

# Sikorsky Archives News

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## OSA'S ARK

*The African Expeditions of Martin & Osa Johnson*



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**Also in this Issue: I Remember Michael.**  
*Lew Knapp reminisces about Michael Gluhareff.*

**The S-38** saw some of its most stylized and glamorous service above the plains of Africa. By 1932, Martin Johnson and his wife Osa were already well-known for their land expeditions to Africa and Borneo, and the motion



**Osa Johnson, Igor Sikorsky  
and Vern Carstens**

pictures they produced from these journeys captivated American audiences. But Martin thought he could attain even more spectacular results from the air. He arranged for Vern Carstens, a Kansas pilot, to teach Osa and himself to fly.

The Johnsons then visited Igor Sikorsky in Connecticut where they emerged from the Stratford plant with not one but two amphibians, an S-38 and a new, smaller single engine S-39. The interiors were specially designed to include bunks, a washroom, cooking stove and utensils, and food staples. Special camera mounts were also installed. The S-38 named "Osa's Ark" was painted with Zebra stripes, while the S-39 ("Spirit of Africa") sported Giraffe spots. Super-charged Pratt and Whitney Wasp Junior engines were installed to give adequate power at more than 6,000 feet above sea level. Vern Carstens and Sikorsky test pilot Boris Sergievsky were hired to guide the aircraft over Africa. Like

other adventurers, the Johnsons proved the value of Sikorsky designs for remote expeditions. As Carstens recalled: "There were no precedents and we were on our own: no weather reporting stations, very poor and inaccurate maps, no radio aids. The S-38 was really a workhorse, had seven hours fuel capacity if needed, and could carry tremendous loads at all altitudes. We operated from runways and lakes from fifty five hundred feet to seven thousand feet above sea level, and most always overloaded. The S-39 had only three and a half to four hours fuel, so it was mostly used for the shorter, smaller jobs.



**Martin Johnson**



**The Johnson Aircraft Formation**

**"The S-38 was really a workhorse, had seven hours fuel capacity if needed, and could carry tremendous loads at all altitudes."**

In this age of TV wildlife programs we take for granted the most intimate pictures of wildlife in the natural habitat. We owe this interest to people like the Johnsons. In their day, 65 years ago, expeditions to central Africa were truly adventures into the unknown. Their work, a labor of love, laid the foundations for modern day TV programs like George Page's "Nature" and the many nature programs of David Attenborough.



### Are the natives friendly? - 1

"Mountains, jungle, plain were a vast panorama beneath us; great elephant migrations, herds of thousands, also great flocks of white herons and countless giraffe and plains game were spotted one moment from the air and the next moment recorded by our cameras. We were able to land in ordinarily inaccessible places where the white man had never been, and here saw natives of strange, remote tribes."

- Osa Johnson

### Are the natives friendly? - 2

## "A Vast Panorama"

The shadow of the S-38 is cast alongside a herd of giraffe.



The S-39 fresh from the factory resplendent in Giraffe livery, ready to go.

The S-39 was painted with giraffe spots and was named “Spirit of Africa”. The S-39 was a smaller version of the S-38, powered by one Pratt and Whitney Wasp Junior engine, grossing 4,000 lb. A total of twenty one were built. An example can be seen in the New England Air Museum at Bradley International Airport Windsor Locks, Connecticut.



These natives were definitely friendly.

**“We were able to land in ordinarily inaccessible places where the white man had never been, and here saw natives of strange, remote tribes.”**

In March 1933 the Johnsons flew to Lake Rudolph, where they encountered a group of Turkana tribesmen. Thoroughly unimpressed by the flying machine, the Turkana did appreciate the shade provided by the 70 foot upper wing. Carstens offered some of the Turkana a ride in the S-38. During the flight he motioned to a cow below. “That is not a cow” the tribesman replied. “A cow has legs”. Then the translator pointed to a tree. “That is not a tree”, the Turkana responded.”you look up to see a tree, and you can walk under a tree. That is not a tree”.



# I Remember Michael

**Michael Gluhareff** joined Sikorsky Aero Engineering in 1924 as a draftsman; within a year he became Mr. Sikorsky's design associate and Chief Engineer.



The Gluhareff brothers had been building their own aircraft for several years, Michael as a creative and inspired designer and Serge as a strong-willed manager. In his mild accent, Michael once told me, "In 1920 when we were in Finland building gliders, we would sometimes work all night in the barn to finish the

glider, and as soon as the sun came up we would take it out and Serge would poosh me off the cliff."

Michael was a gentleman. Although a chief assistant, he always addressed his leader as Mr. Sikorsky, never as Igor. He was formally polite to ladies.

It was Michael who developed the GS-I airfoil, then built replacement wings for the JN-4 (also known as the Curtiss Oriole) to provide significant efficiency, speed, and ceiling improvements. Through the S-42 and even into the 1950s we were still using the GSM series airfoil. The S-39 flying boat was largely his design. He designed by instinct; intuition ruled. He couldn't tell you why the delta wing on his S-57 design worked, but he insisted on a 62 degree leading edge sweep with a slight curve, and government engineers later confirmed its shape for high speed flight.

As a young designer, I cut my teeth in Michael's office. He had been out with an injury and was still on crutches. He would phone, "Lewie, come into my office." In the office, he would bend the wing of a small wood and paper delta winged model, then have me stand on a chair and toss the model into the air. I'd have to retrieve the model and hand it to him, he'd reshape it, and we would repeat the process.

Michael had spent many hours in a boat towing small hydrodynamic models up the river, and as a result had firm ideas of proper hull shapes for flying boats. Years later, when we tested the S-61 helicopter hull at the David Taylor model basin, one government employee said, "Twelve degrees deadrise? Michael Gluhareff!"

Michael loved his work and loved to fly. He once told me, "Lewie, you should take up flying. It is so wonderful to be up in the air at dusk, when the haze is closing in, and not knowing where you are." He was close to sixty when he took his daughter-in-law up in a float plane over Candlewood Lake. It WAS dusk, and his floats tripped over a power line across the lake and flipped the airplane into the water. With broken bones, Michael dived into fourteen feet of water to rescue his passenger from the cabin, then later sued the power company. I never took up flying.

He had an instinctive feel for aircraft shape. When we were developing the S-58 from the S-55, Everett Delaney and I, two designers from the fixed wing side of the house and newly returned from Vought in Texas, configured the fuselage. When Serge and Michael came in to view our work, Serge, who was used to the S-55 tailcone, said, "The tail should be round. Everything in nature is round. Trees are round." Michael responded, "Yes, Serge. Yes, Serge," but when Serge left the room, he fumed, "Round! Pfu! I spit" (After Serge saw our mockup, he agreed with Michael that the aircraft didn't look half bad).

By 1950 Ed Katzenberger was Michael's Chief of Advanced Design. Gruff, exacting, with an excellent grasp of engineering

fact and theory, Ed often disagreed with Michael's soft approach - they didn't view things with the same perspective. One Monday morning Ed came to work fuming. He had been introduced by Michael at a party; "This is Eddie Katzenberger. He will



be chief engineer when I die, but not until I die." Ironically, a few years later Michael died on a Friday; the following Monday Ed became Chief Engineer.

Michael Gluhareff was an intuitive designer, an artist, and a gentleman. He was a product of his time, when the flying boat and then the helicopter, were developed by gut feel, and



Lew Knapp

Photo: Bob Brady

when a new aircraft could be developed in a year. Today, when data banks consume vast files, and development of a single type consumes a whole career, the Michaels of this world are gone. We will not see his like again.

- Lew Knapp

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