

with no lateral stiffeners, the kite's flexible canopy, or sail, adopts a negative dihedral angle, providing lift in light steady winds. The kite, however, can easily collapse in crosswinds....Deft jiggling of the flying line may let the kite catch the wind again, right itself, and regain altitude."

Noting that there are now many variations of the Sled, Maxwell says that "For increased stability and better performance in a wider wind range, some Sleds have three vertical longerons (one along the vertical center), multi-legged bridle schemes, various type vents in the canopy, even tails." The Sled has clearly come a long way.

But, a nagging, probably never-to-be-answered question remains at this point. When and where and by whom was the Sled actually invented? If the Budapest version is really the first of the breed, and this of course remains questionable as the above comments indicate, did Allison somehow, in some way learn of it? Or did he independently invent his Sled? Considering his aeronautical credentials, the last would seem by far and away the best guess. A retrospective tip of the hat to William A. Allison seems very much in order.



The Buda Jewish kite of 1904, in an accurate rendering from the original text by writer-artist Eden Maxwell. This early Sled-type kite was made of paper, sticks, and twine and was flown with a tail.

Noted Kite Historian Responds

*Editor's note: The author is presently working on two books from which this material is drawn. They are *Domina Jalbert, Brother of the Wind* and *Great Kites of the Western World*, which includes chapters on the men he considers preeminent in 20th century American kiting—William Allison, Francis Rogallo, and Jalbert, inventors of the Flexible (Sled), ParaWing, and Parafoil kites, respectively.*

By Tal Streeter

More than might be imagined, it is a commonplace for there to be conflicting claims regarding the primacy of invention in the field of kites, flight...and all inventions. These contests of authorship tend to follow a pattern and reflect attitudes reminiscent of

the information recently presented by Istvan Bodoczky, who has raised a question concerning the origin of the Sled kite. The 1904 Hungarian ethnographic journal he enters into evidence includes a description, accompanied by a drawing, of a "Buda Jewish

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kite” remarkably similar in its appearance to William A. Allison’s Flexible kite known worldwide as the Sled kite.

Like everyone else, I have trouble sorting these conflicting attributions out myself, but a review of the many similar instances, which parallel the newly raised Buda-Sled question may contribute perspective to a subject frequently confronting the kite community.

A mountain of conflicting claims also surrounded the Wright brothers’ invention. It was years before the brothers won general acknowledgement for achieving the first human-operated powered flight. Among countless claimants, the Smithsonian touted their man, Langley, who visited the Wrights in Kill Devil Hills, gleaning what he could from an inspection of the Wrights’ work before it was widely published. The first person killed as a passenger in a plane (a Wright Flyer piloted by Orville) was a member of Alexander Graham Bell’s airplane design team, sent for a first-hand look to gather information on the Wright plane. Before they joined forces, forming the Curtiss-Wright aeroplane manufacturing company, Curtiss “borrowed” crucial elements of the Wrights’ unparalleled work, raining on what might have expected would have been celebration parades. It’s a notably large and dark cloud cloaking this biggest star in the history of flight. And it hangs over the Wrights to this day. Professor Hiroi, as only one example, gives a long, entertaining lecture on a Japanese man who he claims, quite seriously, invented the airplane long before the Wrights did.

Moving on to the theme of kites: The first archetypal “American” kite was William A. Eddy’s diamond two-stick. Did it in fact originate with Eddy? One would be excused at wondering if Eddy hadn’t drawn heavily on an Indian-style fighting kite, known in our time as a Malay kite. Eddy, in fact, saw a group of Malay kites in the Java pavilion of Chicago’s 1893 Columbian Exposition. In the Western world, Eddy’s “bowed” diamond two-stick became the second generic kite, following the “flat” kites flown throughout the world. The Eddy kite frame was quite rigid, unlike the more flexible Indian-Malay-Java

About the Name ‘Sled’

Since the Sled kite on the ground or while flying does not look like a snow sled, where did the name come from?

