**Care and Feeding of the**

**Suddaby Western Front Bombing Database**

I am offering this database of Allied bombing raids on the Western Front as a research tool for anyone studying the First World War. It should be useful for determining what bombing units were flying in what vicinity on a particular day, what their losses were, what places got bombed, the casualties and property damage that occurred, and so on.

If you have questions, please contact Steve Suddaby at suddaby@cox.net.

**General Observations about the Database**

The database contains almost 7000 records of bombing raids and reports from the American Bombing Survey (ABS) on air raids, alerts, damage, casualties, etc. It represents over 20 years of work, but I have not copyrighted this to make it as accessible as possible to researchers. You should feel free to download it, re-sort it, make calculations from it, whatever. I would be grateful, though, if you’d be kind enough to cite it in publications when you do use it (Suddaby Western Front Bombing Database, [www.overthefront.com](http://www.overthefront.com), downloaded [date]).

**It is important to understand that in almost every way, this is only a partial record of bombing on the Western Front.** The raids listed (French, British, American, and Italian) are concentrated in the Rhineland and in areas reachable from the French and later American sectors of the Western Front. It records relatively few raids flown in Flanders (i.e., from the British and Belgian sectors of the front). There were many French bombing raids that are not included because their unit war diaries were not put on the web by the French government.

Even though it was a herculean effort, there are many gaps in the data collected by the American Bombing Survey. The US Air Service personnel who conducted that survey could only visit locations west the Rhine because the Allied occupation did not take place farther east with only the exception of a few bridgeheads. Information on bombing raids against German aerodromes and against rail stations closer to the front lines often could not be collected because the German army had taken it with them when they retreated. For reasons that are not clear, many locations recorded human casualties but not property damage or vice-versa. Many factories in particular were meticulous in recording direct damage from bombs falling, lost production costs, and duration of time they were shut down, but kept no records of employees killed or wounded. (Go figure…) In a row containing ABS data (showing what happened on the ground), the first few cells are in turquoise to easily distinguish them from the data about aircraft dropping bombs. The original data for the ABS can be found most easily on the website [www.fold3.com](http://www.fold3.com) in the Gorrell Papers, Section R, Investigation of Damage Done by Allied Bombing. (There is a charge to use this data, but it’s still easier than buying and slogging through the microfilm like I did in the 1990s.)

I should point out that some of the data is complete. All of the raids of Britain’s Independent Force and the RNAS No.3 Wing are listed. Also complete are the raids of the French *Groupe de Bombardement 1* (GB1), the original GB2, and bombing attacks by French dirigibles.

**Important Details You Need to Understand to Use the Database**

* Zero vs. Missing. There is a difference! For example, in the “WX Abort” cell (number of planes that aborted the mission due to weather), a zero means that I’m positive none did. If it’s blank, that means the data is missing and I don’t know for certain if any did or not.
* Raid Date. If a raid took place at night, say over the night of 9/10 August 1914, then the date listed is 9 August 1914.
* Summary Entries. Some entries summarize raids against multiple targets. For example, 12 planes take off, two abort the mission due to mechanical problems and drop no bombs, one other develops engine trouble over Germany and drops its bombs on a rail station on its way home, and the remaining nine drop bombs on the main target. The summary entry records the performance of the entire 12-plane squadron, but that is followed by two other entries, one for each target hit (since we also want to know the weight of bombs dropped on each target). THIS IS ESPECIALLY IMPORTANT IF YOU’RE TRYING TO ADD UP THINGS, say, the number of sorties flown by 55 Squadron, Independent Force, during August 1918. Not paying attention to summary entries can lead to double-counting since 55 Sqn’s sorties might be listed twice, once in a summary record and once in the record for each target. So if the Summary cell is marked TRUE, then you have to recognize that you have a summary record.
* Comments. If there is no summary record, I often put the comments into that cell because it’s near the front of the data (left side of the spreadsheet). There is a lot of detail in the comments and they are worth reading to understand a raid. If there is a summary entry, then the comments are in a comments cell to the far right of the spreadsheet.
* Sources. The source notes are listed for at least 95% of all entries (also near the right-most extreme of each row). Those entries that don’t contain source notes (which I typed early in the process when I was young and foolish) are almost all French records from one four-volume series: Edgar Middleton’s *The Great War in the Air*, 1920. None of the records from that source include squadron numbers, so the squadron entry for them is “Fr.”. In some cases where I was able to find detailed information from other sources on those raids, it sometimes turned out that the Middleton information was off by one day. The most useful sources for this database were: (1) Dr. George K. Williams, former USAF historian, who was kind enough to trust me with the only copy of the raw data he’d collected for his dissertation research on the Independent Force; (2) War diaries of bombing *escadrilles* and *groupes* which had been put on the web by the French government; (3) Thomas Nilsson, who generously sent me from Sweden hundreds of pages of summary records of French *escadre* and *groupe* bombing raids; and (4) the American Bombing Survey.
* Green-Tinted Cells. In some cases, where important data (like weight of the bombs dropped) was not included in the original source, I estimated it. These numbers are in cells tinted light green and generally the method of estimation is explained in the comments. I only made estimates where I was pretty certain that my estimate would be very close, like when some type of plane always carried the same weight of bombs and I knew that there were 5 of them dropping bombs on that raid.

