

Correspondence.

The Aeroplane Problem.

To the Editor of the SCIENTIFIC AMERICAN:

In your issue of August 17 you ask what aeroplane men are doing, they are not heard of, and probably discouraged by risk. Speaking tersely, I for one am doing my best, absolutely unnoticed, and with the courage derived from the knowledge that if I steadily persevere for a little while longer I shall make some sort of flight with the minimum of danger.

To amplify my remarks: Like other flying-machine men, I think I could do strokes with ample means; such not being available, I pile every spare minute and scrap of ingenuity into the construction of the smallest apparatus that is capable of carrying me for ten minutes.

I lost a year over an abortive four-cylinder oil motor, and am now well on with a high-pressure steam engine and pipe boiler. The propeller, though novel to look at, is constructed on well-known principles, and leads the show; that is, it is right forward.

The lifting surface consists of a number of cells, constructed as in my 25-foot kites and boomed in the way your kitemakers disapprove of.

My situation is horizontal, with left hand to the stop-valve and right to the tiller. I have bought the best situation for aeronautical work on Sydney Harbor, and my machine is to float on three buoys of the least displacement and head-resistance possible.

LAW. HARGRAVE.

New South Wales, September 16, 1901.

AN INGENIOUS WRITING MACHINE.

At the last annual exhibition of the work of the students of the Free Evening Classes of the Society of Mechanics and Tradesmen of New York city, there was exhibited a piece of apparatus that attracted much attention, both because of the ingenuity of its conception and because of the fact that, though somewhat complicated, the entire mechanism, with minor exceptions, was made by hand in wood. The apparatus was the outcome of a problem in machine design given to the senior class in mechanical drawing. The class had been considering the principles of automatic machinery, and for the completion of a series of cam-problems they were asked to design a machine with which to write their own initials. Many interesting and ingenious solutions were made by the class, each distinctively individual. One of the students, Mr. Henry T. Harra, after making a full set of working drawings of his solution of the problem, decided to make a model of his drawings, with the result shown in our engraving.

Cash register paper is fed from a roll through a series of tension rollers, across the plate upon which the pencil is actuated, and is drawn on its course by two larger tension rollers, and finally cut off into the desired card lengths by a knife whose action is controlled by the periphery of the cam on the extreme left of the row of cams. Upon the side of this cam is cut a positive-acting groove, which has for a follower a pawl engaging with the ratchet wheel engaged to turn the larger tension rollers through bevel gears, so as to feed a card length during each cycle of the machine's action. The other two larger cams control the swing of the pencil through its various drawings of the required initials; in this case H. T. H., shown inverted in the cut. The smallest cam, by tripping, raises and lowers the pencil for the space between letters and to afford an opportunity for the paper to be moved along for another writing.

The Pollok Prize.

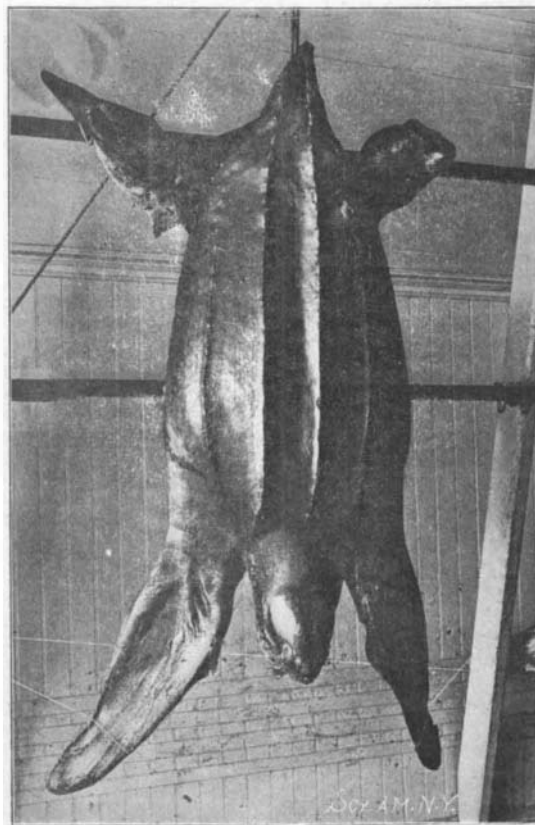
It is announced from Havre that the members of the international jury appointed to award the Pollok Prize for life-saving apparatus and for the prevention of collisions at sea have concluded their examination of the models sent in, which have been exhibited in a shed belonging to the Havre Chamber of Commerce. The jury, while recognizing the endeavors made to provide greater safety in navigation, finds that none of the schemes submitted meets one of the objects to be attained, and, therefore, it does not award the prize.

