Understanding Gustave Whitehead’s Aerial Adventures

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Gustave Whitehead - ca. 1900

Among some aviation historians, the merest mention of Gustave Whitehead will provoke a heated discussion. Whitehead (anglicized from “Weisskopf” when he emigrated to the US in 1895) has been variously described as delusional, a crank, a charlatan, a schemer, a dreamer, an eccentric, a genius and a visionary. He has also been put forward, numerous times, as the first person to make a heavier-than-air flight in a powered machine- a nearly unknown and unrecognized prophet of aerial navigation.

Whitehead’s claim to flight before the Wrights has been almost universally discounted by academic and professional historians, although his supporters and advocates are legion, vocal, well-informed about his efforts and seemingly unshakable in their often firm conviction that he in fact did fly in a monoplane of his own design and construction, powered by an engine of his own design and construction, not only on 14 August 1901 at Bridgeport, CT, but multiple times, and with a passenger, and once for a distance of 7 miles over the waters of Long Island Sound.

Discussion about Whitehead’s efforts and achievements has been essentially static since 1937, when Stella Randolph published her seminal volume LOST FLIGHTS OF GUSTAVE WHITEHEAD. A subsequent 1966 rewrite and expansion of that earlier work, published as BEFORE THE WRIGHTS FLEW, also failed to move the matter forward to any great degree, even while adding new information. Support for Whitehead’s aerial experiments have been seen in some quarters as a nasty assault on the primacy of the Wrights’ claim on the First Flight.

However, Whitehead’s nearly forgotten experiments have also been seen as a matter of historical injustice, an injustice perpetuated by large historical institutions malevolently aligned with the Wrights, hell-bent to deny Whitehead or any other First Flight claimants their day in court. To some degree, the tone of the discussion surrounding Whitehead can be seen as a longstanding continuation of the corrosive bitterness which arose during the Patent Wars between the Wrights and Glenn Curtiss.

Notably, Orville Wright believed that the resurrection of Whitehead’s story had been a calculated assault perpetrated by his arch-enemy Albert F Zahm. Whatever the truth of the assertions of all parties, the struggle by some to seize the First Flight Crown from the Wrights has been matched by those fending off any attack...
directed at the Wrights’ legacy and historical standing. In addition to the honestly dedicated souls carrying the torch for Gustave Whitehead, many others have simply opportunistically latched onto his story as, perhaps, the best means to assault the memory and legacy of the famous brothers.

Historians and revisionists are people, also, and passion is very much a part of human existence. In this year of the Centennial of Flight (conceding the legitimacy of the Wrights’ hold on The First Flight) perhaps it is time to take a fresh look at the matter of Whitehead and his apparently quite ludicrous claims of lengthy flights made well before December 1903.

A hitherto obscure article about Gustave Whitehead’s No 21 monoplane and his flights has recently come to light. It was first published in the October 1901 issue of the German aeronautical magazine ILLUSTRIERTE AERONAUTISCHE MITTEILUNGEN (Illustrated Aeronautical Record, p165), and is reproduced here in translation.

(Literal translations of some phrases and explanatory notes are incorporated within parentheses):

The Flight Apparatus Of Gustav Weisskopf

Mr. Weisskopf, a German from Ansbach in Bavaria, sends us from Bridgeport (Note: Connecticut) the following description of his flight machine completed there some months ago.

This flying machine is essentially a copy of a bird, it has a body length of 16 feet, a height of 3 feet and is 2-1/2 feet wide at its broadest. The body rests on the ground upon four wheels. The diameter of each wheel amounts to one meter. The front wheels are propelled by a 10 horse-power engine, while the rear wheels run freely. At each side, reinforced with bamboo and covered with silk, a wing (“bearing area”) is arranged. The span amounts to 36 feet and the wing surface area (“area of the bearing areas”) is 450 square feet. The wings are strongly concave on their underside.

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lower surfaces and at no point are they loosely set up ("flabby"—meaning the wings are firmly stayed with wire).

Standing crosswise at the height of the wings ("bearing areas") is a two-fold expansion engine of 20 horse-power in the body, which turns two propeller-screws 700 turns a minute in opposite directions to aid ("which is induced to preserve") in stabilizing the vehicle along its length, and which is also intended to automatically drive the apparatus (Note: along the ground through the powered wheels before it lifts off). Fuel ("operation material") is calcium carbide and/or acetylene gas. The engine, a miracle, weighs 2 pounds per 1 horse-power, which indicates the design considerations. The 30 horse-power engine needs 60 pounds of fuel for 6 hours of operation, thus 2 pounds of fuel per horse-power for 6 hours, which must be called a very good result. If Count Zeppelin had had one of my engines of 200 horse-power, it would be only as heavy as Count Zeppelin’s engines, but more importantly the speed of the aircraft would have been much greater.