*Eden Maxwell, in his book *The Magnificent Book of Kites* (Sterling Publishing: New York), gives the following explanation. Although William Allison received a patent for the kite, it wasn’t until fellow townsman Frank H. Scott and family began building and marketing the Scott Sled variation that the kite became popular. The Scotts, according to Maxwell, felt the kite was polymorphic, or “very flexible,” and it flew, “making it a Flexible Flyer, a brand name for a sled, known to most children in snowbound states.”*

“It had never occurred to Scott to call his kite a Sled because of its airborne shape,” adds Maxwell.

An ingenious explanation.

version, but he covered his kite frame with a looser fabric, producing a dihedral effect similar in both the Malay and his kite. The flight stabilizing effect of a dihedral was indeed a major aerodynamic improvement, recognized by our foremost kite historian, Clive Hart, as a milestone in kite history. With the exception of Indian-Malay-Java kites, flexible in both frame and cover, to all intents and purposes flat kites, East and West, required tails to achieve stable flight. As an element worthy of note, I would draw attention to not only Eddy’s recognition of the dihedral, but the looser cover as well. It would be nearly a hundred years after Eddy’s work that cover and bone “flexibility” was identified by Rogallo as a characteristic enabling a kite to adapt to varying wind conditions—and still later recognized as a feature invented by nature, the fine tuning wingtip feather of birds. Eddy filed for a patent Aug. 1, 1898; the Columbian Exposition opened its gates to wide

acclaim in 1893. Eddy’s patent No. 6446375 was granted March 27, 1900. There is definitely a story worthy of attention here, but with the dates sorely in need of sorting out. Ed Grauel, the kite patent authority, adds a useful phrase to the terminology of invention originality. He characterizes the Eddy kite as a “reinvented kite.” This is an entirely reasonable notion, but not one, unfortunately, to be found in U.S. Patent Office canons. U.S. Patent Office patents validate the uniqueness of original inventions. Thereafter, improvements or variations—lineage—is generally, but not always, spelled out.

Continuing with more general examples of this issue of originality:

Stepping back in time looking for basic research and inventions critical to the history of flight: a toy capable of helicopter-like flight made by Launoy and Bienvenu in 1784 (incorporating real feathers) was acknowledged by Sir George Cayley to be of great importance. Cayley, often described as the father of flight, credited the feathered toy with leading him to his seminal research on the actual nature of aerodynamic lift.

Francis Rogallo

To do justice in a brief outline to Francis Rogallo’s seminal inventions is a challenge of the first order.. Rogallo’s ParaWings (Flexikites) were first marketed as toys; the ParaWing, adapted with rigid spars, accommodated a buggy-like passenger rig Rogallo developed for NASA. Tests under Rogallo’s supervision at Langley led to Rogallo’s recognition as “the father of modern-day hang gliding.” This same ParaWing flying buggy version, for some, anoints Rogallo as the inventor of the Delta kite; and in still more recent times, his full-blown totally soft NASA flexible-wing (designed as a parachute, but also flown by Rogallo as a kite) has been reworked as the NPW-5 ParaWing (based on the fifth of nine original Rogallo NASA ParaWings). With fans flying NPW-5s worldwide (me included; I own two), the excitement of another NPW on the drawing boards (see website www.NPW-5.com) is palatable.



Francis Rogallo shows off the original Flexikite, made by his wife from a flowered chintz curtain. It still flies very well.

The Delta kite a Rogallo invention? My thinking leads me in that direction, but there are many attributions vying for the Delta laurel leaf. Details are far beyond the scope of this brief review.

In the matter of degrees of rigidity and flexibility, Rogallo’s early kites, as I understand them, were made of a variety of materials, from semi-rigid plastic sheets to completely flexible soft fabric; both materials were shaped to develop aerodynamic lift and strong keel configurations. In the fully soft fabric kites, the NASA ParaWings, the shape is created by wind filling the fabric, cut and sewn into a lifting chord whose shape is maintained and enhanced by the positioning and lengths of the bridle lines.

