

Swift Sleep Flying

From "Does God Exist" Oct/Nov 2009

In 2006 the United States military retired the F-14 Tomcat (of Tom Cruise's *Top Gun* fame). The uniqueness of this plane was that the shape of the wing could change during flight. The Tomcat was inspired by the studies of the wings of birds, and never did even approach what swifts (a bird) are able to do. Swifts belong to a family of birds called *Apodidae* which literally means "without feet" in Latin. The swift does have very small feet, but they are seldom used because feeding, courting, and sleeping all take place in the air.

The secret to the swift's abilities lie in the design of its wing. The swift has forelimb bones that are similar to the bones in a human forearm. That section of the swift's wing allows the flapping to get airborne that we see in virtually all birds. The swift also has wing-tip bones where we have a hand, and the angle between the hand and the forearm can be changed. By rotating the wing-tip bones the swift can vary its wing area by some 30 percent to increase its speed. It can reduce its wing area and reduce its energy usage by increasing that area.

In the swept back mode, swifts can travel at some 60 miles per hour. Scientists at Wageningen University in the Netherlands have determined that the most efficient flying speeds for the swifts, where least energy is used and drag and wing lift are in the best balance, is when the bird is flying at 20 miles per hour. Studies of the swifts have shown that they actually sleep while flying, and radar has shown that when they are in the sleep mode their air speed is 20 miles per hour.

Swifts got their name from their ability to travel at high speeds, make fast turns, and stay in the air for long periods of time. Human attempts at swept back wings and varying wing angles have not been too successful as yet. Natural History magazine comments "Human attempts at variable wing geometry have always been hampered by the complexity and weight associated with a system engineered from hinges." The swift has already had all of this complexity and engineering done for it, and that makes it another amazing example of God's design in nature. Truly we can know there is a God through the things He has made (Romans 1:20).

For additions or corrections to the directory please contact Mike Mendez

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For corrections, suggestions, or to have something included in the bulletins, please contact Ryan or Jennifer Stiltz at 924-0435 or email at stiltz_family@sbcglobal.net

Welcome

to the
Church of Christ
meeting at Mack Road

This morning's sermon:



Congregational Meeting Times:

Sunday

Morning Bible Study 9:30 am

Worship Service 10:30 am

Evening Service 6:00 pm

Wednesday

Morning Bible Study 10:00 am

Evening Bible Study 7:00 pm

Visitors

The members here would like to offer a special welcome to our visitors today. Please allow us to shake your hand and talk with you, as we take great joy in getting to know you. Visitor cards are available at the pews for you to provide us with a record of your attendance. We appreciate you taking the time to fill these out.

Important dates to remember:

November:

Sun 1st - Elders, Deacons & preachers meeting @ 4:30 at the building
Sun 15th - Teachers Meeting at the building, 5:00 pm

Fellowship Opportunities:

Sun. Nov 1st - Group 1 meets after evening services
Sun. 1st - Mt. Mike's following morning services.
Sat. 7th - Men's breakfast, details TBD



Ladies House to House Fellowship

Lesson Book: "Developing Inner Strength, Living in the Joy of God's Love"

Next class: November 15th at Jennifer Stiltz's home.

Please prepare Lesson 8. Lunch will be provided.

If you would like to host a class, please let Jennifer know

Classes

Young Adults Class: Fridays at Caleb's home. See Caleb for details.

Oh, how I love your law!

I meditate on it all day long.

Your commands make me wiser than my enemies,
for they are ever with me.

I have more insight than all my teachers,
for I meditate on your statutes.

I have more understanding than the elders,
for I obey your precepts.

I have kept my feet from every evil path
so that I might obey your word.

I have not departed from your laws,
for you yourself have taught me.

How sweet are your words to my taste,
sweeter than honey to my mouth!

I gain understanding from your precepts;
therefore I hate every wrong path.

Psalms 119:97-104

Birthdays this week:

Karen Guffin	November 2
Naomi White	November 4