My engine produced a thrust ("strength") of 350 pounds at the propellers, that is around 85 pounds more than the weight of the whole machine. I made two trial trips with my machine and during both trips ("travels") landed the apparatus without the slightest damage. On the first, two hundred pounds of ballast were taken up, so that amounted to a weight of 500 pounds.

When the engine was operating (Note: powering the wheels), it drove the apparatus approximately 30 yards, and then (Note: the flying apparatus) left the ground and flew approximately 1-1/2 minutes. On the second attempt, which I made later, I took the ballast out and rose even higher. I’ll never forget the feeling which I had, it affected me the same as on the first attempt. The duration of the flight was 1-1/2 minutes and the distance flown through was 2,904 feet. My engine has run all day long at full speed and needed 10 pounds of fuel. It became neither warm nor made much noise and it demonstrated it was just as effective as, perhaps, a steam engine.

(\* see note at end of article re: distance) Coming directly from Gustave Whitehead, as the information and description of his No 21 monoplane do (and appearing in print very soon after his claimed flights of 14 August 1901), this article invites close examination.

One of the first things to notice is the statement that the total surface area of the "bearing areas" is 450sq’, which has often been interpreted, erroneously, to be the total surface area of the 2 wings plus that of the tail surface. Whitehead’s statement that the bearing areas “are strongly concave on their lower surfaces” eliminates the flat uncurved tail surface of Whitehead’s flying apparatus from consideration as a bearing area.

The next items of note concern his engines. He states his 30hp engine (an apparent error, probably a reference to his 20hp engine) used 10 pounds of fuel for each hour of operation, and his 20hp 2-fold expansion engine, powered by calcium carbide/acetylene, weighed only 2 pounds per hp. “a very good result”—indeed so! Also striking is his claim of 350 pounds of thrust from his propellers, “85 pounds more than the weight of the whole machine,” meaning that “the whole machine” weighed 265 pounds. Perhaps the most interesting and telling portion of Gustave Whitehead’s letter involves his second “flight” on 14 August 1901. He tells us that “the duration of the flight was 1-1/2 minutes and the distance flown was 2,904 feet.” (See “Notes” at end of article) This allows us to make a close estimate of his speed, which would have been 22 mph.

At the 32nd European Symposium of the Society
of Experimental Test Pilots held during June and July of 2000, experimental test pilot Horst Philipp presented his paper containing the new engineering data garnered on the Gustave Whitehead No 21-B monoplane during flight testing at Manching, Bavaria, Germany. The monoplane used in the flight tests was built by members of the Gustav Weissskopf Historical Research Society of Leutershausen, Germany, during the early 1990s. One of the many interesting results of that series of tests was the conclusion that take-off of Whitehead’s monoplane would occur at a “calculated flying speed of 52 kmh” (32.31mph), while sustained flight would require a speed of at least 49kmh (30.447mph.). This places Whitehead’s citation of the time aloft and distance traveled on his second “flight” of 14 August 1901 in a difficult light, for it means that his No 21 monoplane could almost certainly not have flown that day at only 22mph.

That does not mean, however, that nothing happened that August day in 1901, or that the whole affair was a hoax or a blatantly conscious lie. Another possible explanation presents itself, one which has the consequence of absolving Gustave Whitehead of the charge of being a lying charlatan, while at the same time clearly removing his aerial efforts from consideration for the honor of First Flight. The definition of “flight” used by a number of Whitehead’s strongest supporters is a modern one, applied retrospectively. It envisions Whitehead soaring through the air, high over the ground, engines chugging, propellers turning, silken wings catching and filling with air, as on the cover of Stella Randolph’s 1966 book The Story of Gustave Whitehead BEFORE THE WRIGHTS FLEW.

However, this perspective on Whitehead’s reported flights strains to explain his claimed 7-mile circling flight over Long Island Sound on 17 January 1902. Even enthusiasts who accept the claim of Whitehead’s more modest flights on 14 August 1901 question Whitehead’s claim for the first circling flight, the first 7-mile flight, and the first flight over water, all in 1902.

It seems something else is afoot here. Could Whitehead have been making what he believed to be truthful claims, even if considerably embellished? The only real alternative to this position is that he was little more than a liar, and his claims of aerial successes were little more than outright fabrications...but then, if that were so, how could they have any validity? Put another way, just exactly what was Whitehead trying to tell us when he made his claims? In the days before people could see flying machines at county fairs and race tracks, at aviation meets and aeroplane exhibitions, what did it mean for a flying machine to make a “flight”?

The following excerpt is from an article which appeared in SCIENTIFIC AMERICAN (19 September 1903) discussing Whitehead’s experiments with his triplane glider:

Unlike Lilienthal and Chanute, Whitehead does not attempt to soar by jumping off a hill or precipice. He is content, on the contrary, with
flying near the ground; if he can only solve the problem of rising from it quickly at will, and descending gently whenever and wherever he wishes.

