated. Further shoots of larger scope cannot be carried out in the near future because of the supply and the strain on the guns."<sup>45</sup>

The missions of the 216th, with an allotment of over 6,000 rounds of yellow cross, were to be fired just prior to the departure of its artillery, after which the guns of the 29th Division would cover the previous target areas of the 216th and 4th Guard artillery. (No confirmation of the 216th Division fire has been found.) The final gas mission of the 29th Division of which there is record was carried out under the code name PAPRIKA and had for its particular target the Villesavoye area (see Overlays 1, 2 and 4 to Map No. 2). The gas fire began at 1800, 1 September, with 190 rounds of green cross shell. Four hours later, at 2200, seven batteries of 77's put 1,366 rounds of yellow cross in and around the town. The mission was completed at 1100, 3 September, when the "rest of the yellow cross ammunition," 196 rounds, was fired into Villesavoye.<sup>46</sup>

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Corps Order 602, 31 Aug (VIII R.K. WD&A, GFB 121, fol I, pt 2, p. 317); Rpt, 216th Div to Wichura, 31 Aug (GFB 222, fol III, p. 165).

<sup>46</sup>

30th FA WD, 1 and 3 Sep. SOI 28, III Corps, 30 - 31 Aug, reported more than 1,500 blue, green, and yellow cross shells in the valleys south-east of Mont St. Martin and in St. Thibaut, with only small amounts of gas fired on 1 - 3 Sep.

By then, presumably, the 77th Division had learned to stay out of Villesavoye and relatively few casualties seem to have occurred as a result of PAPRIKA. But in a little more than two weeks in that sector, in its first combat operation, the 77th Division had been badly battered in repeated fire fights and had suffered well over 1,500 gas casualties. It had lost heart and it had lost ground.

Corps, learning of the enemy withdrawal only on the morning of 4 September, ordered the 77th and 28th Divisions to cross the Vesle at 1500 hours and advance and seize crossings at the Aisne Canal and Aisne River as quickly as possible, with a view to establishing bridgeheads. Concealed machine guns in the line of advance took high toll, but by late afternoon of 5 September forward elements of both divisions were on the crest of the slope leading down to the valley of the Aisne. A corps message to the 77th Division said: "Indications now are everybody overlooks the Aisne except possibly the 77th Division." The division replied: "Your deduction as to the 77th Division is incorrect. We overlook the Aisne if anybody does." 4

That view of the Aisne proved to be the extent of the advance (see Map No. 5). A Seventh Army message that day seems to have been acted on at once:

In the occupation of the Aisne Stellung the harassing fire on the larger installations [occupied by troops] as well as bridges in the Vesle valley assumes special importance. All guns within range will be used for this purpose. Massive, irregularly repeated shoots using part yellow cross will

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FO 14 and Annex, and FO 15, III Corps, 4 Sep; SOI 34, III Corps, 5 - 6 Sep; Msgs between Hq III Corps and Hq 77th Div, 5 Sep (III Corps Box 28, 33.1). Cf. USA in the WW, VI, 98 - 102, 183.

be carried out especially on installations, to make passage [through the valley] as difficult as possible and to destroy traffic. Single shots will not accomplish this purpose. Many [rounds] with [adequate] observation must be fired [Es ist möglichst viel mit beobachtung zu schießen].<sup>48</sup>

As the troops of the 77th and 28th Divisions collected in the ravines leading to the crests overlooking the Aisne, enemy machine guns and artillery hemmed them in with heavy fire and then the artillery deluged them with gas. Over the next three days the 28th Division suffered over 800 gas casualties, the 77th Division more than 200.<sup>49</sup> The available German records of that gassing are represented in Overlay 5 to Map No. 2.

Captain Wooddell described KANALBAU (the withdrawal to the Aisne) and the final gassing as it affected the 28th Division:

Not until September 1st did the German show his intention of withdrawing from his positions. On the night of the 1st, he commenced to shell with mustard and other gases the south side of the Vesle valley up as close as the south side of Fismes. This gas shelling increased daily until the Allied troops crossed the Vesle on the night of September 4th, when the enemy's final withdrawal commenced.

The weather conditions during his withdrawal were ideal. It was cloudy and a large portion of the time a light, steady rain was falling, accompanied by a moderate south and southeast wind. There was no moon and the nights were very dark. Aerial observation was very poor and little of the enemy's movements could be observed.

The enemy located his machine-gun nests in protected points flanking the slopes of the plateau rising from the Vesle. His artillery covered the same area. Our troops were compelled to cross the Vesle valley and [advance] up the wooded ravines to the edge of this plateau. As our troops arrived at the north side of these woods, they were met with a heavy artillery and machine-gun barrage... We were held in these wooded ravines until the 7th, when the front lines advanced on to the plateau, but supports and reserves were still in the densely wooded country.