I’ve been led to believe that a fair amount of evidence exists to claim that the little paper kite, the *chiringa*, is recognized as a children’s kite native to Puerto Rico and Greece. A case might be made the *chiringa*’s resemblance to the concept behind the first Rogallo kite models (and that of William Allison’s Sled as well). Gertrude Rogallo, whose name appears on the original Rogallo patent along with that of her husband, made their very first Flexikite from a flowered chintz curtain. Subsequent versions were made of similarly stiff plastic storm window screen-

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ing. These kites bear a passing resemblance to the attributes of the surprisingly prescient *chiringa* toy. A “reinvention?” How about this attribution? I for one am not prepared to press a Buda-inspired claim for an earlier attribution. Rex Zachery would know more about this than I. He was granted an American patent for a *chiringa* look-alike in 1961. My sincere apologies if I’ve overlooked his contributions to the exceptional kite described in his patent—one I’ve taught in countless workshops, one of my all-time favorites.

Domina Jalbert

Throughout his lifetime, Domina Jalbert’s rightful claim of invention was constantly under siege. Variations, improvements on the original Jalbert Parafoil patent? Absolutely. Fine by me. Would, however, that the vast range of “cell,” air-inflated kites (and their brothers, the Parafoil-Paraglider wing and parachutes based on Jalbert’s Parafoil invention) were identified as “something or other Jalbert-style Parafoils,” variants on the primary Jalbert invention. It’s complicated, though: I did a great deal of research on the Andrew Jones and Ray Merry Flexifoil, and there’s not a question in my mind that their invention, as remarkable and unlikely as it seems, came about independently of Jalbert’s.

I take some personal pride in having recently brought recognition to Jalbert among the Paraglider community flying Jalbert-variant wings in France. Jalbert’s name was totally unknown there, a crime it seemed to me, virtually within Jalbert’s lifetime.

William A. Allison

Allison is the least well known of America’s three kite giants. Growing up and living his entire life in Dayton, he was a brilliant student of flight. At the young age of 13, recognized by the flight officers and mechanics at Wright-Patterson Field as the creator of meticulously detailed model airplanes, he was given the full run of their shops. The U.S. Patent Office held up both the Allison and Rogallo patents several years in the early and mid-1950s in consideration of the remarkable similarities underlying their flexible

kite applications. Allison’s application was filed while the Rogallo claim was under review (of course completely unknown to anyone outside Gertrude and Francis Rogallo and the Patent Office). The Patent Office was astounded at the similarity between the two. Unknown to the patent examiners, of course, it was all the more astonishing in as much as Rogallo held a Ph.D. degree in aeronautical engineering and was director of the large-scale wind tunnel at Langley Research Center, a NASA affiliate, while Allison was a blue-collar refrigerator mechanic working for the Westinghouse factory in Dayton.

Allison’s patent application was filed Sept. 8, 1950. His patent No. 2,737,360 entitled Flexible Kite was finally granted on March 6, 1956. The long delay must have been disheartening, but from that point forward, the going got rockier for Allison. His kite languished until 1964, so the story goes, when one of his kite experiments, a kite lost in flight, was picked up at the curb of a Dayton street by Frank Scott. The Scott family was the owner of a prestigious Dayton department store, skillful at marketing. The family copied the Allison kite, adding a vent, and sold millions to chain stores as advertising premiums. It was several years before Allison, still completely unknown even to the kiting community, won a civil cease and desist order and a small sum of money for the infringement of his patent.

I very much appreciate the Scott family’s poetic creation of the name Sled—based on the Allison kite’s resemblance to American’s much beloved Flexible Flyer snow sled. I can’t help but wonder if the Scotts’ checking out of patents didn’t trigger their inspired poetry. Nevertheless, coupling it with the child’s Flexible Flyer snow sled was a lovely touch. I also appreciate that the Scotts were instrumental in making Allison’s kite one of the American public’s kites of choice. Alongside the Eddy-Malays and the Deltas, the Allison Sleds were recognized by several generations as a quintessential American kite. Would, however, this have been accomplished under the name the Allison Sled with Scott adaptations, a variation on the original.