**Down-in-the-Weeds Descriptions of Each Data Element**

The information below can be seen in the spreadsheet itself by passing the cursor over the column headings. When you do that, a Comment box will appear. The information there is being printed below so you can also use this document to look up the descriptions of the data.

**Date**

Cells A-E are in white if they are a record of bombs being dropped. They are in turquoise if they are bombing survey data that indicates what happened when the bombs hit the ground.

A night raid might be described in the records as being over the night of, say, 3/4 November 1916. If so, the date given here is 3 Nov. 1916. For the bombing survey data (turquoise color), it might be known precisely that the target was attacked at 0230 hours the morning of 4 Nov. 1916, so the survey data would be listed on that date rather than 3 Nov. This means that the sorting of the database might put the results of the raid (turquoise) one full day after the report of the bombing squadron instead of immediately after it.

**Time**

[Self-evident. No comment written.]

**Sqn**

Numbers w/o letters are British squadrons. Most other labels are for French escadrilles or groupes. A few are US Air Service squadrons (e.g., US20) or Italian (It.) Gruppo XVIII.

**Total Abort?**

If "Yes", the entire mission was aborted without dropping any bombs.

**Target Location**

Targets in Alsace - Lorraine often had German names as well as French names, e.g. Treves or Trier. Sometimes the alternate name is given in column AI.

**Target Description**

Semicolons are used in this column and the Target Location column to keep track of multiple entries.

For example, Location entry is A,B,C; D,E and Target Description is Airfields; Rail Stns.

This means the squadron hit airfields at A, B, C and rail stations at D & E.

**Target Type**

A=Airfields

B=Blast Furnaces

C=Chemical

I=Industry

M=Munitions (Factory)

R=Rail Target

T=Tactical (troops, camps, ammo dumps)

O=Other/Multiple

P=RePrisals

If a summary entry contains more than one target type and over 50% of the bomb weight falls on one type, then the entry is assigned that target type. "O" is used as a last resort where distribution of bombs is unknown or no target type is in the majority.

**Raid=1, Alert=0**

Used for US Bombing Survey entries. 1 is an actual raid; 0 is just an alert where no bombs were dropped.

**Summary Rec (T/F) or Comments**

Marked TRUE if entry is a summary for an entire unit where multiple locations were bombed. This field and "Complete" allow keeping some stats on a complete squadron (like how many reached any target) and keeping stats on the bombs that fell on any one location. For many single entries, however, I don't use this field and simply put comments here. Otherwise comments can be found in Column AL.

**COMPLETE**

Marked TRUE if entry is a complete record for what the unit did on that raid.

**Bomb Wgt (LB)**

Bomb weight in lbs actually dropped on target(s). Doesn't include bombs carried on planes that returned to base or were shot down without dropping bombs. If this is blank, the bomb weight is unknown, not 0. If cell is in light green, this is an estimate. I rarely made estimates - only when I had very good info upon which to base an estimate.

**A/C Launched**

Number of bombing sorties. A bomber that took off twice to attack targets twice in one night is counted as 2 sorties even if one of the two resulted in aborting due to mechanical problems. Fighter escorts that carry no bombs are not counted anywhere in this database, though they may be mentioned in the comments. If this entry is blank, it is unknown rather than 0.

**ABORT WX**

# of sorties that resulted in the bomber returning w/o dropping bombs on any recognizable target due to weather.

**ABORT MECH**

# of sorties that resulted in the bomber returning w/o dropping bombs on any recognizable target due to mechanical trouble.

**ABORT OTHER**

# of sorties that resulted in the bomber returning w/o dropping bombs on any recognizable target due to any other reason like getting lost, airsickness, etc.