As soon as we had crossed the Vesle, the Germans shelled that district with gas - mostly mustard. [For over thirty-six hours] they kept the wooded areas and plateau slopes saturated with gas and also maintained a heavy H.E. and gas barrage to our front and rear. Our troops could not be moved and all

<sup>48</sup>Quoted in Corps Schoeler Order Ia 31/IX, 5 Sep (GFB 120, fol V, p. 58).

<sup>49</sup>Analysis, p. 39

during this attack they were kept in this gas saturated area. Supplies and wounded had to be carried through, and in the darkness, under heavy fire, conditions were bad. We could not advance; we could not retire; and nothing remained but to accept the situation as best we could....

This form of rear guard action was perfect. The enemy's losses, though heavy, were nothing to what they would have been had he attempted to accomplish the same end with troops. He set a perfect pocket and although it was very [obvious], tactical reasons compelled us to go into it, [trusting] we could force our way through. This we did, but our gas casualties were heavy — in fact, 60 percent of the total casualties. Due to the fact that this division was relieved on the 8th, however, large numbers of men were evacuated as casualties who were only slightly burned and under other conditions would not have been evacuated....<sup>50</sup>

It is difficult to agree with Wooddell that the 28th Division forced its way through the gas pocket, since on 6 September it learned that Sixth Army had ordered the relief of the division, as well as of III Corps, on that front, and the division began withdrawing from the pocket. The 77th Division was to hold its positions below the Aisne under XVI French Corps for another week before it too was relieved.<sup>51</sup>

The German records become sketchy with the completion of KANALBAU, but indicative of the enemy's subsequent gas capabilities for the defense of its Aisne position is a Corps Wichura order of 13 September — just before the 77th Division left the sector: "Yellow cross is in plentiful supply. The divisions will provide for thorough and repeated contamination of enemy readiness positions and battery nests."<sup>52</sup> Seventh Army had had to

<sup>50</sup>

Rpt in 1st Army Box 340. Cf. Ltr, DGO 28th Div to CGO III Corps, 14 Sep, sub: Weekly Report (CAF-28th Div), the "first draft" of this rpt.

<sup>51</sup>

FO 14, III Corps, 2400, 3 Sep; FO 17, III Corps, 1730, 8 Sep; G - 3 Jnl, III Corps, 6 - 9 Sep; USA in the WW, VI, 14, 103, 113, 202.

<sup>52</sup> Corps Wichura Order 100/IX, 13 Sep (GFB 120, fol V, p. 21).

retreat, but it maintained to the end absolute control and exacted high casualties all the way by its lavish use of yellow cross gas.

## ANALYSIS

### III Corps Casualties at the Vesle

The order of the High Command on 7 August that bridgeheads be established north of the Vesle "for the later continuation of the offensive" was acted on energetically by the Sixth French Army commander, General Degoutte. The other element of the order, that the attack cease, was already a fact and needed no compliance. But it was General Bullard's impression that several weeks passed before the whole order was complied with:

After some weeks of continuous fighting and small operations along the Vesle, with one effort following another to cross at this point, that, or another, but no united or serious effort anywhere, the French Sixth Army was ordered to 'quiet' and to place itself in a defensive [rather] than in an offensive position.<sup>53</sup>

Not until 18 August did Degoutte at last order enemy opposition thoroughly cleaned out south of the Vesle and the corps sector organized for defense. Nevertheless, he continued to visit Bullard at III Corps headquarters almost every other day to the end of the month, either looking for signs of an enemy withdrawal or urging more raids in force to harry the enemy into withdrawing.

Bullard was certain that "No crossing of the stream would ever be made except upon a general advance."<sup>54</sup> Yet Colonel Garlock was to imply,

<sup>53</sup> Personalities, p. 234; FO 11, III Corps, 0645, 8 Aug.

<sup>54</sup> Personalities, p. 234; G - 3 Journal, III Corps, 18 Aug and passim.

erroneously, that it was III Corps tactics rather than orders from on high that held the 77th and 28th Divisions at the river edge:

Left to their own devices the Third American Corps might have struggled to cross the Vesle all summer and met no success in frontal attacks. Marshal Foch, however, stopped the useless effort there, pointed out the flank position to the west of the Aisne, [and] gave Mangin the word to start his battering ram to make the breach....By going down the stream...to a point where it emptied into the Aisne and thence across the Aisne...a great tactical victory was won."<sup>55</sup>

Howland described the prelude to the victory in a not quite accurate sentence, saying that III Corps "continued the advance against the most desperate resistance of which the Germans were capable, until September 7."<sup>56</sup> It was a "struggle," not an "advance," and it was an exceedingly expensive struggle.

