Letters to the Editor

To the Editor:

With regard to the November *JOM* article "Back to Kitty Hawk: Investigating the First Aircraft Aluminum" by M. Goodway and R.A. Leyes II, I should like to add a few peripheral comments on the matter as we have just marked the 90th anniversary (December 17, 1903) of controlled, heavier-than-air, powered flight.

The first comment has to do with John Daniels, a local man assisting in the flights. After the fourth flight, a gust of wind caused the airplane to be wrecked. Mr. Daniels failed to let go of the plane in time and became the first person to be injured in an airplane accident.

The second observation concerns the limited range of the early flights. The longest flight was 260 meters; it took 59 seconds, although it is estimated that the 1.9 liter tank would have provided enough fuel for a 15-minute flight. The engine in the museum at Kitty Hawk shows the tube leading from the fuel tank to be in intimate contact with the cylinder head; the idea was to heat the fuel to improve carburation. In reality, it probably caused a vapor lock, thereby depriving the engine of fuel.

The Wright brothers spent about seven years in their research. This included testing the airfoil for the wings in a primitive wind tunnel. In 1901, they built a glider, which set a number of endurance records that stood for many years. Being bicycle builders, they recognized the necessity of leaning into a turn. They incorporated flexible wings with pivoting points that were connected to a control yoke in which the pilot laid. Through the movement of the pilot's hips, the profile of the wing was warped into a helical shape to assist the plane to turn. Today, we would call that aileron control.

Finally, Wrights set criteria for the establishment of self-propelled, powered flight:

1. The altitude of the take-off and landing points must be the same. No gliding down a hill was permitted.
2. The engine must start the airplane from a dead stop and accelerate to flying speed without assistance. Men assisted in maintaining the stability of the airplane but did not add to the forward motion.
3. The takeoff must be into the wind. There must be no wind assistance.
4. The flight must be controlled with ailerons and elevators—no blowing along like a leaf.

As an aside, Dr. Samuel Langley, the secretary of the Smithsonian Institution, culminated ten years of research by conducting the final test on his aircraft on December 8, 1903—nine days before the Wright brothers. The aircraft crashed into Cheasapeake Bay after being launched from a houseboat, nearly drowning the pilot. Had Langley been successful, the Wright bothers would have become a footnote in the history of heavier-than-air flight rather than the reverse.

H.P. Leighly, Jr
University of Missouri–Rolla

To the Editor:

The article "A Brief Review of the Status and History of the Russian Science Establishment" by H.J. McQueen in the June *JOM* is both informative and interesting. I would add three more recommendations to those of the author to help Russian scientists:

1. Organize joint conferences on particular topics with Russian colleagues to take place in Russia with reasonable participation of scientists from the West.
2. Financial help to Russian scientists to participate in conferences in the West (such a program was recently created in Canada by the Association of Canadian Universities and Colleges).
3. Increase the publication of English translations of significant Russian scientific and technical books in the West.

In these ways, I believe that we can help effectively.

Fathi Habashi
Universite Laval

To the Editor.

In August's Letters to the Editor, J.A. Smith alludes to the convention of "–ium" endings for the names of metallic elements, making particular note of the difference between "aluminum" and "aluminium." For further reference, what follows is an excerpt from an article that I wrote reviewing the history of the name aluminum. It was published during 1986 in the Alcoa Technical Center employee magazine *Lab Log*.

Even before its discovery, confusion arose over the name of the element with Sir Humphry Davy's unsuccessful attempts in 1807 to prepare the pure metal from aluminum oxide. In concluding the description of his experiments, Davy wrote "Had I been fortunate enough to isolate the metal after which I sought, I would have given it the name 'alumium' " In making this suggestion, Davy intended the term to represent the metal from alum, simply adding "-ium" as the proper termination Objections were soon made to the proposed name, French, German, and Swedish writers maintained that the name of the new metal should be derived from the then accepted name of its oxide, alumine, and that the stem of the word should be "alumin-" and the name "aluminium."

Davy was influenced by these criticisms in 1812 to [accept the stem "alumin," but inexplicably added "ium" instead of "ium"] . . The one "i" spelling was never accepted well in Europe, but it was used widely and eventually became the official usage in North America

In the United States in the nineteenth century, both spellings were in widespread use. Perhaps "aluminium" was more common as a scientific and legal term while the shorter spelling was used popularly Newspaper accounts of the installation of the pyramidal cap on the Washington monument in 1884 refer to the metal as "aluminum" while Hall's original patent issued in 1889 is titled "Process for Producing Aluminum by Electrolysis " The first major work on aluminum by an American author, Professor J W Richards, of Lehigh University, was entitled, "Aluminum. Its History, Occurrence, Properties, Metallurgy and Applications, Including Its Alloys " In the preface to the second edition of the work in 1890, the author states "The friendly criticisms of the scientific press and their suggestions have been kept in view in preparing this new edition The spelling 'aluminium' has been retained, because no sufficient reasons have been advanced for changing it to 'aluminum;' and even if each was equally old and as well-sanctioned by usage and analogy as the other, the author's choice would be the longer spelling, as being more euphonious and agreeable to the ear."

Despite this admonition, the shorter, less euphonious spelling emerged as preferred in North America in the twentieth century In 1925, the American Chemical Society specified "aluminum" as the official spelling for the element In the current American Version of the International Union of Pure and Applied Chemistry, "Aluminum" is the recommended English spelling for the element having atomic number 13 IUPAC's recommended French spelling is "Aluminium "

I hope that this sheds some light on the unconventional name of the light metal in North America.

William B. Frank
Alcoa

Corrections

November

In the November 1993 article "Recent Developments in the Treatment of Spent Potlining" by R.P. Pawlek (pp. 48–52), two separate Comalco processes were incorrectly identified as a single process.

On page 50, the section "Comalco COMTOR Detoxification Process" should be renamed "Comalco Pyrosulfolysis Process," and the first three sentences should be replaced by the following: "Goodes et al.[21,22] developed a pyrosulfolysis process to treat spent potlining. The process involves combustion of the carbon and decomposition of the cyanides." After the four bulleted items, the following sentence should appear: "This process has been abandoned in the meantime."

Before the beginning of the next paragraph, a new section heading, "Comalco COMTOR Detoxification Process," should be inserted. After this heading, the following should appear: "The COMTOR (Comalco torbed calciner) process was developed by Comalco Research Center as a three-stage process for the complete treatment of spent potlining. The process involves feed preparation, calcination, and recovery of sodium and fluoride values. Calcination is considered to be technically the most critical stage and involves the thermal destruction of cyanides in a torbed-type calciner.

The three-stage process has several advantages.

- Given the variable nature of the spent potlining feedstock, separate stages permit close process control.
- The process can be easily installed at smelter sites.
- The products from the process are not used for landfill."

December

The technical program for the 1994 TMS Annual Meeting, which appears as an insert in the December 1993 *JOM*, misattributes authorship of the presentation "Operating Experience with QSL Plants in Germany and Korea." Neither P.E. Queneau nor H. Traulsen should be listed as coauthors. This inadvertent inclusion appears on page 12.