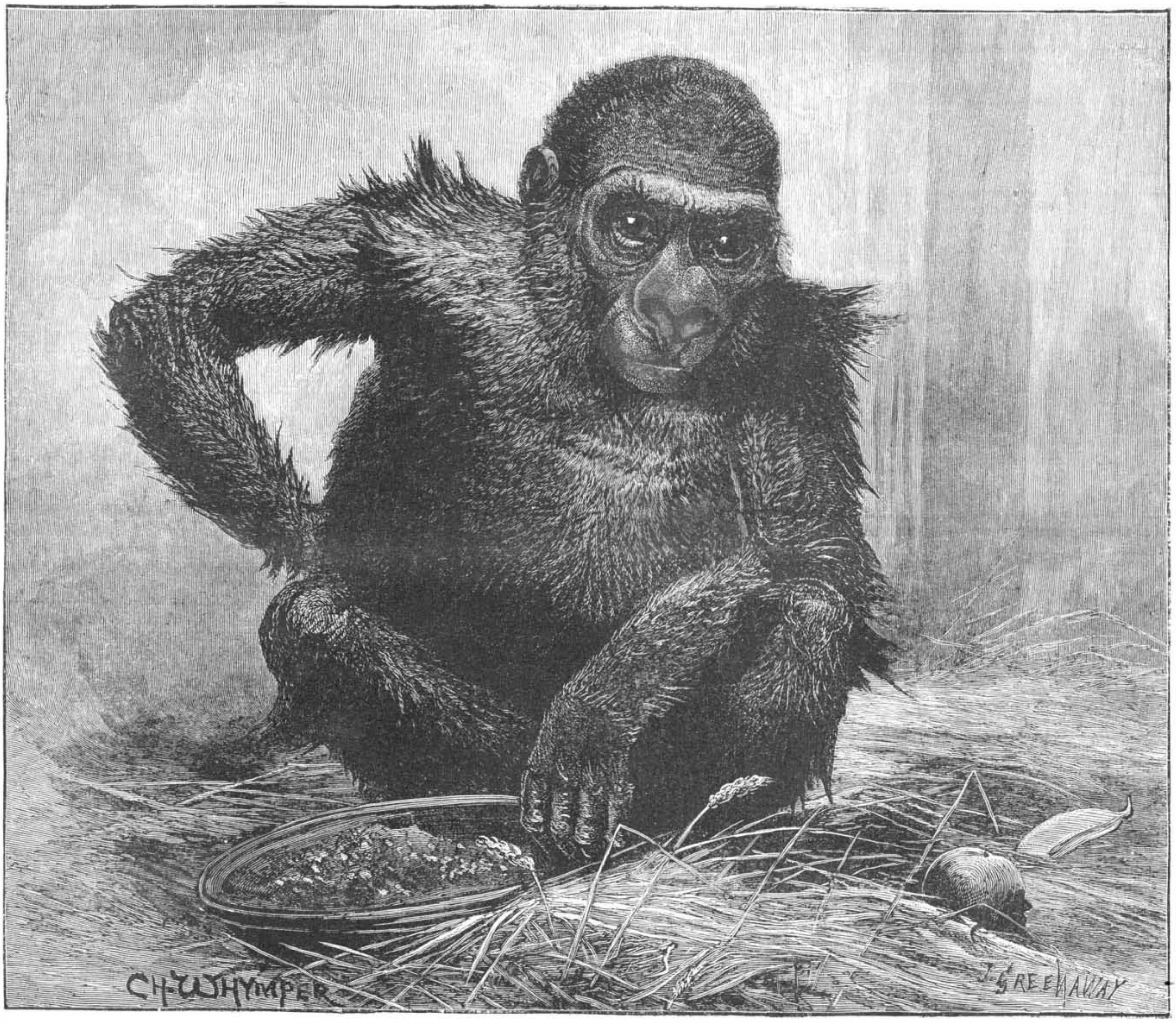
A LIVE GORILLA IN LONDON.