**DIVERT WX**

# of aircraft (sorties) diverted to a secondary target due to weather.

**DIVERT MECH**

# of aircraft (sorties) diverted to a secondary target due to mechanical trouble.

**DIV DISOR**

# of aircraft (sorties) diverted to a secondary target due to crew disorientation (getting lost).

**BOMBING**

# of planes (sorties) that dropped bombs on SOME recognizable target. This cell being blank means that the number is unknown.

**Missing**

# of aircraft missing. This number is zero if I was positive no a/c were missing or if it seemed very likely that none were missing based on the consistency of the record in telling the whole story of what happened to all the squadron's a/c.

**FL-NO DAMAGE**

# aircraft force-landed without damage. This was recorded in the British IF data, so I kept it as a category. This number is zero if every plane is accounted for in the records or if the records are consistent in mentioning problems like force-landings when they occurred. The French war diaries often are consistent in this way.

**FL-DAMAGE**

# a/c force-landed with damage. This was recorded in the British IF data, so I kept it as a category. This number is zero if every plane is accounted for in the records or if the records are consistent in mentioning problems like force-landings when they occurred. The French war diaries often are consistent in this way.

**Alt. (Feet)**

Bombing Altitude.

**Rec #**

Record number kept by George Williams, who gave me the original British data compiled from the PRO.

**Air Fight?**

An air fight here means that the German airplanes got close enough to the bombers for the bombers or their escorts to shoot back at the fighters. German fighters sniping at a bomber formation from a ridiculously long range with no response is not counted in this database as an air fight.

**A/C Type**

"Voisin" means Voisin 3, 4, or 5.

**T.O. Time**

Earliest takeoff time of unit in military time.

**RTB Time**

Latest time a plane from that unit returned to base in military time.

**Bombing Time or Midpoint**

Known time when bombs were dropped or midpoint of T.O. & RTB times.

**Duration (Hrs)**

If several a/c made the same trip, this is the longest.

**Base**

Base for French raids is frequently from "Les escadrilles de l'aéronautique militaire française", SHAA.

**Distance From Base (Km)**

One-way distance by air, rounded to the nearest 5km.

**Killed**

Casualty data recorded by the USAS Bombing Survey. Blank cell means data is missing, not necessarily zero.

**Wounded**

[Same as above]

**Damage (Marks)**

Direct damage from bombs hitting the target. Source is bombing survey. Blank cell means missing data, not necessarily zero.

**Damage (Francs)**

Damage in Luxembourg and occasionally occupied France is given in francs in the bombing survey. During WWI, 1 Luxembourg Franc = 1 Belgian Franc = 0.80 German Marks. Blank cell means missing data, not necessarily zero damage.

**# Bombs**

# of bombs found by local authorities at target (info from bombing survey) or number of bombs dropped listed in squadron records. All types of bombs included in the latter count, including incendiaries.

**Time Lost (Hours)**

Time a facility was out of action or nonproductive due to bomb damage or stopping due to bomb raid or alert.

Examples: trains stopped moving during alerts; a rail station might be nonfunctioning until track damage is repaired, a bridge or factory might be out of commission until it is repaired; a factory might stop work during an alert while the workers took shelter.

**Other Cost (Marks)**

Indirect costs from air raids or alerts -- generally lost production during an alert where no bombs hit the facility.

**Other Cost (Francs)**

[No comment made. Same as above.]

**Alternate Location Name**

In Alsace & Lorraine, many cities and towns had two names - 1 French and 1 German.

**Raid or Alert Length (Hrs)**

The duration of the raid or alert in hours is often given in the Bombing Survey data. This frequently matches "time lost" if production or transportation stopped only for the duration of that particular raid/alert.

**Page #, Maurer Maurer, v.IV, or other Reference**

Source information.

If entry is just a number, it is a page number from Vol.IV of the USAF "History of the US Air Service", written by Maurer Maurer.

NARA 990 refers to microfilm Roll#58 of the Gorrell Records (the very last one). The target locations are listed alphabetically on the microfilm.

"War Diary" refers to the *Journal des marches et operations* put on the internet by the French government. The records are JPEG images of pages, so each one has an Image number that is part of the file name.

"G.K. Williams Summary" is data compiled by George Kent Williams for his dissertation research at Oxford (1987). It includes information from these documents: Approximate Results, Detailed Raid Report, War Diaries, The War in the Air Appendices, & Squadron Histories. Raid times have been added to this data from Keith Rennles, *Independent Force*, 2002.

**Comments**

Comments are here if they are not in Column I.

**Chronological Order**

If you sort this database in a different way and you want to return it to the original order, use this column rather than the date/time columns. This will put the summary records immediately above their subrecords and put ABS data after the bombing records for the same day.