Maybe this is yet another example of the acceptance

of ghostwritten books and speeches (are there any politicians and CEOs in our time who actually pen their own words?). As Harry Truman observed, “You can accomplish anything you want in life, provided you don’t mind who gets the credit.”

The Buda

Now, in the first months of 2002, the Hungarian Buda kite is raised as a candidate for designation as the first Sled kite. Scott Skinner draws attention to the degree of rigidity represented by paper kites (the Buda was made of sticks and paper) as something distinct from a truly “soft” or “non-rigid” cloth kite shaped by the wind. This is a fine point, but considering it, paper along with cloth might be seen as subcategories of “flexible.” Allison’s kite, of course, is generally acknowledged as the first semi-rigid kite, while it was the Rogallo Flexikite that was recognized by the U.S. Patent Office and subsequently accepted as the first “soft” kite. Even this simple point, as Scott Skinner’s attentive observation suggests, is clearly a tricky issue.

Anything and everything, I guess, is possible. But for me, in a nutshell, it is a million to one shot, an impossible stretch for me to imagine, that Allison somehow had knowledge of a turn-of-the-19th-century Hungarian kite. Again, wishing to sort this out, putting it into perspective: Absolutely, the Buda kite has a rightful place in the long history of kites. Thanks so much, Istavan Bodoczky and Eden Maxwell, for bringing the Buda into the fold of the “firsts.”

But, carrying it too far, we play in the hands of an all too common inclination for obfuscation, unable to see the forest for the trees. I fear that the complexity and uncertainties of sorting out a confusing welter of details creates a situation where the world’s greatest kite inventors are denied a rightful position at the pinnacle of this great pyramid of kites. It is not just the intimations of a “first” which results in our esteem, but a more comprehensive understanding and application, the discovery of underlying principles contributing to what we might identify as our contemporary geniuses at work in the kite’s on-going evolution.

Let me conclude with a thought, which may seem contradictory to all I’ve just said:

I revel in my personal delight, imagining the “first” kites. Yes, I’ll agree. The newly rediscovered Hungarian Buda kite merits a prominent place in the kite hall of fame. Maybe in this first category we may also place the *chiringa*. And in a special category, where evidence is more wanting, the Chinese farmer’s straw hat conjured up in our imaginations flying off on a long string. We can add another quite plausible “first kite,” imagining a tattered piece of sail cloth whipping in the breeze at the end of a woven grass line, taking flight from an Indonesian-Malay-South Pacific catamaran. And our imagination enhanced by the evidence remaining in modern-day Indonesia, the first “bowed kite,” the naturally bowed orchid leaf kite flying out from the island fishing boats. I envision these first kites—made by our nameless kite-making, kite-loving ancestors—as lying deep within our collective consciousness, their kite lines connected to ours in some indefinable manner, stirring our minds—kite enthusiasts, kite inventors, kite lovers, aeronautical geniuses. All, awaiting the pleasures of a fuller understanding. I respect and cherish these nameless ancestors with all my heart. But, let’s keep at the forefront of these deliberations the realization that we have entered a time and area way short on facts.

I am a member of the camp that believes these past events, wrapped in shadows, are constantly undergoing review, constantly in flux. “History” evolves; flowing alongside the present, ever changing its shape as new evidence as well as new knowledge is brought to bear on the “facts” of the past. It’s true that two people viewing the same accident as often as not come up with widely divergent interpretations, but I tend to believe my own eyes, my own ears; hearing the explanations, giving some weight to a more verifiable present; measuring the skid marks, noting down relevant details while they are still relatively fresh—acknowledging the endorsements of bodies of impartial contemporary authorities, government, and private individuals, who have subjected new inventions to rigorous reviews for “newness,” testing

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and evaluating claims.