For the first time since the establishment of the gardens of the Zoological Society, a living gorilla has been added to the collection. It is a young animal, but as little is known of the life history of these creatures, so rarely seen in captivity, and as it brought no certificate of birth with it from its native land, it is impossible to give more than a guess at its exact age. Although it has been scarcely a month in the gardens, it is rapidly recovering from the shyness before strangers which it exhibited at first, and it feeds freely on almost every kind of fruit offered to it, showing a marked preference, however, for pomegranates. It has unfortunately arrived at an unfavorable time of the year for an inhabitant of the forests of tropical Africa; but as it is placed in the same house and under the same care as the remarkably intelligent and well educated chimpanzee "Sally," which has now lived exactly four years in the gardens, it may be hoped that it has a chance of doing as well as she has, and of proving an even greater object of interest to visitors. The gorilla is a male, and has received the name of "Mumbo."—*Illustrated London News.*



THE GORILLA AT THE ZOOLOGICAL SOCIETY'S GARDENS, LONDON.

Candy-Making Hypocrites.

"Hypocrisy prevails in every trade but our own," is the sentiment too often expressed of late by the great confectioners of the United States. They are so elated by the growth and prosperity of their industry that they apparently overlook its many sins of omission and commission. Taken as a body, the American candy makers deserve much credit. The vile compounds which were so common twenty years ago are almost unknown to-day. Purer materials, better processes, new inventions, and higher skill and workmanship abound everywhere, and are seen in the plebeian lozenge as well as in the most costly bonbon.

For this change for the better, and, above all, this praiseworthy development, they merit high commendation. They get it also. Not only the general public praises them, but they themselves and their own journals indulge in a large amount of self-gratulation and wholesale flattery. In this respect they have unknowingly blown a very beautiful soap bubble, but still a soap bubble which is liable to be pricked by some one who knows. Their greatest danger lies in the hypocrisy of a number of their great dealers. Two in question are popular chocolate manufacturers. They can and do produce some of the finest and purest goods in the market. These are retailed in palatial shops at very high figures, and are naturally held up to popular admiration and esteem. The physician and chemist analyze them and pronounce them pure and superior in every regard, and the recommendation is published in every paper and read by every person in the land. Upon this popularity they do a wholesale business alongside of which their retail trade is the veriest bagatelle. But—and here lies the joke—the wholesale goods are not the same as those which are retailed, are not those which have been analyzed and commended, and are not what the public fancies it buys when it purchases. On the contrary, these wholesale goods are worthless and unwholesome stuff. Where they are supposed to be pure chocolate and white sugar they are mixtures of chocolate, starch, sugar, glucose, flavoring, and Venetian red. John Smith selling such vile composition would become a bankrupt in no time if he were not prosecuted for fraud and adulteration; but when made and sold by a concern famous for the purity and excellence of its output, no suspicion is excited, and the hypocritical manufacturer realizes a golden revenue.

To so large an extent is the evil practiced that it is an everyday matter to buy at retail in country stores goods made by distinguished houses for less than the wholesale price of the wares they sell to the great Broadway tradesmen. The fraud and imposition work wrong in more ways than one. They injure the health of the consumer; they also drive out of business small but honest concerns who put up pure goods. The tendency, therefore, is to lower the quality and finish of confectionery, to foster the use of imitants and adulterants, and to give the well known houses a monopoly of the business. It is high time that a stop was put to the nefarious traffic.

A second imposition and humbug is the vociferous shout by the confectioners that they use no adulterants, but, on the contrary, punish the adulterator, and then the confidential whisper that adulterants are only those substances which in normal quantity injure human health. Under this exquisitely ingenious arrangement they replace sugar and fine gum with glucose, vanilla with tonka and vanilline, almonds with myrbane oil, butter with oleomargarine, rose with geranium, and fruit flavors with compound ethers. They "dilute" cocoanut with starch, sugar, and terra alba, and use homeopathic and therefore harmless quantities of dyes and colors that in ordinary amounts are injurious, if not destructive, to the stomach. Of course they do but little harm by most of these practices. Glucose, tonka, oleomargarine, compound ethers, and saccharated cocoanut are, if in good condition, beneficent rather than otherwise. But it is none the less imposition, humbug, and fraud. Let the confectioners adopt the English statute, and stamp on every package all the ingredients their goods contain. If this were done to-day, there would be the greatest commotion and the wildest excitement their pleasant industry has ever known.—*American Analyst.*

Preservation of Flowers.