Pershing said that in the Aisne-Marne campaign "Nearly 300,000 American soldiers [in nine divisions] were engaged in these operations, sustaining more than 50,000 casualties."<sup>57</sup> On the basis of approximately two wound casualties to each gas casualty at the Vesle (this holds true for the 4th, 32<sup>nd</sup> and 28th Divisions), the 6,000 or more gas casualties incurred in the post-campaign operation would indicate that between 18,000 and 20,000<sup>58</sup> of

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Garlock, Tales of the Thirty Second (West Salem, Wisc., 1927), p. 211.

56

Howland, p. 345

57

Pershing, My Experiences in the World War (New York, 1931), II, 211. Since nine divisions would include the 1st and 2nd Divs at Soissons, and the 26th, 3rd, 42nd, 4th, 32nd, 77th and 28th Divs in the Marne-Vesle-Aisne advance, it is presumed that the statement covers the period 18 Jul - 15 Sep.

58

This casualty total agrees approximately with a compilation made from casualty reports in DOR 5-32, III Corps, 11 Aug - 8 Sep (III Corps Box 28, 33.1).

Pershing's casualties were incurred at the Vesle after the campaign was officially over.

The post-campaign episode on the Vesle was in the nature of a blunder and as such has been ignored in the histories of the AEF. Three French divisions and five American divisions in the American corps at the Vesle were involved in what the III Corps Gas Officer described in an understatement as a "tactical situation [that] demanded [that] the men remain in areas where yperiting was continuous for several days." Of the 6,000 American gas casualties at the Vesle, the compilation in Table No. 1 makes it evident that more than a third of them were incurred in the period when no attack or advance was possible.<sup>59</sup>

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59

At the Vesle from 4 - 12 Aug, 4th Div field hospitals admitted 1,560 wound cases, 810 gas cases and 162 shell concussion cases. See Hist of Med Dept, 4th Div, 8 Jul 1919 (Med Dept Box 3455, fol 1).

Ltr rpts, CGO III Corps to CG 6th Fr Army, 11 Aug, 21 Aug, 1 Sep, sub: Rpt of Gas Casualties (War Dept Hist Box 297, 12-3), indicate that all but 900 of the 6,000 gas casualties were caused by mustard gas.

September data for 28th Div are based on Monthly Rpt of Gas Casualties, 28th Div (1st Army Box 340), which shows an even total of 1,000 between 1 - 10 Sep. Ltr, Div Surg 28th Div to CG 28th Div, 2 Oct, sub: Monthly Rpt of Casualties (Med Dept Box 3626, fol 2), shows 948 wound and 998 gas cases between 1 - 9 Sep.

Variants on these figures occur in ltr, CGO III Corps to C CWS, 16 Oct, sub: Rpt on Gas Casualties (War Dept Hist Box 297), showing 923 gas cases in 28th Div, 343 in 77th Div in Sep, 70 percent due to mustard gas. List of Gas Casualties Handled by the 306th FH, 77th Div, 17 Jan 1919 (1st Army Box 341) shows 1,504 gas cases between 14 - 31 Aug and 233 between 1 - 14 Sep, a total of 1,737.

TABLE NO. 1

## I AND III CORPS GAS CASUALTIES

	1-11 Aug	11-21 Aug	21-31 Aug	Aug Total	1-15 Sep	Aug & Sep Totals
I Corps						
4th Div	810			810		810
62nd Fr						
III Corps						
32nd Div	437	29	1	467		467
3rd Div	142	37		179		179
4th Fr						
164th Fr	4			4		4
28th Div	745	728	160	1633	1000	2633
77th Div		1155	359	1514	484	1998
	<u>2138</u>	<u>1949</u>	<u>520</u>	<u>4607</u>	<u>1484</u>	<u>6091</u>

No casualty figures have been found for the 4th French Division in III Corps, relieved at the Vesle on 8 August by the 164th French, nor for the 62nd French in I Corps, relieved with 4th Division by III Corps on 12 August. Little therefore can be said about gas cases in adjacent French divisions, except that the Americans customarily insisted that their French neighbors took as many, if not more, gas casualties than they did.

This is doubtful, if a memo on mustard gas cases in Sixth French Army is to be believed. In the period "late July, August, and early September," Sixth Army reported 897 mustard gas casualties among its French troops, in contrast to 2,469 mustard gas casualties suffered by its attached 3rd, 28th

32nd and 77th American Divisions.<sup>60</sup> During that same period (approximately 29 July - 7 September), eleven different French divisions were in the line at one time or another, comprising about the same number of men as in the four American divisions.

