

point, and the discovery of another invaluable spring of fresh water is the result. Recently we have had many discoveries to record, all tending to encourage the search for underground water, on the supply of which the pastoral industry of this district so much depends; but none has been of more value to the discoverers or has tended more to encourage others to persevere in spite of difficulties. This latest discovery was made last week in the country known as the Pack-Saddle, forming the western portion of Messrs. Donnelly and Co.'s Gnalta run. The well was started in the summer of 1881, but had to be abandoned some time after for want of water for the use of the men, and Mr. Donnelly was urged to choose another site. He persisted, however, in continuing the original work as soon as surface water was available, and he has now come upon a practically inexhaustible spring. The flow was cut at 272 feet in a properly slabbed 6 feet X 3 feet shaft, and during the night following the water rose 172 feet, or within 100 feet of the surface. The discovery is worth every penny of 10,000*l.*, as it renders immediately available a large tract of good country hitherto dry and therefore comparatively useless. There is another fine well on Gnalta, from which 30,000 sheep have been watered in the dry season, and that discovered last week promises to be as good, if not better."

In my first letter I pointed out as one evidence of the underground water the growth of huge gum trees where there was no visible supply. In a recent number of the *Scientific American* it is stated that, on clearing out a well, the owner was surprised to find the bottom covered with a dense mass of fine, fibrous roots, which were traced to a Eucalyptus growing at a distance of fifty yards. The large Eucalypti are trees of remarkably rapid growth, which implies the absorption of large quantities of water. By what subtle sense did that root find out where water could be had, and travel so far to get it? Darwin has shown that there is some kind of irritability in the growing points of plants, and that it is sometimes communicable to distant parts. We shall probably come in time to admit that there is a nervous current in plant, though without visible nerves; and that this rudimentary system of sensation is accompanied by rudimentary desires, and even by rudimentary ideas, which guide the growing points in their search for the desired objects.

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Birstal Hill, Leicester, January 20

Deafness in White Cats

THIS subject has been of much interest to me, and otologists as well as evolutionists must feel indebted to your contributor in NATURE of December 13, Mr. Lawson Tait, for his efforts to determine the cause. May I be permitted, however, from an otologist's point of view, to draw attention to a possible source of error in conducting researches of this kind when deductions are made, as they were in this instance, from acoustic experiments mainly? I allude to Mr. Tait's method of determining the hearing power of the animal experimented on, namely, his cat, "Old Pudge," and the conclusions that he has drawn from the results obtained; thus he infers that purely "tympanic" deafness, consisting in an entire failure of the transmitting mechanism of the middle ear to respond to aerial undulations of sound, existed in the case of "Old Pudge," because the concussion produced by stamping on the floor could be heard by that animal, whilst the voice was not heard. Abnormal hearing of this kind, I am convinced, by no means establishes the fact that inner ear trouble does not exist, since such deaf-mutes as are believed to be defective in this regard are very sensitive to grave or deep tones—thunder, for example, being painful even to them. Pudge's cochlear (inner ear) functions were believed to be serviceable, inasmuch as he could use his voice; but such evidence cannot be accepted as conclusive, for absolutely deaf persons, who have been deprived of both "tympanic" and "cochlear" functions, are yet capable of making noises, and often of learning to speak after a fashion. Another point is also of interest in this connection: the ears of Pudge, it is said, were found to be normal in every respect, both as to their transmitting and perceptive functions, with the exception of the absence of a triangular gap from either tympanic membrane. In reference to this it may be said, in the first place, that it is difficult to understand how the delicate mucous membrane lining the tympanum retained its "normal" condition under such exposure; and, in the second place, these defects could scarcely be the cause of absolute deafness, since it is a well-known fact that quite good

hearing often remains in the human subject where, from disease, much greater loss in the tympanic membrane has been sustained than was found to exist in the hearing organs of Pudge. Altogether it seems probable that in certain white cats great congenital deafness may exist, and that the animal, on finding aerial transmission of sound to be imperfect, comes finally, like man under similar circumstances, to disregard its use entirely, and place its reliance solely on sound that can be felt, as it were. Moreover, is it not probable also that the trouble, in some degree at least, may lie in the perceptive centre of the brain? It is a significant fact that in Pudge at least some disease of the nervous centres existed, since he was the subject of epileptic convulsions.

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12, West Thirty-fifth Street, New York, January 3

FURTHER DISCOVERIES IN THE FLORA OF ANCIENT EGYPT¹

SINCE my last communication on the Flora of Ancient Egypt (NATURE, vol. xxviii. p. 109) I have made some interesting new botanical discoveries in connection with the mummies of the twenty-first dynasty, found at Deir-el-Bahari in July, 1881, which I will now describe in some detail; the objects having been forwarded to the Museum of the Royal Gardens, Kew.

In the coffin of the Princess Nzi-Khonsu of the twenty-first dynasty there was a large number of well-preserved wreaths, in which I found three species of plants of the ancient flora not previously authenticated by specimens. Besides wreaths of the leaves of *Mimusops Schimperii* and the petals of *Nymphaea corulea*, already described from examples found on the mummy of Ramses II., there were on the mummy of the Princess Nzi-Khonsu, daughter of Tontonthuti, numerous floral wreaths composed as follows: (1) folded leaves of a willow (*Salix safsaf*) strung on threads of the leaves of the date palm, and serving as clasps; (2) perfect flowers of the corn poppy (*Papaver rhaas*); (3) complete flower-heads of a corn flower (*Centaurea depressa*); and (4) complete flower-heads of a composite (*Picris coronopifolia*).

The flowers of *Papaver rhaas* equal in size those of the small form one has an opportunity of seeing in such abundance in the Mediterranean region in the spring months as a weed in cornfields, by roadsides, and on walls. In order to prevent the petals from falling, the flowers were picked in an unopened condition; and in drying in the vault the petals had shrivelled and shrunk up into a ball, to which circumstance is due the fact that in examining the moistened flowers all the inner parts appear before the eyes in a wonderful state of perfection. Not a stamen, not an anther is wanting; nay, one might almost say that not even a pollen-grain is missing. Rarely are such perfect and well-preserved specimens of this fragile flower met with in herbaria. The colour, too, of the petals is maintained in a high degree, as in dried specimens of the present day. It is a dark brown-red, that leaves a deep stain on the paper where the flowers have been soaked. The very caducous sepals were wanting in the flowers examined; but all the peduncles were thickly beset with the characteristic, horizontally-spreading, bristly hairs. The petals are destitute of the dark spot on the claw which is common to many varieties of the species. The naked ovary is shortly obovate in shape, or, in some of the very young flowers, cylindrical, though never so much elongated that one could doubt its belonging to the genuine variety described by Boissier in his "Flora Orientalis." The stigmatic disk is obtusely and broadly conical; and the rays vary in number from eight to ten. The edge of the stigmatic disk is bordered with orbiculate, auriculate, white appendages incumbent upon it. The anthers are oblong, twice as long as broad, and

¹ This article was sent by the author, Dr. G. Schweinfurth, to Sir Joseph Hooker, together with the botanical objects described therein. The original is in German, and the translation here given is as nearly literal as possible.—W. BOTTING HEMSLEY.