It's worth noting that some articles about Whitehead's experiments have confused his triplane glider of 1903 and his large glider of 1902-1905 (sometimes cited as the Albatross), with his earlier, better-known, Nos 21 and 22 powered monoplanes. Indeed, some of the claims of reaching significant altitudes of 50 and 200' may be recollections of the automobile-towed large Whitehead Aeroplane glider of 1902-1905 (which did manage to ascend under tow and then glide), rather than recollections of attempts made in the earlier powered aeroplanes. Perhaps some of the confusion about this stems

“Whitehead Aeroplane ("Albatross") glider, Lordship Road (now Prosept Dr.), near Stratford, Connecticut - John Whitehead aboard, Gustave Whitehead running at left (upper photo) - ca. 1904"
from the fact that the wings of the large glider could be folded as in the powered monoplanes.

It was on the design of the large Whitehead Aeroplane glider of 1902-1905 (not the Nos 21-22 designs of 1901-1902) that Whitehead and Stanley Yale Beach chose to file a patent on 20 December 1905, which was granted (# 881,837) on 10 March 1908. It's difficult to understand why he would have chosen not to patent his earlier powered designs—unless, of course, those designs had been disappointments.

Stella Randolph wrote that Gustave's brother John, who assisted with the aerial experimentation after April 1902, recalled that Gustave was fired with enthusiasm over his success in flight thus far, but finding John somewhat skeptical, as was the public generally at the time, when flying machines were mentioned, Gustave became sensitive on the subject; finally he refused to discuss his flights, a fact later regretted by John Whitehead.

Perhaps Gustave's refusal to discuss his "flights"
had as much to do with his disappointment over the ultimate inadequacy of his designs as it did with skepticism on the part of his brother and the public. In her 1966 book on Whitehead, Stella Randolph mistakenly states that the US patent received by Whitehead in 1908 (with a half-interest held by Beach) was also applied for and granted on the No 21 and No 22 powered designs. It was not.

Randolph made another misstatement of fact concerning the Whitehead-Beach patent: that it somehow involved a “means of steering the plane which Gustave and John had worked out together.” There is no mention of such a device or means of steering in the language of the Whitehead-Beach patent.

Apparently during 1905-1906 Whitehead added an engine and propeller to the Whitehead Aeroplane glider of 1902-1905. The propeller could have been one of the aluminum-covered propellers used on the No 22. The development of the powered glider of 1905-1906 can be seen as another indication that the earlier designs had run their course.

The differences between the Nos 21 and 22 have often been blurred, leading to the erroneous conclusion that they were nearly identical. Whitehead’s comments about the 2 machines don’t help matters, for when he wrote to THE AMERICAN INVENTOR in 1902, he stated: “I have no photographs taken yet of No 22 but send you some of No 21 as these machines are exactly alike, except the details mentioned.”

This letter (which appeared in an excerpted form in Stella Randolph’s 1937 LOST FLIGHTS OF GUSTAVE WHITEHEAD with the very important first part of the letter woven into the text of that book) is missing from her 1966 book, THE STORY OF GUSTAVE WHITEHEAD BEFORE THE WRIGHTS FLEW. A photographic image of magazine article does appear in the 1966 edition, but the quality of the image makes it difficult to read clearly.

Why Whitehead’s letter was not printed (either in excerpted form or in full) in Randolph’s 1966 book is not known. Perhaps it was thought that the photographic reproduction of the letter as it appeared in THE AMERICAN INVENTOR
would suffice. The full text of the 1902 letter is reproduced at the end of this article.

While no photographs apparently exist depicting No 22, the differences in “details” were very significant, even though the superficial external appearance must have been similar. No 22 had a wider, deeper, water-tight aluminum hull with a steel tube framework, in place of No 21’s canvas covering over a wooden framework; the wing ribs on No 22 were of steel tubing, not bamboo rods as in No 21; the powerplant in No 22 was a 40hp 5-cylinder kerosene (perhaps rotary) engine with compression (diesel-type) ignition, in place of No 21’s 10- and 20hp carbide/-acetylene engines; the wheels on No 22 were from an automobile, while No 21’s were of laminated wood; the propellers on No 22 were of aluminum sheeting over a wooden core, with the propeller drive mechanism supported by a steel framework; No 22’s tail was 2’ longer than No 21’s; and a “rudder” was fitted to No 22.

However, perhaps the greatest difference between the 2 machines was that No 22 had an “automatic apparatus” which “serves to keep the equilibrium in the air.” The device was operated by a pendulum weight, a lever and a rod, connected to a lifting surface mounted at the bow of the hull, so that as the nose of the monoplane dropped, the pendulum weight would cause the canard lifting surface to elevate, thereby generating lift and raising the nose. Whitehead noted that

The leverage gained from the end of the bowsprit to the center of the machine is so great that the least change in the position of the aeroplane (Note: the forward canard-type lifting surface) is instantly effective.

