

A FLYING DORMOUSE.

Among the animals in the last collection sent from Cameroons by the explorer George Zenker was a mammal of an entirely new species, a flying dormouse, to which the name *Idiurus Zenkeri* has been given. We publish herewith an engraving of this little animal, for which we are indebted to our worthy contemporary, the *Illustrirte Zeitung*, and which shows plainly the membrane that extends around its body and enables it to fly or jump from branch to branch. Such membranes are well known among animals of certain species, but it is distinguished by the peculiarities of its very long tail from all other mammals. In the cut the tail is shown slightly curved, so that the under side can be seen. At the root of the tail there is the fold of skin, behind which are fifteen oblique rows of little horny scales, three or four in each row, short bristles protruding from among the scales. On the under side of the tail, along the middle and the sides, are comb-like hairs, and from the short, soft fur on the upper side—from the root of the tail to the brush-like tip—project long upright hairs. No one knows for what purpose this singularly shaped apparatus is intended, for as yet nothing is known of the life of the little creature. Nor is anything known of its origin; it has been called "flying dormouse," because it resembles this sluggard in the shape of its body, its skull and its teeth; but its membrane and the horny scales are similar to those of certain species of squirrels, and its skeleton shows peculiarities possessed only by the jerboa. Probably the dormouse, the species of squirrels referred to, and the jerboa are the last of a very large extinct family.

Giant Kites for Scientific Purposes.

Ten giant kites, all on one string, will be flown, if possible, to the height of two miles, by the Weather Bureau authorities at Washington. This, of course, would be many times higher than any other kite has hitherto traveled, the famous Eddy kites (see illustration in *SCIENTIFIC AMERICAN*, Sept. 15, 1894) having flown only 4,000 feet, according to latest reports.

This will be done in connection with systematic studies of the upper atmosphere, which region has heretofore been explored by scientists only with the aid of captive balloons carrying thermometers, barometers, etc. But balloons are found to be most impracticable for such purposes, since the wind blowing against them keeps up an almost constant vibration, while its force against their envelopes causes great leakage of gas, and hence makes a flight of many hours impossible.

The kite experiments to begin this summer will be conducted by Prof. Adie, the same meteorologist who is making extensive photographic studies of lightning flashes. The investigation of the upper atmosphere will be made first, with a view of ascertaining the differences of temperature for various altitudes in free air. Other experiments, by aid of the kites, will follow these, all of which are expected to enable the bureau's meteorologists to make a great profile map of the atmosphere, which task has never yet been accomplished. Temperature and barometric curves, electric currents, etc., will be located for various parts of the country and for different seasons of the year.

Such data will be as necessary to the engineers of flying machines, when practically perfected, as charts are to sailors. Ballooning can be then carried on with much less risk than at present, since it will be an easy matter to determine what currents of air are likely to be met at various heights, just as it is now a small task to find the Gulf Stream or the trade winds. A still greater service will be rendered by this information to scientists, who now believe that men will be able to soar like birds as soon as the upper air currents are definitely understood.

Kites will be flown to different heights in hot waves during electric, wind, or rain storms, in cold waves during snow or hail storms, and in fact during every possible phase of weather. It is now the purpose of the experimenters to construct this summer a giant kite, which will revolutionize the whole science of kite-flying. This will be no less than a combination kite balloon. The length and width are not yet determined,

but in form it will be a large, flat box, about a foot in thickness, the light frame being covered with gold beaters' skin. It will be inflated with hydrogen gas, which would give to a kite of the dimensions of the present design and a foot thick a lifting force of three pounds. This would be sufficient to take the kite up, notwithstanding the general buoyancy offered by the wind currents.—*Washington Star*.

Why Our Boys Should be Taught Spanish.

It is the manifest destiny of this country, sooner or later, to monopolize the great bulk of trade with South America, and one of the prime essentials to this desired result is a thorough knowledge of the language spoken by her people, which, to a very great extent, is Spanish. But very little attention is paid in our institutions of learning to teaching this language, and its need will be most seriously felt in commercial circles within the next generation. Our able contemporary the *Boston Journal of Commerce* quotes from the *Philadelphia Record* upon the subject of acquiring a knowledge of Spanish, in which the editor says:

"Our commerce with the Central and South American republics is largely increasing every year. Even slow-going Mexico is becoming alive to this fact, and is accordingly making an effort to capture some of the commerce flitting hitherward and thitherward. She is actually going so far as to listen to the scheme which is being advocated for the formation of a United States of the Latin-American republics of the central portion of the continent—a confederation which, with Mexico



