

almost a sealed book to us. By a little attention we might hear of still more curious things in this field. PHONE
New York, November 20, 1880

Subsidence of Land caused by Natural Brine-Springs

A THEORY has been put forward to account for the subsidence of land in the salt districts of Cheshire. It is said that, supposing the manufacturers of salt ceased to pump up the brine, it would run away to the sea, and subsidence would go on at as rapid a rate as now. Can any of the readers of NATURE tell me of any facts to substantiate such a theory, or refer me to any district where such rapid subsidence is going on, owing to the escape of natural brine-springs to the sea? Any reference to works giving information on this point will be thankfully received.

THOS. WARD

Northwich, February 15

Chlorophyll

THE following experiment may be interesting in its bearing on the relation between chlorophyll-development and light.

If cress seed are grown for a few days in the dark on damp cotton-wool, and then, beneath the surface of water, introduced into an inverted glass jar filled with water, they may be exposed to daylight for an indefinite time without chlorophyll being developed. But the plants are not dead; for if, after a few days' exposure, the cotton-wool on which they have been grown is cut in two beneath the surface of the water, and one half, with its plants, is restored to the inverted jar of water, while the other is placed under an inverted glass jar containing air only, and then these two jars be exposed to full daylight, the plants beneath the jar containing air rapidly become green, while the others never do so.

Light therefore cannot always cause the development of chlorophyll in the etiolated leaves of living plants.

Liverpool, January 24

WILLIAM CARTER

[This is an interesting observation, but seems to need some further investigation. As shown by Sachs ("Text-book," pp. 665, 666) the formation of chlorophyll has a complicated dependence upon light. If the temperature be sufficiently high it is formed in the cotyledons of conifers and the leaves of ferns even in complete darkness. The seedlings of angiosperms require exposure to light for the production of chlorophyll, but it does not take place at low temperatures. All the visible parts of the spectrum possess the power of turning etiolated grains of chlorophyll green, although the yellow and adjoining rays are most effective. The failure of the seedlings immersed in water to become green can hardly therefore be attributed to the absorption of the heat rays. Is it possible that their water-bath keeps their temperature too low?]

Squirrels Crossing Water

IN NATURE, vol. xxiii. p. 340, I read that Mr. Godwin-Austen never had heard of a squirrel taking to the water. As here are perhaps more readers of NATURE in Mr. Godwin-Austen's case, I take this opportunity to transcribe what Bachman related to us about that matter in the year 1839.

The northern grey and black squirrel *Sciurus leucotis*, has occasionally excited the wonder of the populace by its wandering habits and its singular and long migrations. Like the lemming, *Lemmus norvegicus*, of the Eastern Continent, it is stimulated, either from a scarcity of food or from some other inexplicable instinct, to leave its native haunts and seek for adventures or for food in some distant and, to him, unexplored portion of our land. The newspapers from the West contain frequent details of these migrations; they appear to have been more frequent in former years than at the present time. The farmers in the Western wilds regard them with sensations which may be compared to, the anxious apprehensions of the Eastern nations of the flight of the devouring locust. At such periods, which usually occur in autumn, the squirrels congregate in different districts of the far North-West, and in irregular troops bend their way instinctively in an eastern direction. Mountains and cleared fields, the head-waters of lakes and broad rivers, present no unconquerable impediments. Onward they come, devouring on their way everything that is suited to a squirrel's taste, laying waste the corn and wheat-fields of the farmer; and as their numbers are thinned by the gun, the dog, and the club, others are ready to fall in the rear and fill up the ranks, till they occasion infinite mischief and call forth no empty threats of revenge.

It is often inquired how these little creatures, that on common occasions have such an instinctive dread of water, are enabled to cross broad and rapid rivers, like the Ohio and Hudson, for instance. It is usually asserted, and believed by many, that they carry to the shore a suitable piece of bark, and seizing the opportunity of a favourable breeze, seat themselves upon this substitute for a boat, hoist their broad tails as a sail, and float safely to the opposite shore. This, together with many other traits of intelligence ascribed to this species, I suspect to be apocryphal. That they do migrate at irregular and occasionally at distant periods is a fact sufficiently established; but in the only instance in which I had an opportunity of witnessing the migrations of the squirrel, it appeared to me that he was not only an unskilful sailor, but a clumsy swimmer. It was (as far as my recollection serves me of the period of early life) in the autumn of 1808 or 1809, troops of squirrels suddenly and unexpectedly made their appearance in the neighbourhood, but among the grey ones were varieties not previously seen in those parts; some were broadly striped, with yellow on the sides, and a few with a black stripe on each side, bordered with yellow or brown, resembling the stripes of the little chipping squirrel (*Tamias lysteri*). They swam the Hudson in various places between Waterford and Saratoga; those which I observed crossing the river were swimming deep and awkwardly, their bodies and tails wholly submerged; several that had been drowned were carried downward by the stream, and those which were so fortunate as to reach the opposite bank were so wet and fatigued that the boys stationed there with clubs found no difficulty in securing them alive or in killing them. Their migrations on that occasion did not, as far as I could learn, extend farther eastwardly than the mountains of Vermont; many remained in the county of Rensselaer, and it was remarked that for several years afterwards the squirrels were far more numerous than before. It is doubtful whether any ever return westwardly; but finding forests and food suited to their tastes and habits, they take up their permanent residence in their newly-explored country; there they remain and propagate their species until they are gradually thinned off by the effects of improvement and the dexterity of the sportsmen around them. (*The Magazine of Natural History*, vol. iii., new series, 1839.)

Leyden, February 16

F. A. JENTINK

Flying-Fish

WITH reference to the letter of Mr. Pascoe in NATURE, vol. xxiii. p. 312, allow me to offer a suggestion as to the mechanical means by which the flying-fish moves when out of the water. During a voyage to India and back I took a great interest in observing the movements of these beautiful creatures by means of a powerful opera-glass; and soon came to the conclusion that a slight but rapid tremor of the pectoral fins could be seen for a few moments after the fish left the water. In very calm weather I noticed a series of little ripples on each side of the fish as it skimmed along the surface before rising for its flight, evidently caused by the wing-points tipping the water. My idea is that the flying-fish springs from the sea, and by beating the surface rapidly with its pectoral fins obtains an impetus which carries it along for some distance in the air. It then descends to the surface, and in the same manner acquires a fresh accession of speed. This process however is never repeated more than twice, though the fish does sometimes resume its flight after a moment of immersion.

R. E. TAYLOR

THE TRANSIT OF VENUS

THE President of the Royal Society presents his compliments to the Editor of NATURE, and will be much obliged to him if he will, at as early a date as may be convenient, be so good as to give publicity to the enclosed minute of the Transit of Venus Committee.

The Royal Society, Burlington House,
London, W., February 21

"THE Committee appointed by the Royal Society, at the request of the Government, to make arrangements for observing the Transit of Venus in 1882, would be glad to be informed whether astronomers have at their disposal, and are willing to lend, for use in the observations, 4-inch, 5-inch, or 6-inch refracting telescopes, and 10-inch or 12-inch reflectors, with equatorial mountings; also portable transits or altazimuths.