He also noted that the forward lifting surface could be operated manually with a handle mounted in the hull.

The choice between the 2 positions staked out by Whitehead’s supporters and his detractors has been starkly defined: either Whitehead managed to make The First Flight (on 14 August 1901), or Whitehead was a liar and a faker who delusionally claimed to have made the “flight.” When his claim of making a 7-mile circling flight over water on 17 January 1902, is considered, many have parted company with Whitehead and his defenders. The 7-mile flight claim sounds nearly unbelievable, a wild exaggeration which reveals Whitehead for what he was, a liar and a fraud.

One of the difficulties with this view also involves the necessity of accusing most of those who signed notarized statements as eyewitnesses of lying, or at least being totally confused about what they remembered. This is not an attractive position. To think that one person might lie about his own achievements is one thing, to believe that the people who were present (on more than one occasion) and actually saw something happen were also liars is another thing altogether. At a minimum, that would require an unspoken agreement on behalf of the eyewitnesses to support Whitehead’s claims, assuming that all of Whitehead’s claims were false.

Simply put, the issue reduces to the matter of what Whitehead meant when he used the term “flight.” In 1901 and 1902 there was no generally agreed-upon definition of “flight.” Today we might be able to distinguish between hopping along, using lifting surfaces for some limited, sporadic support, and what it means to make an actual flight, but back in 1901-1902, short hops could easily have passed for true flight.

Picture Gustave Whitehead roaring down Bridgeport’s Fairfield Avenue in his No 21 monoplane, the 10hp engine turning the laminated wooden wheels, occasionally hopping into the air once the wings were extended (while underway!) with the propellers beginning to turn at 700rpm, and then dropping back to the roadway from 3-
5’ altitude, to resume running along the ground until the wings catch the air once more and lift the machine up, briefly, again-and so on. Interestingly, the portion of Fairfield Avenue which was adjacent to Whitehead’s home on Pine St and his nearby workshop, has a straightaway of 1-1/2 miles. The distance along Fairfield Avenue between the “top” of the avenue (near Whitehead’s workshop) and Ellsworth St is about 2,750’, just over the “half mile” claimed by Whitehead for his first flight. Cecil A Steeves recalled a “trial flight on the old Gilman estate located on Fairfield Avenue, between Orland and Elsworth (sic) Streets, the plane at this flight being up in the air.”

Clues to Whitehead’s thinking about what constituted a flight can be found in the statements made by those then living in the area, who knew and worked with him. In a notarized “fill-in-the-blanks-type” statement given on 24 September 1934, John S Lesko, a neighbor and associate of Whitehead’s, recalled the 14 August 1901 flight, although he remembered it as occurring “about September 1901”:

On about September 1901 I was present on the occasion when Mr Whitehead succeeded in flying his machine, propelled by motor, on a flight of 50 ft intervals distance, at about four feet off the ground for a length of time approximating a few seconds at a time.

Michael Werer’s statement, given the same date as Lesko’s, reads:

On about Sept or Oct 1901 I was present on the occasion when Mr Whitehead succeeded in flying his machine, propelled by motor on a flight of about four hundred feet, at about six feet off the ground, for a length of time approximating half minute.

Stella Randolph wrote that Charles Galamboshe told her that he once travelled (sic) along the road in one of the Whitehead planes at a fast speed, preparatory to taking off (Note: extending the wings), but the steering was so difficult that the plane struck one side of a bridge when crossing it and was damaged.

In speaking to Randolph, it isn’t clear whether Mr Galamboshe was referring to the entire machine as a ‘plane’ or to one of the ‘(aero)planes’-meaning wings; for the term “plane” was often used at the time to denote a wing. It is clear that Mr Galamboshe recalls the device or some portion of the device striking a bridge while running along a road.

It is very difficult to collate the recollections, statements and affidavits of witnesses collected by William J O’Dwyer and Stella Randolph to produce a list of attempted flights by Whitehead. However, some observations can be made. Many, if not most, of the reported attempts to send No 21 aloft took place along Pine or Fairfield Streets, very close to Whitehead’s first workshop and his home in Bridgeport, within a 1-mile radius. During 1905-1906 Whitehead built a new house for his family near Tunxis Hill, less than 2 miles from his former home on Pine Street. It was here that Whitehead built his small Albatross glider, his large Albatross glider, and the powered single-propeller Albatross large aeroplane. Whitehead’s series of Albatross-type machines therefore date to the post-1905 period. This series of gliders and aeroplanes has been long thought (by Stella Randolph, among others) to have pre-dated the No 21 and No 22 monoplanes. The large Whitehead-Beach twin-tractor biplane of 1908 with the additional Albatross-type wings at mid-fuselage was also constructed in the yard of Whitehead’s Tunxis Hill home.