A method of preserving the natural colors of flowers, recommended by R. Hegler in the *Deutsche Botanische Monatshefte*, consists in dusting salicylic acid on the plants as they lie in the press, and removing it again with a brush when the flowers are dry. Red colors in particular are well preserved by this agent. Another method of applying the same preservative is to use a solution of 1 part of salicylic acid in 14 of alcohol by means of blotting paper or cotton wool soaked in it and placed above and below the flowers. Powdered boracic acid yields nearly as good results. Dr. Schonland, in a paragraph contributed to the *Gardeners' Chronicle*, recommends, as an improvement in the method of using sulphurous acid for preserving the color, that in the case of delicate flowers they might be placed loosely between sheets of vegetable parchment before immersion in the liquid, so as to preserve their natural form.

An Engineer's Life at Sea.

We will suppose a young engineer has applied for a berth, and that he has shown his certificate of indenture to prove that he has "served his time," the testimonials and letter of introduction, should he have one, have been found satisfactory, and that he is appointed third engineer say on a Mediterranean steamer. The young man goes aboard with some little anxiety and curiosity as to the other engineers, but these soon put him at his ease. For the first few days there is plenty of work to be done, assisting in the general overhaul of the machinery, during which time it is advisable to get acquainted with the engines, for one finds in the course of experience that every engine has physical, and I had almost said mental, peculiarities of its own; for the whole world of machinery has been built up from the thoughts of many minds, and each particular engine, being the idea of its constructor, embodied in iron and brass, has many of his mental peculiarities.

The first and second engineer will probably be found willing to give our young man every information; but they will be quick to discover if his tongue is more active than his brain. It is the best policy never to ask a question unless you cannot get the information in any other way. The firemen as well as the engineers, it should be said, are observant, and quickly note if the new recruit's intelligence equals his skill as a workman, and if he is an engineer as well as a mechanic.

By the time the day of sailing comes round a fairly good knowledge of the various pumps, with their levers and rods, their valves and cocks, etc., will have been obtained, and once at sea these details will soon become well known. On the day before starting, the engines are closed up, water run into the boilers, and the fires laid, ready to be lit about four hours before the time fixed by the captain for starting. About an hour before leaving dock, the second engineer takes our third below, and they proceed to open the discharge and feed valves, and to remove the turning gear. This is a most important matter, and if neglected will lead to burst pipes and a turning wheel stripped of teeth, or a broken worm on the turning screw. Then the oil boxes are filled, and the cotton siphons made ready to be put in. By this time steam is up, and the stop valve must be opened a little, and the engines "blown through" with drain pipes open. It may be noticed that the "second" does not blow more steam through the low pressure cylinder than he can help, so as not to overheat the condenser. If a circulating donkey pump is at work, this heating is not so likely to occur, but is always to be avoided.

Our "third" is now sent on deck to tell the officer in charge that everything is ready to take a turn out of the engines, and also to see if the propeller is clear of ropes, chains, or boats. After reporting all clear, a final look round the engines is taken, to see that no blocks of wood or hammers or chisels used in the overhauling are left to foul pumps or crossheads in their stroke, and the "third" takes his place at the starting wheel, which he has been shown how to work, the "second" meanwhile being at the steam handles. If the engines have not been properly warmed through, they will make most dismal and awful groans on starting, and will make the ship quiver, but with proper management this should not occur. "Put her ahead," and round spins the starting wheel, while the polished quadrants and eccentric rods come sliding over. A touch of the handles by the "second," and the engines stir, pull themselves together, and are off. "Stop and reverse her," and the ponderous cranks come to a stand for a moment, and then revolve in the opposite direction. Only two or three turns each way can be taken, as the vessel is fast to the dock wall, and strong ropes would break like thread if the engines were allowed to work much. Everything now being in readiness, the "third" returns to the deck and keeps a sharp lookout on the preparations for leaving, so as to know when the engines will really be wanted. When he sees that the pilot and captain mean business, he descends once more to his post at the starting wheel. The firemen are told to open their dampers and freshen up their fires, so that steam may not fail when the engines begin to draw on the supply, and he must also watch that the firemen do not allow their steam to rise so as to roar up the waste pipe. Now the "stand-by" rings, and the engineers are alert and the engines ready.