One inference drawn from the memo on French casualties may be valid since it is supported by data elsewhere,<sup>61</sup> that is, that French gas casualties were generally about one-third of those suffered by the Americans adjacent to them. After four years the French did not waste their remaining troops by holding them in areas gassed by the enemy. Nevertheless, it may be assumed that during the period 1 - 11 August, while I and III Corps still had French divisions attached, their gas casualties may well have been nearer 700 than 4, as represented in Table No. 1. The suggested cost of the struggle in the American sectors at the Vesle as 6,000 gas casualties is thus a minimum figure.

Hospital records of the 77th and 28th Divisions, in Table No. 2, p.39, indicate fewer gas casualties than do corps records (Table No. 1). On the other hand, corps figures for the 32nd Division are far below either its hospital admissions total (825) or the probable true total (1,300).<sup>62</sup> The figures in parentheses in Table No. 2 are the daily gas

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Memo, Lt Col H.H. Stickney Jr for Col Johnston, 2 Dec, sub: Gas Casualties in the French Armies (GAF-C CWS). Unaccountably, the 42nd and 4th Divs are not mentioned.

61

Study No. 4, "The 26th Division in the Aisne-Marne Campaign," p. 64.

62

Study No. 12, "The 32nd Division Advances to Fismes," p. 61.

casualties reported by the respective DGO's.<sup>63</sup>

TABLE NO. 2

GAS CASUALTIES IN THE HOSPITAL RECORDS  
OF 77th AND 28th DIVISIONS

Date	77th Div	28th Div	Date	77th Div	28th Div
29 Jul		31	1 Sep	17 ( 5)	44 ( 44)
30 Jul		16	2 Sep	7 ( 34)	26 ( 28)
31 Jul		100	3 Sep	38 ( 7)	7 ( 7)
		<u>147</u>	4 Sep	18 ( 6)	9 ( 9)
		(147)	5 Sep	8 ( 12)	33 ( 33)
1 Aug		90 ( 17)	6 Sep	17 ( 32)	248 ( 247)
2 Aug		12 ( 3)	7 Sep	134 ( 165)	318 ( 390)
3 Aug		7 ( 1)	8 Sep	80 ( 33)	183 ( 180)
4 Aug		4 ( 5)	9 Sep	28 ( 8)	38 ( 38)
5 Aug		38 ( 24)	10 Sep	5 ( 4)	24 ( 24)
6 Aug		10 ( 12)	11 Sep	10 ( 3)	
7 Aug		49 ( 50)	12 Sep	10 ( 20)	
8 Aug		119 (115)	13 Sep	13 ( 8)	
9 Aug		146 (106)	14 Sep	13 ( 41)	
10 Aug		95 ( 74)	15 Sep	99 ( 106)	
11 Aug		101 ( 71)	16 Sep	57 ( 1)	
12 Aug		11 ( 2)	Delayed	12 ( 11)	
13 Aug		53 ( 51)		566 ( 496) <sup>a</sup>	930 (1000)
14 Aug	8 ( 8)	8 ( 9)		<u>566</u>	<u>930</u>
15 Aug	39 ( 36)	39 ( 42)	TOTAL	2058 (2092) <sup>b</sup>	2390 (2249)
16 Aug	435 (433)	116 (114)			
17 Aug	418 (431)	69 ( 72)			
18 Aug	152 (156)	39 ( 38)			
19 Aug	47 ( 47)	40 ( 35)			
20 Aug	18 ( 18)	36 ( 33)			
21 Aug	17 ( 17)	45 ( 40)			
22 Aug	103 ( 89)	39 ( 38)			
23 Aug	64 ( 64)	21 ( 21)			
24 Aug	35 ( 39)	9 ( 8)			
25 Aug	35 ( 34)	7 ( 7)			
26 Aug	15 ( 32)	15 ( 14)			
27 Aug	30 ( 30)	10 ( 9)			
28 Aug	32 ( 32)	10 ( 10)			
29 Aug	10 ( 10)	4 ( 6)			
30 Aug	15 ( 15)	14 ( 15)			
31 Aug	19 ( 19)	57 ( 60)			
	<u>1492</u>	<u>1510</u>			
		<u>1313</u>			<u>1102</u>

<sup>a</sup> A note on the Monthly Report adds 86 cases as "uncertain," according to the DMGO.

<sup>b</sup> With five days missing, the DOR, 77th Div, 14 Aug - 14 Sep, reveal 51 officers and 1707 men wounded, 57 officers and 1694 men gassed in that period (Sum of Events, 77th Div Box 9, 33.2).

