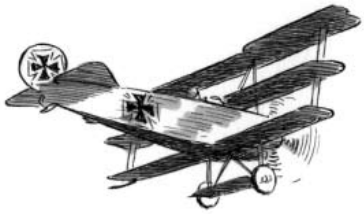
NOVA

Original broadcast: October 7, 2003

# Who Killed the Red Baron?

## PROGRAM OVERVIEW



NOVA explores the controversial death of the World War I fighter pilot Manfred von Richthofen, known as the Red Baron.

The program:

- recounts the conventional version of the downing of the Red Baron by Canadian RAF pilot Captain Roy Brown.
- reviews alternative theories and claims about who was responsible, including several Australian soldiers shooting from the ground.
- relates the Red Baron's background, including his decision to become a pilot in 1915 and his subsequent appointment to lead a squadron two years later.
- tells how the Red Baron gained his legendary nickname by painting his Albatros fighter bright red and explores why he became a wartime celebrity.
- describes the development of military aviation during World War I, including the invention of a device that allows a machine gun to fire through the path of a propeller.
- discusses the evolution of air-to-air combat tactics and the strategic organization of fighter plane squadrons.
- details the final battle in which the Red Baron was killed.
- examines ballistics, correspondence, and eyewitness accounts surrounding the shooting.
- advances new evidence to confirm a leading theory for the Red Baron's death.



## BEFORE WATCHING

1 Have students look at a map of Europe. Ask them to locate the northeastern section of France, the famed Western Front of World War I. Discuss some basic facts about World War I. How did it start? When did it occur? Who were the combatants?

2 Conduct the "Who Made the Mess?" activity on page 2. After the activity is completed, have students take notes on the facts uncovered in the program's forensic investigation.

## AFTER WATCHING

1 Discuss with your class how the use of the airplane evolved during World War I. (Used for surveillance, dropping bombs, dog fights between two planes, large battles between groups of planes.) Discuss how the airplane changed the nature of warfare. (Opened up a new front for combat, enabled spying or killing from a distance, and made technology of greater importance in determining who won the war.)

2 Review the forensic evidence that led modern-day historians to change their interpretation of who shot the Red Baron. (Records from autopsy and eyewitness reports showed bullet pathway consistent with someone shooting up from ground.) What were the key facts that led to the hypothesis that Sergeant Cedric Popkin killed the Red Baron?

## CLASSROOM ACTIVITY

### Objective

To learn how to apply deductive thinking to evaluate evidence and draw conclusions.

### Materials for teacher

- copies of the "Fact Sets" student handout
- envelopes
- scissors

### Materials for each group

- copy of the "Who Made the Mess?" student handout
- envelopes containing Fact Set 1, Fact Set 2, and Fact Set 3
- scissors

### Procedure

1 Deductive reasoning can be applied to factual information to help reconstruct historical events. Tell students that they will be doing an activity in which they will apply deductive reasoning.

2 Copy enough versions of the "Fact Sets" student handout so that each group of three will receive a complete set of facts. Cut out and place Fact Set 1, Fact Set 2, and Fact Set 3 together into an envelope for each group.

3 Organize the class into groups of three and provide each group with copies of the "Who Made the Mess?" student handout and a "Fact Sets" envelope.

4 Have one student from each group choose a fact set from the envelope and read the facts to the other group members. Have students decide which facts in the set are most relevant and the sequence in which they may have occurred. Then have students form a hypothesis of what may have happened based on the fact set. Ask students to rate their confidence level in their hypothesis.

5 Instruct a second student in each group to choose another fact set from the envelope. Have students revisit their rankings of relevance and resequence and revise the facts as needed. Ask students to repeat the procedure with the third person in the group for the final set of facts.

6 Have each member cut his or her set of facts into separate strips, with one fact for each strip. Allow groups enough time to determine relevance and sequence of all 15 facts and to support the group's conclusion about the cause of the mess.

7 Discuss as a class the various conclusions groups reached. Allow groups to compare their interpretations and debate any disagreements. Did any one fact set seem more conclusive than another? If so, why? How did additional fact sets change students' theories about the event?

8 As an extension, assign students to find out other ways that deductive reasoning is applied to forensic investigations.

## STANDARDS CONNECTION

The "Who Made the Mess?" activity aligns with the following National Science Education Standards.

GRADES 5–8
Science Standard A:
**Science as Inquiry**
Abilities necessary to do science inquiry
- Think critically and logically to make the relationships between evidence and explanations.