The famous Reale Accademia dei Lincei of Rome does not elect many members to its distinguished body, but has, however, elected eight foreign members, and among them are Dr. S. P. Langley, secretary of the Smithsonian Institution, Charles D. Wolcott, director of the United States Geological Survey, and Prof. Edward C. Pickering, Director of the Harvard College Observatory.

THE LEATHER TURTLE.

BY M. C. FREDERICK.

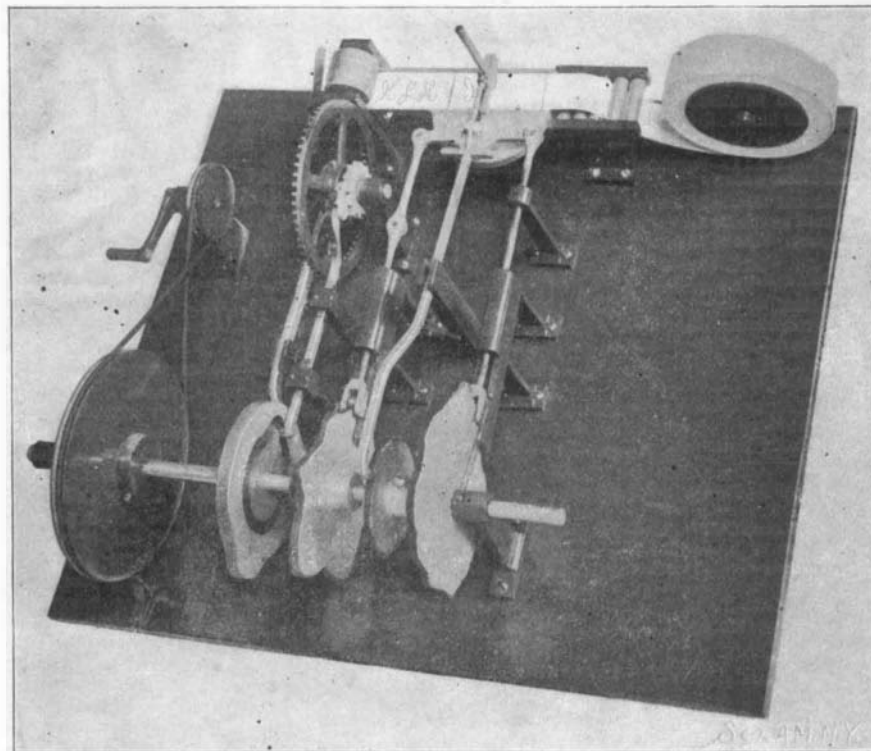
There was recently captured in the Santa Barbara Channel a huge turtle of a kind never seen before by the fishermen who found it entangled in the kelp from which it was trying to extricate itself. It proved to be the seldom-met-with and little-known *Sphargis coriacea*, or leather turtle (also called Luth, or *Dermatochelys coriacea*) and attracted crowds of people as it hung in the meat market previous to being sent



THE LEATHER TURTLE.

to a taxidermist. Audubon gave it the name of trunk turtle, because its thick, leathery skin resembles the old deerskin-covered trunks. Others have called it the harp or lyre turtle, the longitudinal ribs suggesting that instrument.

About twelve years ago a sphargis was caught off Coronado. The eminent naturalist, Prof. Ward, of Rochester, N. Y., who was at Coronado at the time, was greatly interested in the turtle, as he stated but few museums of either continent possess a specimen, and but few naturalists have ever seen a living one.



A MACHINE THAT WRITES INITIALS.