<sup>63</sup> Admission lists of FH 306 and 307 (77th Div) in Med Dept Boxes 3838, 3839;

In his gas casualty report for August, Captain Wooddell, 28th Division DGO, showed 1,131 gas cases (vs. 1,633 in Table No. 1, p.37) and 2,210 "other casualties." <sup>64</sup> The 77th Division was reported that month to have suffered about 1,500 gas casualties and 800 other casualties. The gas cases in the 77th, said the Corps Gas Officer, represented 64 percent of all casualties, as against 41 percent in the 28th Division, and was much too high considering that the percentage of gas shell to total shell in the two division sectors was approximately the same, 12 and 11 percent, respectively.<sup>65</sup>

Elsewhere the Corps Gas Officer reported that in August and early September the 77th and 28th Divisions together suffered approximately 4,200 gas casualties (vs. 4,631 in Table No. 1, p.37), representing 42 percent of their total casualties. These gas casualties resulted, he said, from approximately 14 percent of the total weight of shell fired by the enemy or approximately 12,000 gas shells.<sup>66</sup>

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63 (continued)

FH 109, 110, 111, 112 (28th Div) in Med Dept Boxes 3636, 3638, 3639, 3640; and additional 28th Div casualties in FH 126 (32nd Div) in Med Dept Box 3696.

77th and 28th Div DGO Monthly Gas Casu Rpts for Aug and Sep (War Dept Hist Box 297, 12.3 ; 1st Army Box 340; GAF-77th and 28th Divs).

64

Ltr, DGO 28th Div to CGO III Corps, 5 Sep, sub: Monthly casualty report (War Dept Hist Box 297, 12.3). Cf. Ltr, DGO 28th Div to C CWS, 4 Sep, sub: Casualty Report (same file), quoting the Div Surg report for the period 5 - 31 Aug of 1,105 gas and 1,996 other casualties.

65

Memo, CGO III Corps for CofS III Corps, 2 Sep, n.s. (War Dept Hist Box 297, 12.3).

66

Ltr, CGO III Corps to C CWS, 3 Oct, sub: Rpt of Gas Activities (1st Army Box 340 - III Corps).

German records (see Table No. 3) reveal that the 29th Division, opposite the center of the American sector, alone fired a total of 16,029 gas shells and 57,425 HE shells in the period 7 August - 3 September, the gas shell representing 22 percent of the total shell fired:<sup>67</sup>

TABLE NO. 3  
AMMUNITION FIRED BY ARKO 67\*

Date	HE	Blue Cross	Green Cross	Yellow Cross	Date	HE	Blue Cross	Green Cross	Yellow Cross
7 Aug	1830	48			21 Aug	3362			
8 Aug	1038	118		80*	22 Aug	8523	136		
9 Aug	357	255			23 Aug	3389	303		
10 Aug	2398	112			24 Aug	3262	237		340
11 Aug	2437				25 Aug	2135	114		
12 Aug	2010	523			26 Aug	1733			
		100*			27 Aug	7677	268	345	
13 Aug	1287	793			28 Aug	3964			
14 Aug	142	302			29 Aug	1052	338		
15 Aug	394				30 Aug	1007	90	90	956
16 Aug	848	887	300*	2300	31 Aug	523	264		
17 Aug	858	92			1 Sep	794		190	
18 Aug	723	75			2 Sep	938	217	144	1366
19 Aug	531				3 Sep	1782	829	177	196
20 Aug	2431	630	392	2422					
						57425	6731	1638	7660

\* Arko 67 comprised 20th FA and 9th Foot (heavy) Artillery, 29th Division. Asterisks represent shell fired by 9th Foot Artillery.

Accepting the totals of Table No. 3, the overlays showing the gas fire of the four German divisions -- the 17th, 29th, 216th, and 4th Guard --

<sup>67</sup>

30th FA Regt (29th Div) WD, Ammo Consumption Rpts (GFB 182, fol IV, pp. 83 - 131).

on the 77th and 28th Division fronts, would suggest that the Corps Gas Officer estimate of enemy gas shell fire (12,000) was much too low. Further observation may be made at once: The 29th Division does not seem to have taken part in the repeat of KANARIENVOGEL on 16 August (see Table No. 3), despite the report (narrative, p. 14) that it did, but this is balanced by the 2,422 yellow cross shells it fired in PARADEISVOGEL, which was not duplicated by the adjacent divisions.

The only possible check on the total of gas shells fired by the German divisions opposite III Corps is one based on Overlays 1 - 4 to Map No. 2. With 200 rounds arbitrarily assigned to gas missions where rounds were not reported, in the period 7 August - 3 September the 17th Division is represented on the overlays as firing 5,675 gas shells; the 29th Division only 4,859 gas shells; the 216th Division 9,865 gas shells, and the 4th Grand Division 1,755 -- a total of 22,154 gas shells, almost all of them yellow cross. But this is exclusive of KANARIENVOGEL and PARADEISVOGEL, which would add at least 7,000 yellow cross shells to that total, or approximately 30,000 gas shells.