In 1974, Mrs Elizabeth Koteles was interviewed by one of Whitehead’s greatest champions, William J O’Dwyer, USAF Reserve, Ret. The
following portion of O’Dwyer’s presentation of that interview is excerpted from AIR ENTHUSIAST #35, January 1988:

The 94-year-old Mrs Koteles was mentally alert and, having been a young married woman (age 22; old enough to understand and retain what she saw) who lived next door to Whitehead on Pine Street, she was well aware of him and his work. She and her husband walked one evening to the place where Whitehead was testing his airplane but she did not believe she had seen a flight ‘No. He didn’t fly,’ she said. ‘He only went a little way and came down.’

This delightfully honest and sincere old lady, still puzzled at our interest in a non-flight, answered numerous questions thoughtfully, taking care to consider before deciding upon making a statement about the height and distance flown. Making comparisons with fixed objects... she provided information about the flight which indicated it had covered a distance of 120-200 ft at a height of approximately 5 ft. She could recall and imitate the sound of the engine, which indicated it had been a steam one; details she contributed made it probable No 21 was the airplane she had seen. The year, she recalled was 1901.

(Note: the statement that No 21 was powered by a steam engine is erroneous, its 2 powerplants were carbide/acetylene engines.)

In a 13 February 1964 letter to O’Dwyer, Mrs Joe Savage (nee: Jusewicz) stated that she and her husband lived near Whitehead’s workshop “in the Pine Street area.” Stella Randolph quotes Mrs Savage’s letter:

...they were trying to fly the airplane. It didn’t get up in the air, although the men were pushing it again. Then, as dawn came along, the breeze came up and all of a sudden the plane went up in the air. We saw it fly all over the neighborhood. It went up and down and flew like it was out of control, then it straightened up and flew to about fifty or more feet in the air; it headed toward Seaside Park and the water in the harbor. The plane settled down in the water rather hard, and some men went out and pulled the plane, with Whitehead in it, to the shore. The craft was slightly damaged, but Whitehead wasn’t injured at all.

It seems most probable that the machine which the Savages watched was No 22, the aluminum-hulled flying machine. It’s interesting that Mrs.
Savage mentions that the morning “breeze” apparently helped the aeroplane go aloft, even for a brief hop, and her comment about the machine flying “to about fifty feet or more in the air” can be interpreted as either meaning distance or altitude. It is possible that she was describing a hop of some 50 feet in length, rather than a “flight” which reached an altitude of 50 feet.

It seems fairly clear that Whitehead thought of flight as a dynamic process which also included the run along the ground. Therefore, making a “flight” of a half mile would be no problem at all, if it involved 10 or 20 brief, short, bounding hops into the air as well as runs along the ground of many hundreds of feet. This view comports with many of the witness accounts of Whitehead’s work and “flights,” including the 6 cited above. Adopting that view, Whitehead’s 2 “flights” over Long Island Sound on 17 January 1902 could well have consisted of many brief, short, bounding, skimming hops over the water in his aluminum-hulled No 22 monoplane. Many a power boater has had the experience of “flying” after hitting a wake or “chop” in water, even though their vessel apparently lacked the step on the bottom of the hull which would eventually be used to allow hydroaeroplanes and flying boats to break the surface tension of water and lift off.

On the matter of whether or not Whitehead meant to “fly” in the modern meaning of that word, he once wrote that his machine “was intended to fly only short distances...” This is as close as he apparently ever came to acknowledging in writing that his No 22 monoplane was meant to “hop,” not “fly.” Of course, it must be noted that Gustave Whitehead’s first language was German, not English. While he certainly could have written his own letters to English-language aeronautical magazines (and certainly would have written his own letter to ILLUSTRIERTE AERONAUTISCHE MITTEILUNGEN), it is also quite

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THE COURSE TAKEN BY MR. WHITEHEAD IN HIS MACHINE OVER LONG ISLAND SOUND ON JAN. 17, 1902.

Sketch of January 17, 1902 "seven mile flight" claimed by Gustave Whitehead
(Redrawn from very poor copy of drawing which appeared in American Inventor magazine, April 1, 1902)

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possible that he did not, or that he had help composing them. The obvious candidate for ghost-writer of Gustave’s English-language letters would be his wife, Louise (Tuba) Whitehead; but as of late 1897, when she married Gustave, she didn’t know how to speak or read English.

The possibility that someone (perhaps Stanley Beach) ghost-wrote Whitehead’s letters might explain some of the more troubling and sometimes odd comments which appear in them. It is conceivable that some distances may have been confused and reported as altitudes. An attempt to determine the level of Whitehead’s English literacy has so far been inconclusive. One hint of Whitehead’s level of English proficiency can be seen in the comment by Daniel McNamara, a reporter and later editor for the BRIDGEPORT TIMES that Gustave Whitehead spoke with a “delightful Weber and Fields dialect.” (Weber and Fields were a famed vaudevilian comedy team noted for their use of heavy German and Dutch dialects.)