THE FLYING DORMOUSE FROM CAMEROONS—FROM A DRAWING BY ANNA HELD.

as a part, would very largely increase commerce between this country and the new United States to the southward. The commercial possibilities of these Latin republics are exceedingly vast. Our present commerce with those countries is as nothing to what it will be twenty-five years hence, when a knowledge of the Spanish language will be absolutely essential to all young men engaged in the counting-houses of the firms engaged in business with that part of the globe. Let parents and pedagogues, therefore, cease their bickerings as to the respective merits of Greek and French, and put into the boys' heads a practical knowledge of Spanish, which they will find it not difficult to build upon a tolerably fair foundation of Latin. French may be the language of refinement, and as such its acquisition is more or less desirable. But the great languages of commerce not many years hence will be our own language, the German language, and that charming tongue for which this plea is made—the tongue of Cervantes and of Cortez."

A New Process in Steel Making.

The Carnegie Steel Company at Homestead tested July 17 a new plan which Manager Schwab and Chief Electrician Kinkey have devised for reheating molten metal that has become chilled before it can be poured into the moulds. The new plan consists in using an electric current, by which an intense heat is generated. The molten steel was set to bubbling, and the light and heat were so intense that the workmen's eyes suffered seriously, but at the next test they will wear glasses. The experiment was successful.

London's Pneumatic System.

Telegraphing over short distances—as within towns, for instance—is a very costly operation. It requires the same number of operators—one at each end—and the same number of instruments as for the longest distances. But compressed air will blow a telegraph form through a metal tube as far as two or three miles in as many minutes; and steam engines are used to compress the air by means of which the pneumatic tubes are worked. The engine room at the central office resembles nothing so much as the engine room of a great steamship, except that the engines are on the "beam" principle, as being best suited to the peculiar work in which they are engaged. They are magnificent specimens of the engineer's craft, and have a stately appearance, due, in large measure, to their leisurely stroke as compared with the hurried action of the marine or electric light engine. Night and day these engines are employed in pumping air into, or exhausting it out of, huge "containers," which are connected with the tube room overhead. There are no fewer than thirty-six pneumatic tubes radiating throughout the metropolis, buried under the pavement among the gas and water pipes, and every now and then crossing the path of the telegraph wire, whose handmaids they are. It is desired, say, to send a message from St. Martin's le Grand to Charing Cross. Here is a tube-like, felt-covered box which will contain one or a dozen message forms at pleasure. Place the form inside; secure the open end of the box, or "carrier," as it is called, by means of an elastic band; insert the box in the mouth

of the tube; admit the compressed air, and away it goes across Newgate Street, along Paternoster Row, down Ludgate Hill, up Fleet Street, and along the Strand, where, at No. 448, it projects itself under the nose of the attendant with a thud and a rebound, in almost short time than it takes to describe the operation. All the air is stored at the central office, so that if it be desired to reverse the operation—i. e., to send a message from the West End to the City—it is only necessary to transmit an electric signal, when vacuum is turned on, and the "carrier" is sucked back which a minute before had been blown out. The tubes are, in fact, gigantic pea-shooters.

What may be called the working gear of the tubes is in itself a most interesting sight. It has been mostly designed by officials of the Telegraph Department, and is unique of its kind. Indeed, the whole pneumatic system of the central office is an "exhibit" of the most interesting kind, and an object of just pride with those

who have it in charge.—*The Gentleman's Magazine*.

The Parts That Do Not Grow Old.

"In his work on the senile heart, Dr. Balfour tells us," says the *Medical Times*, New York, July, "that there are two parts of the human organism which, if wisely used, largely escape senile failure. These two are the brain and the heart. Persons who think have often wondered why brain workers, great statesmen and others, should continue to work with almost unimpaired activity up to a period when most of the organs and functions of the body are in a condition of advanced senile decay. There is a physiologic reason for this, and Dr. Balfour tells us what it is. The normal brain, he affirms, remains vigorous to the last, and that because its nutrition is especially provided for. About middle life, or a little later, the general arteries of the body begin to lose their elasticity and to slowly but surely dilate. They become, therefore, much less efficient carriers of the nutrient blood to the capillary areas. But this is not the case with the internal carotids, which supply the capillary areas of the brain. On the contrary, those large vessels continue to retain their pristine elasticity, so that the blood pressure remains normally higher than within the capillary area of any other organ in the body. The cerebral blood paths being thus kept open, the brain tissue is kept better nourished than the other tissues of the body. Who is there of those who have passed middle age that will not rejoice to find such admirable physiological warrant for the belief that the brain may continue to work almost to the very last hour of life?"