All this time the chief engineer keeps in the background; but he is not far off, and is ready to assist the "third" in a moment if required. Upon him rests the responsibility of all, but he leaves the new hand as much as possible to himself, that the latter may gain confidence.

At the last moment the "third" is warned to be quick with his starting gear, for the vessel is surrounded by shipping, and the least delay in obeying the telegraph may cause serious damage to his own ship or to others, or to the dock wall. A loud blow on the gong and the pointer is at "slow ahead," but scarcely have the engines moved than the order to stop and reverse and stop again are received, and for the next hour he has a busy time of it with his wheel. During this time the noisy clatter is heard of winches on deck, which, like more intelligent creatures, often make the most noise when doing the least work. When putting forth their strength one hardly hears them, but when pulling in loose ends of rope there is no silencing their rattle. The tramp of the sailors above and the words of command are also plainly heard; in the stoke hole is the ring of the firing tools; and in the engine room the muffled beat of the engines, with the occasional noisy rush of steam through the opened drain pipes of the cylinders. At last the word is passed down that the vessel is out of dock, and while the engines settle down steadily to their work, the "third" is allowed to go on deck to "have a blow." The steamer is now gliding down the river, which is alive with shipping, for it is full tide and crafts of all sizes are taking advantage of it. Presently the "third" is sent below again, for the pilot is leaving, and the engines must stop. When he has gone, the welcome order is given of "full speed ahead," and the vessel is fairly off on her voyage.—*Practical Engineer.*

The Development of Time Keeping in Greece and Rome.

An able and interesting paper under this title was read not long ago by Professor Franklin A. Seely, M.A., Examiner in the United States Patent Office, before the Anthropological Society of Washington. We regret our space prevents us from giving the paper in full. We cull a few sentences only:

In my room in the Patent Office there hangs a Connecticut clock of ordinary pattern and quite imperfectly regulated. Its variation of perhaps half a minute in a day, however, gives me no concern, since, being connected by wire with the transmitting clock at the naval observatory, it is, every day at noon, set to accurate time. At the moment of 12 o'clock there comes a stroke on a little bell and, simultaneously, the three hands—hour, minute, and second—whether they may have gained or lost during the preceding 24 hours, fly to their vertical position. Immediately after I hear a chorus of factory whistles, sounded in obedience to the same signal, dismissing the workmen to their midday meal. At the same moment, and controlled by the same impulse, the ball, visible on its lofty staff from all the ships in New York harbor, drops, and the seamen compare their chronometers for their coming voyage. The same signal is sent to railway offices and governs the clocks on thousands of miles of track and determines the starting and stopping and speed of their trains. It goes to the cities of the Gulf and of the Pacific as well as to those of the Atlantic coast—noted everywhere as an important element in the safe, speedy, and accurate conduct of commerce; and so the work of the regulating clock of the observatory, sent out by means which note the minutest fraction of a second of time, is playing its important part in the economy of our century. I cannot follow it out in detail; every one will do so to some extent in his own mind. But if we were to divide human history into eras according to the minuteness with which the passage of time is observed in the ordinary affairs of life, we should find ourselves to have arrived, and very lately, in what might be called the era of seconds.

At the opposite extreme is the period when the passage of day and night reveals itself to the dullest intellect. Perhaps no savage people have ever been so dull as not to have noted more than this. We can hardly conceive a state in which the brutal hunter did not take note of the declining sun and observe that the close of the day was approaching. The lengthening of his own shadow was an always present phenomenon, and men must have observed shadows almost as soon as they became capable of observing anything. But this kind of observation went on for ages without any attempt to subdivide the day, and none but the great natural periods marked off by sunrise and sunset were recognized.

There are three primitive forms of time-keeping instruments—the sun dial, the clepsydra or water clock, and the graduated candle. The sun dial was at the beginning the only time keeper, and man's ideas, developing into wants, led to its greater perfection, till these wants passed far beyond what, with its limitations, it could supply.

The rude utensil which the Greeks called a clepsydra had no resemblance to the perfected timepiece of this century, but nothing in history is surer than that out of it, by slow accretions, science and art, by turns mistress and handmaid, have produced the masterpiece of both.