This estimate, high as it is, will not do. A comparison between the 29th Division daily ammo reports (Table No. 3) and Overlay 4 to Map No. 2, based on division and corps daily reports of 29th Division gas missions, indicates numerous discrepancies for which at this time there are no answers. As between the 16,029 gas shells reported by the artillery and the 4,859 accounted for by division headquarters, it can only be presumed that the artillery figure is the more correct.

While available statistics on gas casualties at the Vesle may be presumed

to be reasonably accurate, it is obvious that the statistics on the German gas shells that produced these casualties make conclusions on the effectiveness of the gas almost wholly conjectural. Nevertheless, assuming 30,000 gas shells in the period 7 August - 3 September, the total of more than 6,000 gas casualties in the American divisions would represent a casualty for every five gas shells. On the extreme basis of 48,000 gas shells (arbitrarily tripling the gas shell reported fired by the 29th Division in Table No. 3 to represent the total fire of the four German divisions) a casualty was produced for every eight gas shells fired. Similarly tripling the weight of HE fired by the 29th Division, the total of 172,275 shells that caused 12,000 wound cases (assuming two wound cases, of whatever kind, for each gas casualty) meant that between fourteen and fifteen HE shells were required for each wound casualty.

The narrative suggests, as it has in each of the previous studies in this series, that it was the German machine gun, not the HE fired by German artillery, that produced most of the wound casualties. It is probable that the ratio was over a hundred HE shells for every actual HE wound, concussion, or shell shock casualty produced.

"Be of Good Heart!"

That the 28th Division was badly hurt at the Vesle is clear from Captain Wooddell's report of the German use of gas during the operation. Even before it was subjected to the gas drenching above the Vesle on 5 - 7 September, the morale of the 28th had been seriously undermined by the incessant gassings it had suffered. In a general order in late August, the division commander,

General Muir, described by implication the sense of futility that had overtaken his division.

The Division Commander is authorized to inform all, from the lowest to the highest, that their efforts are known and appreciated. A new division, by force of circumstances, took its place in the front line in one of the greatest battles of the greatest war in history. The Division was acquitted itself in a creditable manner....In a single gas application it inflicted more damage than the enemy inflicted on it by gas since its entry into the battle.

It is desired these facts be brought to the attention of all, in order that the tendency of new troops to allow their minds to dwell on their own losses to the exclusion of what they have done to the enemy may be reduced to the minimum.

Let all be of good heart! We have inflicted more losses than we have suffered....<sup>68</sup>

That the 28th Division inflicted more losses than it suffered is questionable. The 4th Guard, reconstituted after the Battle of the Somme, and the 216th, brought from the Rumanian front, entered the line of the Ourcq on 25 and 28 July, respectively. The 32nd Division claimed to have "destroyed" these two divisions at the Ourcq on 30 - 31 July (mistaking their retirement to the Vesle for their decimation), but on 15 September, after scooping III Corps cold, they were still in the line, reduced in strength but stubbornly holding at the Aisne (see Map No. 5).<sup>69</sup>

68

GO 13, 28th Div, 30 Aug (28th Div Box 119); quoted in full in Jnl of Opns, 28th Div, 30 Aug (28th Div Box 6, 33.3). For the single gas mission of the 28th Div, see narrative, pp. 26 - 27.

The 28th Div does not seem to have profited by its high gas casualties in this campaign. Memo, CGO I Corps for CofS I Corps, 8 Oct, n.s. (1st Army Box 339-I Corps), reported that on several visits to the 28th Div sector in the Argonne between 24 Sep - 5 Oct, the CGO "found gas discipline practically non-existent." During his visits 147 officers and men were evacuated, "due to the ignorance and carelessness so apparent in this division."

69

Histories of 251 German Divisions (Washington, 1920), pp. 90, 686.

No such clear statement of the morale problem as Muir's has been found for the 77th Division, and its official history, as well as records, are singularly reticent about its gas experience at the Vesle. The only one who seems to have been exercised about the gas casualties in the 77th was General Fries, Chief of the Chemical Warfare Service, AEF, who apparently did not hear of them until after mid-September:

The losses from gas in the 77th Division seem to be very considerably higher than in other divisions, while the particular localities in which this division has operated do not indicate that these losses should have been so heavy.

He asked that an inspection and investigation be made. Two months later Colonel Schulz, First Army Gas Officer, replied that the casualties had occurred some weeks prior to the request, before the 77th came into First Army, and by agreement with General Fries no action was taken.<sup>70</sup> Of interest in Fries' letter is his failure to mention 28th Division casualties, approximately the same as those in the 77th, and the implication in the letter that the situation at the Vesle after the official end of the campaign was not generally recognized.

