



Speed of Birds

"SWIFT as a swallow" used to be the conventional conception of top-limit speed, back in old romantic days. Forty years ago a German observer on Heligoland estimated speeds of three or four miles a minute even for small birds. But sober science, stopwatch in hand, is bringing reality to displace fancy in estimates of bird speeds through the air.

In a new circular of the U. S. Department of Agriculture Miss May Thacher Cooke of the Biological Survey tabulates all modern estimates of bird speeds she has been able to find in print anywhere.

The means used were various: speedometers of parallel-speeding or pursuing automobiles, stopwatch observations while birds flew known distances, theodolites, in a few cases the air-speed indicators of airplanes. The birds were clocked under all kinds of conditions: fleeing in terror from pursuing autos, hawks stooping at their prey, or birds of all kinds just cruising along at ordinary speeds. Observations were taken by scores of observers, all over the world.

The swallow, speed king of poetic romancing, turns out to be a rather ordinary performer, with speeds between 24 and 42 miles an hour. Other small birds, ranging from orioles and larks to cat-birds and sparrows, had speeds within that range; in some instances below it, to as little as 12 miles an hour.

Hummingbirds live up to our impressions of their swiftness, showing speeds of 45 and 55 miles an hour, apparently without being pushed. The same speeds seem to rule for the much larger birds, ducks, geese, and swans. However, pintail ducks pursued by airplanes, which must have seemed like dreadful monster

hawks to them, got their speedometers up near the 70-mile mark.

Swiftest of all birds on the wing are those of the hawk and eagle group. Duck hawks have been timed at 175 to 180 miles an hour; a golden eagle, observed in Scotland, held to the more conservative speed of 120 miles an hour. On the other hand, the ability of these birds and others to soar makes it possible for them to stay aloft at very low speeds, such as 15 to 21 for turkey vulture, and as low as 12 miles an hour for soaring gulls.

Some observations on running speeds are also recorded. The record is held by an emu, pursued for ten miles by motorists in Australia. The bird worked up a speed of 31 miles an hour, but could not be made to exceed that figure.

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## MATHEMATICS

## 1, 2, 3...Wonder of Numbers Made Simple for Children

OUR numerals came from India, not from the Arabs.

Myriad means 10,000 and it was the largest number for which there was a name in ancient Greece.

Many such interesting facts can be learned from the latest book by Dr. David Eugene Smith, Columbia University's famous mathematician and authority on the history of this science. No, it is not a scientific treatise but a delightful book for children, *The Wonderful Wonders of One-Two-Three*.

About why our Arabic numerals are misnamed: An Arab teacher about a thousand years ago wrote by hand an arithmetic with the numerals like those of India. The book was taken to Europe where merchants and others were struggling with the I, V, and X's of Roman numerals. So when the numerals we now have come into use because they were more easily used, they were called Arabic, even though the Arabs never used them and do not do so today.

Why do we count by tens? The answer is found in our fingers and toes. Dr. Smith says we would be counting by 8's if people were born with four fingers on each hand. Even today many of us use our fingers for counting.

Why do we give "three cheers" and why are there seven days in the week? Because 3 and 7, along with 5, are the prime numbers below ten, that is numbers that can not be divided by anything. Prime numbers were considered mysterious and divine in olden days.

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## HERPETOLOGY

## Snakes Used in Medicine In Many Lands and Ages

SERPENTS twain wreathed the staff of Aesculapius, classic patron of medicine; a brazen serpent upraised in the desert healed the stricken Israelites.

How deeply entwined with medical lore everywhere and in all times is the subtle snake, Clifford H. Pope bears witness in his new book, *Snakes Alive*.

We are used to hearing, in a superior sort of way, about the weird ingredients of native Chinese drug-messes, and so are not surprised to learn that the Chinese pharmacopeia includes snake "slough, skin, bile, flesh, fat and oil, head, eyeballs, eggs, and bones." Yet "snake oil" is still a widely sold commodity in these Enlightened States of America—and it is usually faked at that! Federal seizure and condemnation of "rattlesnake oil liniment" that contained "little if any snake oil" is a matter of recent record. And in France a "treacle" of snake-ingredients survived as an official remedy as late as 1884.

Two hundred years ago, a favorite English remedy for scurvy was "viper bread," which contained powdered viper's flesh and sarsaparilla, while for inducing a sweat physicians recommended "compound tincture of vipers" which was declared very successful in the Great Plague of London in 1665.

In 1685 Madame de Sévigné, one of the most cultured of Frenchwomen, recommended vipers in one of her letters:

"They temper, purify, and refresh the blood. But real flesh must be used, not the powder. Ask M. de Boissy to send you ten dozen vipers. . . . Take a couple every morning, cut off the heads, have them skinned and chopped up and stuffed in a chicken. Do this for a month, and then blame your brother if M. de Grignan does not become as well as we could wish him to be."

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