NATURE RAMBLINGS

By Frank Thone

Frigates of the Air

ALONG our southern coasts one can often see great fleets of beautifully constructed living airplanes, with narrow wings stretching to an over-all reach of six or seven feet and long, deeply forked tails. They are kinsfolk of the pelicans, known variously as man-o'-war birds and frigate birds.

These names, however, are undeserved libels on honest fighting men, for these birds are really corsairs. They do not seek their living honestly as fishermen, but follow flocks of such birds as cormorants and gulls, swooping fiercely at them and compelling them to disgorge their prey. Then they dive at the falling fish and catch it in the air. It may be for this habit that they have received the name *Frigatta aquila;* for the second of the Latin names means an eagle, and our proud bald eagle has the same disgusting and dishonest way of getting its food. Or the name may refer only to the hook at the end of the frigate bird's long beak and to its wide wings.

As a matter of fact, the frigate bird can outsoar any eagle. It rivals the buzzard in its ability to remain aloft for hours without flapping a wing, taking advantage of every vagrant air current, as human glider pilots have learned to do.

The frigate birds of our shores are believed to nest altogther in the Bermudas, though it is possible that they may also have breeding grounds on some of the islands off the Louisiana coast. But they love to congregate along the keys and sandy islands of Florida, where their dark brown fleets may be seen at almost any time. There are also smaller frigate birds that have their headquarters in the southern hemisphere.

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Electric Clock Set By Radio Signals

Radio

LISTENING to the Naval Observatory radio time signals and then setting your clock by hand is now unnecessary. At the meeting of the Institute of Radio Engineers in Toronto, Canada, H. C. Roters and H. L. Paulding, of the Stevens Institute of Technology, described a radio electric clock system in which this is done automatically, and without attention. Every day the clock is reset to the exact second by the noon time signals.

One of the chief problems encountered, it was said, was in working out some method by which the apparatus would not respond to static, or interfering signals on the same or a very close frequency. The clock itself turns on the radio set at exactly 11:55 a. m., eastern standard time, when the signals start, and turns it off at noon, but static occurring during this period might interfere.

The problem was solved, however, by what the engineers call a "pulse frequency amplifier." This is the final stage of amplification, and is arranged so that impulses coming once a second are amplified most, while if they come at 16 times or more a second, they are not amplified at all. Two pulses a second are amplified about 95 per cent. as much as those coming in once a second. As static, and interfering code or voice signals, do not possess this regularity and the proper frequency, they are almost completely suppressed.

After passing through the pulse frequency amplifier, the signals operate a selector, which picks out the signal marking the beginning of a minute following the five second pause after the fifty-fifth second. This impulse sets the clock. It is said that a correction of as much as 25 seconds one way or the other is possible, though a good master clock should not vary more than a second a day. From the master clock, any number of slave clocks can be operated by methods now commonly in use.

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Strictly American

INDIAN architects and sculptors of the American tropics in prehistoric times had strikingly original ideas. On the cover you see the entrance to the beautiful Temple of the Warriors at Chichen Itza, in Yucatan.

The Toltecs, who conquered the Mayas at Chichen Itza, remained in the city and added greatly to its beauty, forcing Mayan craftsmen to execute their orders. Toltec ingenuity devised the serpent columns, shown at the temple gate. The serpents, standing acrobatic-fashion on their chins, were designed for the honor of the great deity, the Plumed Serpent. The pose represented to the Indian imagination the descent of the Serpent, whose feathers enabled him to fly down to earth to bless his chosen people. When you recall the three famous types of Greek columns used over and over in Europe, you can see that an invention of a column type is an achievement and an architectural event.

The Chac Mool, the figure of a man seated with his knees drawn up, and a bowl for offerings or incense lying in his lap, is still a riddle to modern archaeologists. Dr. Herbert Spinden, of the Brooklyn Museum, has surmised that this queer sculptor's creation may have been connected with a peculiar Toltec cult in which drunkenness figured. A number of these Indian "sphinxes" have been found, but none with any conclusive clues to their meaning and use.

Archaeology

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