Precisely what Gustave Whitehead managed to do on 14 August 1901 and on 17 January 1902 will always be clouded. It seems certain to this writer that he did something...and that Whitehead was certainly not a fraud. However, did he “fly” in 1901 or 1902? Should he be awarded the distinction of making The First Flight? No, he should not—although his aerial activities, experiments and adventures should be taken seriously.

Perhaps understandably, Orville Wright was utterly and disdainfully dismissive of Whitehead’s experiments and aerial activities. In a biting article titled The Mythical Whitehead Flight (U.S. AIR SERVICES MAGAZINE, Aug 1945), Orville Wright made simple, direct and energetic arguments, citing, among other things, the very low opinion of Whitehead held by John J Dvorak, one of Whitehead’s disappointed customers. Among other negative comments, Dvorak said of Whitehead, “He had delusions.”

One can only wonder how Wilbur Wright might have handled commenting on Whitehead’s experiments: perhaps he would have been more generous in his ultimate dismissal of Whitehead’s aeronautical work.

The fact that many of Whitehead’s “flights” with No 21 were made at night or in the early morning hours has been cited as circumstantial evidence that the flights never took place. Assuming that Whitehead’s flights involved long fast runs on public roads, along with incidental hops aloft, his late night and early morning attempts become understandable, for at those times roads would be clear of traffic. Another point: Whitehead mentions (more than once) using differential speeds of the 2 tractor propellers, along with turning the wheels, as a means of turning his flying machine, a technique which would be ineffectual in the air. It would be effective only if the machine were on the ground or on water. A twin-engined aircraft with propellers turning at different speeds will yaw and slip, not enter a turn.

It would be an historical injustice to ignore or to seek to minimize Gustave Whitehead’s work which he continued despite recurring near-poverty, among other obstacles, simply because his claims have appeared to be so outrageous, or because his advocates have sometimes stretched their arguments to the breaking point. His many detractors have made claims equally as faulty historically as any made on Whitehead’s behalf, including:

- Whitehead never built an engine—well, he did, more than one, and they operated, some better than others; respected early aviator, aeroplane builder and manufacturer Charles R Witteman recalled successfully utilizing 2-cycle water-cooled Whitehead gasoline engines on 2 aeroplanes during the Pioneer Era;
- Whitehead built only hangar queens which never left the ground - his Albatross small and large gliders as well as the powered version of
the large glider all made respectable flights in the modern use of that term (after Dec 1903); Whitehead's designs were derivative—his No 21 and No 22 monoplanes' wings did bear a close resemblance to Otto Lilienthal's glider's wing structure, and to Percy Pilcher's powered Hawk glider of 1899, whereas the design of the monoplane itself resembled the (unbuilt) 1864 design of Count D'Esterno's Soaring Machine. However, many of the
elements of design and construction which Whitehead used were quite novel, such as the ‘on-the-fly’ expanding wings of his No 21 and No 22 and the aluminum-hulled steel-framed ‘fuselage’ of his No 22.

However, another historical injustice would be perpetrated by consciously overstating Gustave Whitehead’s work and importance merely because his claims of flights predate the Wrights’ flights of 17 December 1903. Whitehead provides a convenient means of attempting (without success) to discredit Wilbur and Orville Wright, for anyone desiring to do so.

![Image: Whitehead Aeroplane "Albatross" glider, circa 1905]

The small Whitehead Aeroplane ("Albatross") glider, circa 1905

Derivative or not, Gustave Whitehead didn’t simply talk abstractly about flying machines and aeroplanes, as so many people did during the Pioneer Era of Flight: he actually built aerial machines, many of them monoplanes, powered and unpowered, biplanes, large and small monoplane gliders, triplane gliders and his remarkable No 21 and No 22 monoplanes; and he built them early on. He constructed his first aerial machine (an unsuccessful flapping-wing biplane glider) in the US in 1895. He applied for and received a US patent on the design of his large glider of 1903-1905. Even though he did not make The First Flight, even though he did not invent the aeroplane, he nonetheless dedicated much of his life to aeroplanes and flight. Even though he did not “fly” 7 miles over Long Island Sound in 1902, he did, it appears, hop, skim and float his way around the waters of Long Island Sound for 7 miles, in his aluminum-hulled No 22 monoplane, pulled along by 2 aluminum-covered propellers.

All of that is reason enough to cease the seemingly endless diametrically opposed arguments about his experiments and accomplishments, and to yield to Gustave Whitehead the respect and recognition he honestly deserves by dint of his considerable aeronautical labors. A reasoned understanding of the things Gustave Whitehead actually did (which, hopefully, this article offers) ought to make us a little more understanding of the man who did them.