Finally, to bring these thoughts to a close: When I fly kites, I find myself living in the past and the present. My kite's string connects me to the clouds, the weather, the universe; friends and strangers as one. I smile at the thoughts engendered by a kite flying in the moment of the present, at the same time pondering the rich associations between past and present, this magic string joining us through time; these friends and strangers at my side—Jalbert, Allison, Rogallo, that Hungarian flying his Buda, the Malay, the Indian, and all the rest—all wearing the kite smile; charmed, marveling at this phenomenon; then as now, and into the future, the promise of life rich with the special wonder of kites and kite flying.

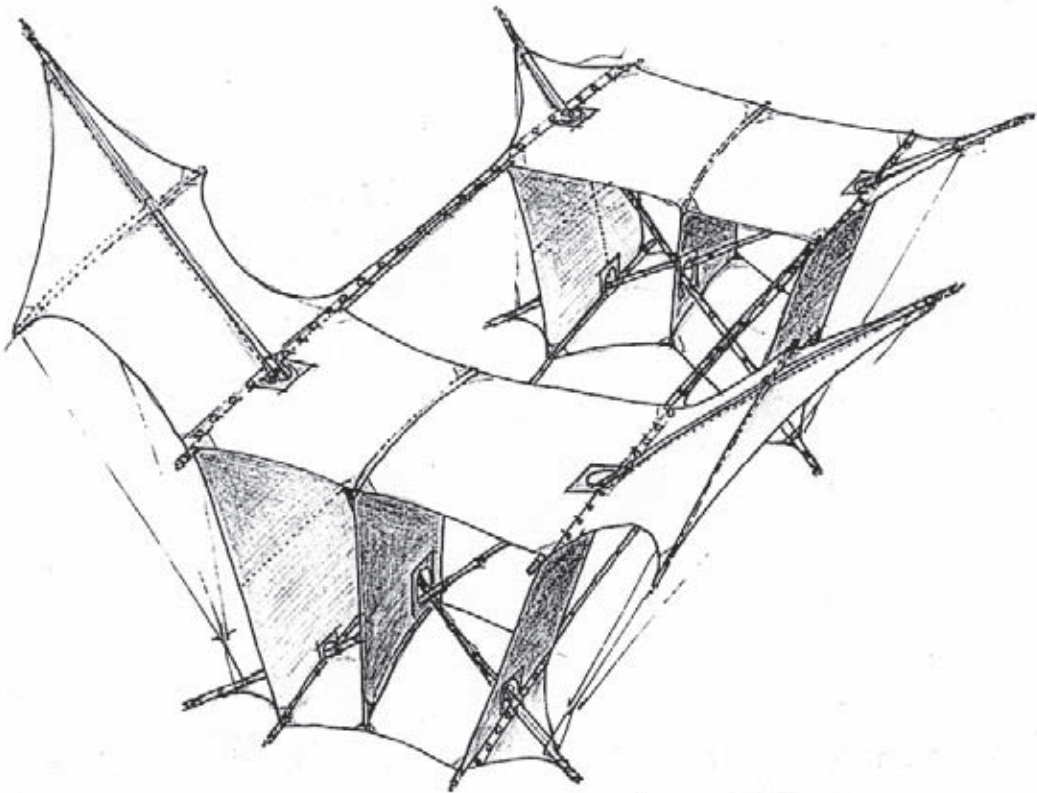
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Teensy Kites

It doesn't seem possible, but Dr. Devinder Pal Singh Sehgal of Chandigarh, India, has managed to make kites so small they pass through the eye of a needle. The kites measure 2.1 by 2.1mm (.08274th of an inch), he says. Dr. Sehgal claims his kites set a record for tiny. Any competition? As Ali Fujino, administrator of the Drachen Foundation, says of this curiosity, "I love this stuff. India needs more cable TV. These people have too much time."

"Like a kite, grounded but soaring to the skies."

New York Times headline



Devoting himself with great energy to the historical re-creation of kites from the golden age of the early 20th century, when they paved the way for manned flight, Jan Desimpelaere, of Wevelgem, Belgium, uses the fine hand he developed as a professional landscape designer to here render a classic Samuel Cody Storm kite. The detailing of the beautiful kite is fastidiously and accurately rendered. Besides which, the drawing is a work of art all its own.