Prof. Ward could find no record of its being round on the Pacific Coast, and concluded that naturalists did not know of its presence in these waters. Since Agassiz remarks in one of his works that "in three centuries the species has not been observed more than nine times in Europe," the fact that at least two have been captured on the coast of Southern California within a dozen years is worthy of note.

Living in the high seas, and apparently at home in all waters, the sphargis has so successfully eluded the investigations of man that little more has been learned about him than that he is the largest and rarest of the five known species of marine turtles. The Santa Barbara specimen weighed a short 500

pounds, and measured 5 feet 9½ inches from the end of the nose to the tip of the tail. The Coronado turtle was said to weigh 800 pounds. They have been known to weigh 1,200 pounds or more.

Exploring Balloon Data.

M. Teisserenc de Bort has deduced from the results furnished by 240 ascensions of exploring balloons made in 1898, 1899, and 1900 some interesting conclusions relating to the variations of temperature in the upper atmosphere. The figures for the mean monthly temperature near the ground and at 15,500 and 31,000 feet altitude are shown in the following table:

Month.	At the Ground. At 15,500 Ft. At 31,000 Ft.		
	Deg. C.	Deg. C.	Deg. C.
January	5.4	-15.3	-47.6
February	1.0	-21.8	-53.4
March	0.9	-20.9	-53.7
April	5.3	-18.4	-49.3
May	7.0	-16.8	-51.3
June	14.2	-8.8	-45.3
July	15.7	-8.7	-44.5
August	17.8	-7.2	-41.8
September	13.4	-9.7	-47.9
October	10.2	-11.0	-45.1
November	3.8	-12.8	-45.2
December	0.9	-18.9	-52.4

To these data M. Teisserenc de Bort adds the following conclusions: First, at an altitude of 31,000 feet the temperature still undergoes a well-marked annual variation. Second, the amplitude of this variation diminishes with the height. Third, the epoch of the maxima and minima undergoes a retardation which increases with the altitude. Fourth, the differences of temperature from one day to another may be greater at 20,000 to 25,000 feet, than those which are observed at the same time, near the ground. This fact has a considerable importance, and is besides contrary to the prevailing ideas upon the subject. Fifth, the temperature decreases much more rapidly in the neighborhood of the centers of barometric depression than at other points. This decrease in certain cases amounts to nearly 0.9 deg. per 300 feet.

Anniversary of the Death of Tycho Brahe.

On Sunday, September 22, a solemn festival was held in the small Swedish island of Hveen. The occasion was the approaching 300th anniversary of the death of Tycho Brahe, the celebrated astronomer, who lived and worked on the island and spent his happiest years there. The festival was held among the few remains of Brahe's once imposing observatory at Uranienborg. The Copenhagen correspondent of the Times states that, early in the morning, guests from Denmark and Sweden, including representatives of the Universities, arrived in steamers. Outside the small harbor the Swedish ship "Drott" was at anchor with King Oscar on board. The King landed with the other guests and drove to Uranienborg. After Divine service, conducted by Bishop Billing, of Sweden, Dr. Hillebrandt, of Sweden, delivered a long speech, ending with the following words: "We congratulate Denmark upon the never-dying memory of this man. This spot is now Swedish; therefore the King of Sweden is here today to honor the memory of Denmark's great and noble son." The party then walked through the ruins, which were decorated with the Swedish and Danish flags. The monument of Tycho Brahe, erected by Swedes, was decorated with the Danish colors.

The Current Supplement.

The current SUPPLEMENT, No. 1348, has many interesting and important articles. "The Boston Elevated Railroad" is illustrated by an entire page of engravings, and is written by J. A. Stewart. "The Protection of Fire and Balloon Telegraph Systems from High-Tension Currents and Lightning" is by Walter M. Petty. "Four-Motor Equipments" describes the latest developments in high-speed cars for heavy suburban work. "The Great Caisson Employed in Building the Drydock at Kiel" is illustrated by a large engraving. "The British Association Address," by Prof. J. Cossar Ewart, is continued. "The Thunderstorm: A New Explanation of One of Its Phenomena," is by Byron McFarland.

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