GRADES 9–12
Science Standard A:
**Science as Inquiry**
Abilities necessary to do science inquiry
- Formulate and revise scientific explanations and models using logic and evidence.

Video is not required for this activity.

**Classroom Activity Author**
James Sammons has taught middle and high school science for 30 years. His teaching practices have been recognized by the National Science Teachers Association, the Soil Conservation Service, and the National Association of Geoscience Teachers. A former research biologist, Sammons continues to participate in basic research. He is a member of the Geological Society of America and the American Geophysical Union.

## ACTIVITY ANSWER

Here is one interpretation of the facts using the fewest facts possible to support the conclusion. The key facts have been arranged below in the order in which they may have occurred. Note that sequence is determined by when an event occurred, not by when it became known.

1. The flour bag was on the floor. It was torn open and spilled.
2. Muddy footprints were found entering and exiting the kitchen.
3. A fine layer of flour covered the dried footprints.
4. There were squirrel tracks in the flour leaving the kitchen but none entering were found.

From these facts, one conclusion that could be drawn is that the boys arrived some time after the rain because "muddy footprints were found entering and exiting the kitchen" (Fact 2). The boys left the kitchen before the flour bag fell because the flour "covered the dried footprints" (Fact 3). A squirrel left the kitchen after the flour spilled (Fact 4). One conclusion could be that the flour fell from the counter during the squirrel visit (Facts 1 and 4). The fact that the bag was torn open suggests that the squirrel made the mess rather than the wind blowing in from outside. However, students can't know for sure how the flour was knocked off the counter. Although teams might show that the door was opened by the wind or left open by the boys and that the mail arrived last, neither point is significant to the conclusion.

The remaining facts are supportive facts. Some teams may disagree about whether a fact is important or supportive. For example, "There were wet shoe prints, now dry, on the floor" seems important but can be considered supportive because it is redundant with Fact 2.

The fact sets were deliberately assembled to suggest an unsupported idea. Set 1 suggests the squirrel(s), Set 2 suggests the weather, and Set 3 suggests the boys. Although teams will conclude that the squirrel(s) made the mess, compelling evidence cannot be assembled from any single fact set. When a class is assembled as groups, there are usually students who would rather work alone for various reasons. This activity highlights the contributions of individuals working cooperatively and the summative power of a group.

## LINKS & BOOKS

### Links

NOVA Web Site -- Who Killed the Red Baron?
www.pbs.org/nova/redbaron/
*In this companion Web site for the NOVA program, view a pictorial timeline of World War I aviation innovations, read the Red Baron's writings, explore competing theories about the Red Baron's death, and follow the life of one U.S. fighter who voluntarily joined Allied forces.*

Crime Scene Investigator
crime-scene-investigator.net/
*Provides guidelines for crime scene response and evidence collection, articles on crime scene examination, and tips on how to become a crime scene investigator.*

The Death of Manfred von Richthofen: Who Fired the Fatal Shot?
www.ku.edu/~kansite/ww_one/comment/richt.htm
*Discusses the controversy regarding who was responsible for the Red Baron's death.*

The Red Baron's Last Flight
history1900s.about.com/library/weekly/aa052401a.htm
*Describes von Richthofen's life, including his final battle.*

The Red Fighter Pilot
www.richthofen.com
*Presents an online edition of a book written by von Richthofen in 1917 titled* The Red Battle Flyer.

### Books

Franks, Norman and Alan Bennett.
**The Red Baron's Last Flight.**
St. Catharines, Ontario: Vanwell Publishing Ltd., 1997.
*Investigates the controversy over von Richthofen's last flight.*

Kilduff, Peter.
**Richthofen: Beyond the Legend of the Red Baron.**
New York: J. Wiley & Sons, 1994.
*Provides a biography of von Richthofen, written by a historian with extensive access to previously unpublished German sources.*

Kilduff, Peter.
**The Illustrated Red Baron.**
London: Arms & Armour, 1999.
*Provides a pictorial review of von Richthofen's life, including the highlights of his career.*

Major funding for NOVA is provided by Google. Additional funding is provided by the Howard Hughes Medical Institute, the Corporation for Public Broadcasting, and public television viewers.

# Who Made the Mess?

Mrs. Smith was in the middle of baking cookies (one of her favorite rainy day activities) when she had to stop for an appointment. When she returned, the floor was covered with flour and some of the cookies were gone. Her two sons admitted eating a few cookies, but denied making the mess.

This problem can be solved by the deductive process, which includes the relevance of the facts and the sequence in which they occurred.