In view of the large number of gas casualties suffered during the stand of the 77th Division at the Vesle, representing almost 85 percent of its total gas casualties during the war, the comments of Maj. Jacob L. Engle, 77th Division Surgeon are of peculiar interest. Just before

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70

Ltr, C CWS to CGO 1st Army, 18 Sep, sub: Losses from gas in 77th Division, and 1st Ind, 12 Nov (1st Army Box 341).

going into the line at Fismes, he later said,

Instructions were received that all cases of wounds from machine gun, shrapnel, grenade or other missiles be evacuated, regardless of how slight the wound, and these were carried out to the letter. There were, however, in the Vesle sector 2700 gassed [cf. Table No. 1 showing 1,998] 50 percent of which were returned to duty from the gas hospital....Approximately 10 percent of the men who were tagged "gassed" were found to be suffering from causes other than gas. [All gas cases were the result of] dichlorethyl-sulphide, 50 percent of these showing evidence of external burns.

And further on,

In the Vesle sector a great number of our casualties were produced by gas. It however cannot be said that gas was of any great importance. The troops of this Division continued fighting regardless of what type or how much gas was thrown among them.

In one place Major Engle said that gas cases were returned to duty in from one to three days after admission and, in another, that both medical and gas cases were kept in the division hospitals from one to two weeks before returning them to duty. Major Engle does not seem to have been very consistent, or sympathetic. Unlike the 32nd and 4th Divisions, which recognized large numbers of shell shock cases among their casualties at the Vesle, the 77th Division had just two -- both of them "marked cases of hysteria." There were many others who reported to battalion aid stations claiming shell shock, said Major Engle, but they got little sympathy and were returned to their units at once.<sup>71</sup>

#### Lessons Learned

It is difficult to escape the impression in the records of the Aisne-

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<sup>71</sup>

MS. Medical History of the 77th Div, pp. 15 ff. (Med Dept Box 3829, fol 1).

Marne campaign that the French and American forces bounded forward in great leaps only when the Germans permitted them to, that they were held to advances of yards when the German line was ordered to hold, and were held at such arm 's length at all times that they had no idea when any of the withdrawals were to be executed until the enemy suddenly evaporated from the immediate front. The German retreat from the Marne to the Aisne stands as a classic among military maneuvers.

The German records make plain the incredible precision with which every unit of infantry as well as of artillery was moved and maneuvered in that retreat. Not only did Seventh Army carry out of the salient the mountains of equipment it had brought in to sustain its attack, but during its withdrawal it "harvested all the crops and looted all the towns. All the forage had been cut." The spoils left for the pursuers were meager, consisting principally of "considerable ammunition."<sup>71</sup>

The German retreat from the Marne, said III Corps G - 2, was "carried out orderly and at leisure." The morale of the German Seventh Army was still high in July and August, and the troops believed Ludendorff when he told them that "It was not a tactical success of an adversary...but the difficulties of communication with the rear which caused our withdrawal."<sup>72</sup>

The German Army retreated on its own schedule, to prepared positions

<sup>72</sup>

Annex 6, p. 34, Spec rpt, Opns of 32nd Div, 29 Jul to 7 Aug (AEF GHQ G - 3 Rpts Box 3316, fol 1).

<sup>73</sup>

Annex II to SOI 21, III Corps, 23 - 24 Aug (III Corps Box 7, 20.1); Annex III, ibid.; 28th Div Jnl of Opns, 21 Aug (28th Div Box 6, 33.3).

of its own choosing. It was able to do this largely through its skilful use of machine guns and, above all, its use of gas. At the Vesle, communication on interior lines was once again fully established, and the bitter month for the Allies was the result.

The most that the enemy threatened at the Vesle was the infiltration of raiding parties across the stream. It was French Sixth Army that established the tactical situation, with its demand for the maintenance and expansion of bridgeheads over the river. As a consequence it was necessary to keep large bodies of men close to the river front, under direct observation of the enemy situated on higher ground.

The French were not prepared to attack. The bridgeheads would be pinched out if the enemy attacked. And if he retreated, there was no need for bridgeheads. By mid-August at least the French must have known the situation was not only fictional but untenable. Twenty thousand casualties was the cost of the useless bridgeheads.

The French were not alone in imposing untenable tactical situations on AEF troops. At St. Mihiel and again in the Meuse-Argonne, the AEF itself, loathe to give up ground it had taken, persisted in maintaining that "the tactical situation" made it impossible to evacuate certain areas occupied by troops, however contaminated those areas might be. Yet it was an accepted fact, frequently repeated in French and American gas intelligence reports, that the enemy never attempted to occupy or even advance over ground he had contaminated.