Writers on the history of the clock (and they are not few) have generally begun by a reference to the sun dial as a Babylonian or Chaldean invention. We can trace it no further, and have no means of determining when the invention was made. We learn from the Old Testament Scriptures that it was known at Jerusalem as early as seven centuries before our era, and the manner of its mention indicates that in that city it was a novelty.

Historians have agreed in fixing the period of the introduction of the sun dial into Greece in the latter part of the sixth century B.C. Herodotus says it was derived from the Babylonians, from whom he also declares the Greeks to have derived the twelve parts of the day.

It does not appear that the sun dial was introduced to the Greeks in any perfected form. On the contrary, it was at first a mere staff or pillar, destitute of any graduated dial which could indicate the passage of an hour or any definite fraction of a day. The length of the shadow, measured in feet, determined the time for certain regular daily duties, as a shadow six feet long indicated the hour for bathing, and one twelve feet long that for supper.

The Greeks had written language and they had literature—Homer, Hesiod, Sappho. They had a system of weights and measures and a coinage. They were prolific in political ideas.

With her other arts, that of oratory had developed in Athens, but every orator was not a Pericles, and whatever may have been the merits or defects of their performances, the inordinate length of these was too great a tax on the tribunals. It therefore became necessary to limit and apportion the time of public speakers in the courts, and to do this equitably some practical means of indicating time was necessary. Hence arose the demand for another instrumentality whose origin and history are now to be traced.

The clepsydra or water clock, in its simplest form, is traced by historians no further than Greece, about 430 B.C.

I confess I have been far from satisfied with stopping at this half-way house in seeking for the origin of this instrument. I have sought further, and what I have found, if conclusive of nothing, is at least suggestive.

If, taking our lives in our hands, we could step on board a Malay proa, we should see floating in a bucket of water a cocoanut shell having a small perforation, through which the water by slow degrees finds its way into the interior. This orifice is so proportioned that the shell will fill and sink in an hour, when the man on watch calls the time and sets it afloat again. This device of a barbarous, unprogressive people, so thoroughly rude in itself, I conceive to be the rudest that search of any length can bring to light.

In Northern India, we find the rude cocoanut shell developed into a copper bowl. Its operation is the same, but the attendant, who stands by and watches the moment of its sinking, now strikes the hour on the resonant metal.

I next observe the water clock in use up to this day in China. We find the metal vessel with its minute perforation as before, but it has undergone a radical change in respect to its manner of use. It is now filled and the water flows from it in drops. Obviously enough, the flight of time might be indicated by merely observing when the vessel has emptied itself and then refilling it, which, as will presently appear, was exactly the simplest Greek and Roman clepsydra, and differs in no mechanical respect from the ordinary sand glass.

But in the days when the Chinese were a progressive people and developed inventions for which Europe had many centuries to wait, this water clock advanced far beyond the crude thing we have been considering. It would seem that the problem was to increase its usefulness by subdividing the unreasonably long intervals required for the complete emptying of the vessel. If this was done by marking graduations on the inside of the vessel, and so noting the decline of the level, the difference in its rate could not fail quickly to make itself manifest. The solution of this problem, not obvious at first, was found in so arranging the vessel that it should discharge into another, where the indication would be read in the rise of the surface, and contriving to hold the water in the upper vessel at a constant level. This was done by employing a third source, from which there was a constant flow into the first equal to its discharge. As the head in the middle vessel is thus maintained constant, the rise in the lowest is made uniform. Another radical improvement enhancing the practical utility of the device was the arrangement of a float on the surface of the water in the lowest vessel. Upon this was an indicator or hand which, in its rise, traveled over an adjacent scale, and so gave a time indication visible at a distance.

To show what progress this structure implies in the development of the mechanical clock, it is worth while to glance a moment at the essential elements of such an instrument. Reduced to its lowest terms, a clock consists of three elements only. These are a motor, or source of power, represented in our clocks by a spring or weight; an escapement, or a means by which the stored power in the motor is let off at a measured rate; and a dial, which is but the means by which the rate at which the power is let off is made visible to the eye. In this Chinese water clock we discover all these elements.

LEMMINGS are very numerous in several valleys in Southern Norway this winter. In many places the snow is furrowed for miles by the march of these little animals on their migration southward.