



A pelican soaring

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Man-o-war birds spiralling in thermal

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Soaring FLIGHT IN NATURE by L. J. Lesh

EDITOR'S NOTE: This article is reprinted from *Model Airplane News* by kind permission of the Editor. Based on observations over a long period, it is better than anything we could contribute, so we herewith present it with a few pictures taken with a 13.5 telephoto lens on a Contax camera.

Probably one hundred articles and technical papers, to say nothing of books, have been written on the subject of soaring flight. My excuse for adding one more effort to the list is that I have spent the past year in Florida studying the flight of several varieties of soaring birds and imitating their performance with contest gliders. Among the thousands of model airplane enthusiasts comparatively few have had the opportunity to watch the buzzard, the pelican and the frigate or man-o-war bird flying in the same air currents and to actually launch balsa gliders in competition with these masters of soaring flight.

Months of observation and waiting are required before a proper comparison may be made of the soaring skill of birds and I have never been satisfied that observations detailed in books and articles written on the subject are sufficiently complete.

There is no question that the soaring flight of the buzzard and the frigate-bird is advanced far beyond any of our attempts with models or full-size sailplanes. The important thing is to ferret out the difference which exists between the bird and the man-made machine both in design and mode of flight. We know that under certain conditions our balsa contest gliders are capable of staying aloft and of flying completely out of sight. The records of over 30 minutes in the air for hand-launched gliders prove that we have attained an approach to the secret but our egotism, if we have any, receives a jolt when we note that the buzzard remains aloft all day on motionless wings under practically any conditions.

For the purpose of easy reference I have sketched the buzzard, the frigate-bird and the pelican to approximate scale and in three views. These birds are all of about the same wing span, averaging five feet, although larger specimens have been measured. The pelican is by far the heaviest, the buzzard is second in weight and the frigate is light both in poundage and wing loading per square feet. The buzzard and frigate are streamlined dreams but the pelican has a beak like "Schnozzle" Durante which probably has something to do with the

low rating I give him as a soaring bird after much observation.

We also have some very large and long legged cranes here in Florida but their flight is scarcely worthy of serious study. One interesting thing, however, is the way they trail their long legs and web feet behind them, giving the general appearance of a very thin airplane or sailplane fuselage and rudimentary rudder, the affair being evidently used for steering and balancing during their fairly flat glides. These cranes glide slowly, perform flapping flight as slowly as two seconds per stroke and could probably soar if so inclined, but nature does not seem to have given them such an assignment.

The pelican, contrary to published statements, cannot soar except under very good conditions directly indicating a strong upward current either thermal or induced by obstructions to the wind. Even in a high gusty wind