Turning to the particular, the lessons learned by the 77th Division in the yellow cross (mustard gas) bombardment of 15 - 16 August were those that

had to be learned by every division in the AEF through experience: that Division Gas Officers must be notified immediately of a gas attack, that areas contaminated with mustard gas must be evacuated, that casualties would surely occur where the odor of mustard gas remained perceptible (narrative, p.16). Troops would not, or could not, tolerate wearing the gas mask more than a few hours, and despite training, removed them even when it was dangerous to do so. Even frequent reliefs of troops in contaminated areas could not wholly prevent casualties unless the troops also wore special clothing. Making passageways through the large contaminated areas, as corps directed, was probably of limited use in keeping down casualties.

Whether the reoccupation of Villesavoie was included in the situation by the French or was a matter of American principle is unknown, but the repeated gassing of the Villesavoie area by the enemy indicates that it remained a major and expensive traffic center throughout the period.

The general chaos and high casualties in the green 77th Division were not exceptional. Of interest is the reaction of the 28th Division to the prolonged gassing at the Vesle. That division had been at the Marne in support of the 3rd Division on 15 July when the great gas bombardment hit that front. Even though well to the rear, it had suffered between 400 and 500 gas casualties. No record of panic on that occasion has been found. Yet its troops did panic at the Vesle (narrative, p.20) when subjected to continuous exposure to gas. The hysteria and panic, as well as depressed morale, were unquestionably the result of the artificial tactical situation that wore down the troops when there was little hope of an immediate advance

and no hope of making an attack.

The fiction of the tactical situation became intolerable in view of the enemy's obvious superiority in machine gun fire, artillery fire, and gas fire. Rare in the published histories of the divisions is the statement of the 28th Division, that it was, with the 77th, "forced to stand fast and endure the slaughter without an opportunity to fight back" (narrative, p. 23).

Until late in the operation neither of the American divisions appears to have had any gas shell to fire in retaliation, although the French divisions on either side fired considerable amounts. Yet artillery gas shell, as the AEF learned, was the only effective way to stop enemy gas fire. The unit of the 1st Gas Regiment, brought into the sector on 20 August in desperation, presumably could not reach the enemy artillery. Its gas and flame missions against machine gun sites just across the river only called down greater fire on the troops.

The French, wary of the greenness of American troops, were long reluctant to allow their new allies a share of their gas shells, preferring to fire it on their behalf when supplies permitted. And until the Meuse-Argonne campaign it cannot be said that the Americans made any serious effort to get gas shells. Nothing has been found in 28th or 77th Division records to show that either division wanted or requested their own supply.

The implication is clear throughout the narrative of the end of the Aisne-Marne campaign that the French could be prodigal of manpower where the Americans were concerned. (Table No. 1, p. 37, would make it appear

that the American corps did not even have access to records of French casualties in those corps.) In holding the troops at the river line, the French seem not to have taken into account the fact that the Germans were back on their interior lines of communication and had enormous stores of supplies available, as the Allies had not.

But except for the 28th Division remark on the slaughter at the Vesle, the records of the 28th and 77th Divisions are remarkably free of criticism of the French. Note the 3rd Division records, as a subsequent study will show.<sup>74</sup> The records of its experience with the French at the Marne and later at the Vesle describe vividly if tactlessly the mishandling of that division by French corps and French Army headquarters, and include repeated pleas to AEF headquarters to remove it from French control.

The effectiveness of the final gas bombardment of the 28th Division above the Vesle in early September doubtlessly owed something to the low morale of the division, but above all it was a superb demonstration of the enemy's use of gas to block pursuit and inflict high casualties.

It was also an example of the failure to train troops to fight under gas conditions in open warfare, and to lead them properly under such conditions. The Division Gas Officer's statement that the gas trap was obvious but "tactical reasons compelled us to go into it, [trusting] we could force our way through" (narrative, p. 35), makes the massing of troops in the pocket inexcusable. The ring of fire put around that trap, and a glance

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<sup>74</sup>

Study No. 14, "The 3rd Division at Chateau Thierry."

at a map of the extent of the advance of the 28th, makes it clear that the troops did not break out of the trap.

Brig. Gen. Amos A. Fries, Chief of the Chemical Warfare Service, AEF was later to say of this episode:

The use of gas as a "back barrage" to prevent or impede the bringing up of reserves is another effective use which can be solely carried out by the artillery. This was worked out by the Germans on the Vesle River greatly to our disadvantage during the early part of September, 1918, when the 28th Division was fighting its way up the northern slope. Our casualties were so great that we were reluctantly forced to admire the tactics employed.<sup>75</sup>

It is doubtful whether General Fries was fully aware of the events that took place at the Vesle, or had more than the report of the 28th Division Gas Officer to go on.

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<sup>75</sup>

"The Chemical Warfare Service," Infantry Journal, XXI (Dec 1922), p. 673.

