BRITISH MINING DURING WW I
References

- They Called it Passchendaele
- Passchendaele and the Battles of Ypres 1914-18
- A Storm in Flanders, Tragedy and Triumph on the Western Front
- The Battleground Europe Series: Ypres, Hill 60
Outline

• History of Mines
• Mine Construction
• Mines in Combat
• Case Study: Messines Ridge, 7 June 1917
• Summary
• Conclusion
History of Mines

• Medieval Sieges

• Decline of Mining

• WW I German Offensive Mining
Mine Construction

- Exploration
- Geology
Mine Construction

- Mining Technology
  - Shoring
  - Lighting
  - Pumping
  - Warning
Mine Construction

- Digging Techniques
  - Pick & Spade
  - 6 ft per 8 hr Shift
Mine Construction

- Digging Techniques
- Transporting the Spoil
Mine Construction

- Digging Techniques
  - “Clay Kicking”

- 12-14 ft per 8 hr Shift
Mines in Combat

- Defensive Mining
  - Geophone
  - Camouflet
Mines in Combat

• Offensive Mining
• Cut-away View
Mines in Combat

- Offensive Mining
- Plan View
Mines in Combat

- Offensive Mining
  - Explosive Charge
    - Ammonal
  - Tamping
Case Study

- The Third Battle of Ypres: Messines Ridge
Case Study

- Attack Occurred
  - 7 June 1917
  - 0310 hrs
Case Study

• Units Involved
  • 171 Tunnel Co. RE
  • 175 Tunnel Co. RE
  • 3rd Canadian Tunnel Co.
  • 1st Australian Tunnel Co.
Case Study

- Explosives
  - Over 1.2 million lbs

- Mines
  - 21 Mines
  - 200 – 2000 ft in Length
  - 50 – 125 ft in Depth
Case Study

• Aftermath
Summary

- History of Mines
- Mine Construction
- Mines in Combat
- Case Study: Messines Ridge, 7 June 1917
“It was tremendous. One almost felt “Good old England.” You wanted to wave a little Union Jack. Thanks God we’ve done something. It had a tremendous moral effect.”
- 2nd LT J.W. Naylor, Royal Field Artillery
Case Study
### Case Study

#### Second Army Offensive Mines 7.6.17

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>NAME OF WORK</th>
<th>EXPLOSION FORMULA</th>
<th>DEPTH FEET</th>
<th>CIRCUIT AND PRIMERS</th>
<th>METHOD OF FILLING</th>
<th>REACTIONS</th>
<th>PACKING</th>
<th>DETAIL IN FEET</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td></td>
<td>ST. Eloi</td>
<td>70</td>
<td>95,600</td>
<td>128</td>
<td>Three circuits each 16 Det. 16 Det. 16 Det. each Primer in 5000 Amm. Tnt</td>
<td>Immerged in each Circuit</td>
<td>Amm. Tin Dets well spaced</td>
<td>100-300-8</td>
<td>176 77 17 8 350 Mil.</td>
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<td>3</td>
<td></td>
<td>KELLERHOF</td>
<td>751</td>
<td>140,000</td>
<td>58</td>
<td>Two circuits each 6 Det. One Det. in 2500 Dyn. Res. in 1&quot; brick dyn. in loose bag at 50 mm.</td>
<td>Exploded in each Circuit</td>
<td>Amm. Tin Dets well spaced</td>
<td>300 Solid</td>
<td>105 55 14 7 215 11</td>
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<td>5</td>
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<td>MARELATEM</td>
<td>80</td>
<td>94,000</td>
<td>96</td>
<td>Three circuits each 10 Det. One Det. in 5000 Amm. Tnt.</td>
<td>Exploded in each Circuit</td>
<td>Amm. Tin Dets well spaced</td>
<td>310 Solid</td>
<td>100 Air 120 Solid Total 5700</td>
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<td>1A</td>
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<td>HILL 60</td>
<td>91</td>
<td>55,500</td>
<td>90</td>
<td>Three circuits each 6 Det. Each Det. in 1.5 G.C. Powder with 6 1/2 Det. each Primer in 5000 Amm. Tnt</td>
<td>Exploded in each Circuit</td>
<td>Amm. Tin Dets well spaced</td>
<td>450 30 10</td>
<td>205 90 23 12 385 Mil.</td>
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<tr>
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<td>HILL 60</td>
<td>112</td>
<td>70,000</td>
<td>83</td>
<td>Three circuits each 6 Det. Each Det. in 1 G.C. Powder with 3 1/2 Det. each Primer in 5000 Amm. Tnt</td>
<td>Exploded in each Circuit</td>
<td>Amm. Tin Dets well spaced</td>
<td>450 30 10</td>
<td>260 60 51 17 360 10</td>
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<tr>
<td>1A</td>
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<td>TRENCH 125</td>
<td>181</td>
<td>40,000</td>
<td>58</td>
<td>Three circuits each 6 Det. Each Det. in 1 G.C. Powder with 3 1/2 Det. each Primer in 5000 Amm. Tnt</td>
<td>Exploded in each Circuit</td>
<td>Amm. Tin Dets well spaced</td>
<td>450 Solid</td>
<td>226 64 24 8 535 12</td>
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<tr>
<td>1B</td>
<td></td>
<td>TRENCH 125</td>
<td>1201</td>
<td>30,000</td>
<td>55</td>
<td>Three circuits each 6 Det. 9 Det. 16 Det. Powder with 10,000 Det. in 5000 Amm. Tnt</td>
<td>Exploded in each Circuit</td>
<td>Amm. Tin Dets well spaced</td>
<td>160 Solid</td>
<td>217 75 40 10 567 11</td>
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</table>

The detonators were placed along the gallery and were the main central. The charge was set off in three spots along the center of the charge which resulted in good results.
Mines in Combat

- Offensive Mining
- Example