- Relevance: How significant is a fact?
- Sequence: In what order did the events occur?

Try your hand at solving the mystery using the deductive process.

**Procedure**

1 Have one student from your group choose a fact set from the envelope and read the facts to the other group members. Together, decide which facts in the set are most relevant and the sequence in which they may have occurred. Then form a hypothesis about what may have happened.

2 Ask a second group member to choose another fact set from the envelope. Revisit your rankings of relevance and resequence and revise the facts as needed.

3 Repeat the procedure with the third person in your group for the final set of facts.

4 Have each member of your group cut his or her set of facts into separate strips, with one fact for each strip. As a group, decide the relevance and sequence of your facts by arranging them in two columns. Place the important facts in the right-hand column, starting with the first event. Place the supporting facts in the left-hand column.

5 Review the important facts with your group and develop an explanation for how you think the mess was made.

6 Test your conclusion by reviewing to see if there are any facts that don't fit.

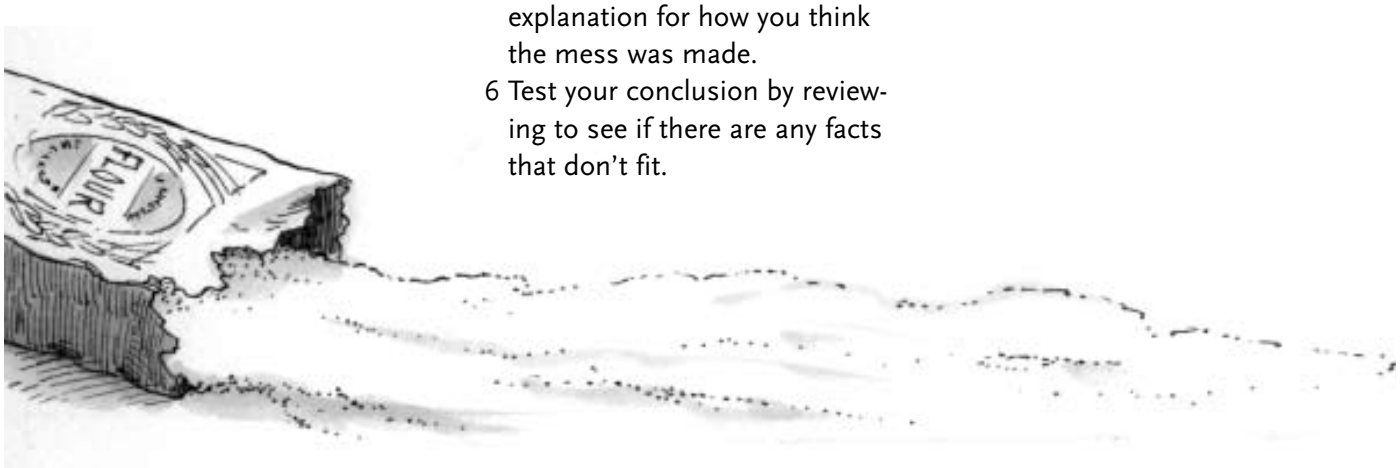
**Questions**

*Write your answers on a separate sheet of paper.*

1 After looking at the first fact set, how did you think the mess was created? How did that explanation change when you looked at subsequent fact sets?

2 What was your final conclusion about what occurred in the kitchen? Which facts are the most relevant for your conclusion? What are the least number of facts that can be used to support the conclusion?

3 What other scenarios, if any, are supported by the given facts?



# Fact Sets

Set 1
- Squirrels are curious and bold.
- There were squirrel tracks in the flour leaving the kitchen but none entering were found.
- The flour bag was on the floor. It was torn open and spilled.
- Some of the day's mail was on the floor. It was not covered by flour.
- The cookie sheet was not in the position that Mrs. Smith had left it.

Set 2
- A windy rain fell briefly after Mrs. Smith left.
- Water evaporates quickly on a windy day.
- Mrs. Smith closed the kitchen door when she left. It was open upon her return.
- The flour bag had been on the counter near the door. It was now on the floor.
- Leaves had blown into the kitchen from the yard. They were not covered with flour.

Set 3
- There were shoe prints, now dry, on the floor.
- Mrs. Smith's boys often forgot to close the doors.
- Muddy footprints were found entering and exiting the kitchen.
- A fine layer of flour covered the dried footprints.
- Mrs. Smith's boys loved chocolate chip cookies. There were cookie crumbs on the floor.