SOURCES:

AIR ENTHUSIAST, #35, January 1988; William J O’Dwyer; statement of Mrs Elizabeth Koteles

US AIR SERVICES MAGAZINE, August 1945, The Mythical Whitehead Flight by Orville Wright

THE AMERICAN INVENTOR, Washington, DC, 1 April 1902, Vol IX, No 1; Letter to the Editor; The Whitehead Flying Machine - Has the End Finally Arrived, and is the Dirigible Balloon to Go? (letter from Gustave Whitehead and editorial comments) (pp1-2); sketch of 7-mile “flight” over Long Island Sound appearing in this article redrawn from sketch reproduced in that article (p2)

ILLUSTRIERTE AERONAUTISCHE MITTEILLUNGEN, Strassburg, Germany, Robt
Whitehead Flapping Winglet Biplane Glider of 1897
(Caption missing on original as published)

The WHITEHEAD TRIPLANE GLIDER of 1903

As of August 1903, Gustave Whitehead's 12 h.p., 2-cycle, air-cooled, kerosene engine was to have been mounted on this glider, driving one tractor and one pusher propeller, mounted in-line. Photographs probably taken during June 1903, at Tunxis Hill, Connecticut.
Emden, ed, October 1901, Der Flugapparat von Gustav Weiskopf (p165)

LOST FLIGHTS OF GUSTAVE WHITEHEAD, by Stella Randolph, Places, Inc, 1937; conversation with Charles Galamboshe, 15 July 1934 (pp32-3); statement of John S Lesko (p90); statement of Michael Werer (p91)

THE STORY OF GUSTAVE WHITEHEAD BEFORE THE WRIGHTS FLEW, by Stella Randolph, GP Putnam’s Sons, 1966; “means of steering the plane which Gustave and John had worked out together” (p99); letter of Mrs Joe Savage (pp118-19); statement of Cecil A Steeves, 1 February 1937 (Appendix “A”); letter of Charles R Witteman, 15 October 1964 (Appendix “A”)

NOTES:

- Article in ILLUSTRIERTE AERONAUTISCHE MITTEILUNGEN cites “Distanz 2800 Fuss” as length of “flight,” equivalent to 2,903.6 feet, since 1 German Fuss equals 1.037 feet

- Text of letter from Gustave Whitehead which appeared in THE AMERICAN INVENTOR (with comments by THE AMERICAN INVENTOR’s Editor):

   Editor AMERICAN INVENTOR,

   Dear Sir: Replying to your recent letter, I take pleasure in sending you the following description of my flying machine No. 22, the latest that I have constructed:

   This machine was built in four months with the aid of 14 skilled mechanics and cost almost $1,700 to build. It is run by a 40 horse-power kerosene motor of my own design, especially constructed for strength, power and lightness, weighing but 120 pounds complete. It will run for a week at a time if required, without running hot, stopping, or in any possible manner troubling the operator. No electrical apparatus is required for ignition purposes. Ignition is accomplished by its own heat and compression: it runs about 800 revolutions per minute, has five cylinders and no flywheel is used. It requires a space 16 inches wide, 4 feet long and 16 inches high.

   The flying machine proper is built like my machine No. 21, of which I send photographs, only instead of acetylene gas for driving purposes I use the kerosene motor described above. Machine No. 22 is made mostly of steel and aluminum. There is a body 16 feet long, 3-1/2 feet wide and 3-1/2 feet deep, shaped like a fish, and resting on four automobile wheels, 13 inches in diameter. While standing on the ground the two front wheels are connected to the kerosene motor and the rear wheels are used for steering. They can be easily moved by the aeronaut. The body is well stayed with steel tubing and braced with steel piano wire. It is covered with aluminum sheeting and made so it will float like a boat in the water.

   On either side are large wings or aeroplanes shaped like the wings of a flying fish or bat. The ribs are of steel tubing in No. 22 instead of bamboo as in No. 21 machine, and are covered with 450 square feet of the best silk obtainable. In front of the wings and across the body is a steel framework to which is connected the propellers for driving the machine through the air. The propellers are 6 feet in diameter and have a projecting blade-surface of 4 square feet each. They are made of wood and are covered with very thin aluminum sheeting. The propellers run about 600 revolutions per minute under full power and turn in opposite directions. When running at full speed they will exert a thrust of
508 pounds. I measured this thrust by attaching the machine to a post by means of a dynamometer and running the engine at full speed.

There is a mast and a bowsprit braced something like a ship's rigging to hold all parts in their proper relation to each other. In the stern of the machine there is a 12-foot tail, something similar to a bird's tail, which, like the wings, can be folded up in half a minute and laid against the sides of the body. An automatic apparatus serves to keep the equilibrium in the air.

This is illustrated in the diagrams, in which similar letters refer to similar parts in both the top and side views. H is the body containing the motor (not shown) and the wheels, H (sic), on which it rests on the ground and supporting the tail, K. F is the bowsprit on which is mounted the lever C, supporting the small aeroplane E. The lever C is connected by the rod G to the pendulum B, which has at its lower end the weight A. It is obviously that the weight A will tilt the aeroplane E if the machine drops her bow. The leverage gained from the end of the bowsprit to the center of the machine is so great that the least change in the position of the aeroplane is instantly effective. By means of the handle D such changes are under the immediate control of the aeronaut. I have not shown the wings in these diagrams.

In order to start flying, the motor is set in motion and then connected to the front wheels which drive the machine forward at fearful speed. When ready to go up, a spring is released which stretches the wings and the propellers are started by means of a lever which stops the ground wheels and turns the power into the propellers. It takes about 20 yards run with the extra weight of a man (about 180 pounds) before the machine leaves the ground.

This new machine has been tried twice, on January 17, 1902. It was intended to fly only short distances, but the machine behaved so well that at the first trial it covered nearly two miles over the water of Long Island Sound, and settled in the water without mishap to either machine or operator. It was then towed back to the starting place. On the second trial it started from the same place and sailed with myself on board across Long Island Sound. The machine kept on steadily in crossing the wind at a height of about 200 feet, when it came into my mind to try steering around in a circle. As soon as I turned the rudder and drove one propeller faster than the other the machine turned a bend and flew north with the wind at a frightful speed, but turned steadily around until I saw the starting place in the distance. I continued to turn but when near the land again, I slowed up the propellers and sank gently down on an even keel into the water, she readily floating (sic) like a boat. My men then pulled her out of the water, and as the day was at a close and the weather changing for the worse, I decided to take her home until Spring.

The length of flight on the first was about two miles, and on the second about seven miles. The last trial was a circling flight, and as I successfully returned to my starting place with a machine hitherto untried and heavier than the air, I consider the trip quite a success. To my knowledge it is the first of its kind. This matter has so far never been published.

I have no photographs taken yet of No. 22 but send you some of No. 21 as these machines are exactly alike, except the details mentioned. No. 21 has made four trips, the longest one and a half miles, on August 14, 1901. The wings of both machines measure
36 feet from tip to tip, and the length of the entire machine is 32 feet. It will run on the ground 50 miles an hour, and in air travel at about 70 miles. I believe that if wanted it would fly 100 miles an hour. The power carried is considerably more than necessary.

Believing with Maxim that the future of the air machine lies in an apparatus made without the gas bag, I have taken up the Aeroplane and will stick to it until I have succeeded completely or expire in the attempt of so doing.

As soon as I get my machine out this Spring I will let you know. To describe the feeling of flying is almost impossible, for, in fact, a man is more frightened than anything else.

Trusting that this will interest your readers, I remain,

Very truly yours,
Gustave Whitehead.
Bridgeport, Conn.

(The Editor, hardly able to credit the account above, given that a man has actually succeeded in flying in a machine heavier than air, wrote again to Mr. Whitehead for confirmation. Mr. Whitehead’s reply follows.)

Editor AMERICAN INVENTOR.

Dear Sir: Yours of the 26th received. Yes it was a full-sized flying machine and I, myself, flew seven miles and returned to my starting point.

In both the flights described in my previous letter, I flew in the machine myself. This, of course, is new to the world at large, but I do not care much in being advertised except by a good paper like yours. Such accounts may help others along who are working in the same line. As soon as I can I shall try again.

This coming Spring I will have photographs made of Machine No. 22 in the air and let you have pictures taken during its flight. If you can come up and get them yourself, so much the better. I attempted this before, but in the first trial the weather was bad, some little rain and a very cloudy sky, and the snapshots that were taken did not come out right. I cannot take any time exposures of the machine when in flight on account of its high speed.

I enclose a small sketch showing the course the machine made in her longest flight, January 17, 1902.

Trusting this will be satisfactory, I remain, yours truly,

Gustave Whitehead
Bridgeport, Conn.

(Newspaper readers will remember several accounts of Mr. Whitehead’s performances last summer. Probably most people put them down as fakes, but it seems as though the long-sought answer to the most difficult problem Nature ever put to man is gradually coming in sight. The Editor and the readers of these columns await with interest the (nearly unreadable portion appears to read: “receipt of photographs of the”) machine in air. The similarity of this machine to Langley’s experimental flying machine is well shown in the accompanying illustration, reprinted from a previous issue. Mr. Langley, it will be remembered, was the first to demonstrate the possibility of mechanical flight. Ed.)

(THE AMERICAN INVENTOR article ends at this point.)

A final observation: to a modern eye, the Whitehead and Langley machines appear to be very different, indeed.