the present purpose to inquire), while all other sensations, as of hearing, smell, and taste, come before us only discontinuously and intermittently, not being had from all things nor always from the same things. But in a dog's experience touch cannot possibly co-operate with sight as it regularly does in ours. The organ of effective touch in man—touch that gets associated with vision—is in the last resort the hand, combining mobility and sensitiveness in the highest degree; and the dog has no hand. Its mobile limbs are not sensitive at the extremities, and, though it has sensitive lips, these, having no such active mobility as the human hand has, are extremely limited in the scope of their apprehension. Its touch being thus defective, what is there then in the dog to play second to sight, which as leader needs support, were it only because there is not always light to see with? Smell, I cannot but think, seeing that, while the organ is incontestably acute, it has the great advantage over the tactile surface of the lips, of receiving impressions from things already at a distance. If we only suppose—what the facts make very likely—that the dog's smell is acute enough to have some sensation from all bodies without exception, nothing more is wanting to enable a psychologist to understand that the dog's world may be in the main a world of sights and smells continuous in space. In that case a dog conveyed in a basket might by smell alone find its way back pretty much as a man blindfolded finds his way by touch alone.

To argue properly so difficult a question is impossible in a short letter, and I must be content now, for reasons like those indicated rather than stated above, with giving my adhesion to Mr. Wallace's view—so far at least as dogs are concerned, and to the extent that in smell we have a source of explanation for the phenomena which has never been sufficiently considered. That the explanation covers all the facts related even about dogs is more than I would assert; and whether it is equally serviceable for other animals like cats and horses, concerning which not less wonderful stories are told, is not so clear. Cats, however, seem to have very acute smell. What is the truth about the smell of horses? G. CROOM ROBERTSON

University College, Feb. 24

Fiords and Glacial Action

IN NATURE, vol. vii. pp. 94, 95, I find the following:—

"*Poggendorf's Annalen*—A. Helland adduces a large amount of evidence to show that the fiords in Norway have been formed by glacial action."

It appears an obvious remark, and yet I have not met with it, that fiords are chiefly found in those coasts where from the geographical conditions there must have been the most glacial action. The most favourable conditions for glacial action are evidently those of a mountainous coast in a high and therefore cold latitude, fronting the rain and snow-laden west winds of the higher latitudes as they blow in from the ocean. These conditions are fulfilled in the highest degree by the coasts of Norway and Western Scotland: the western coast of North America from Vancouver's Island northwards; and the western coast of South America from Chiloe southwards; and these coasts are accordingly more cut up into fiords than any others in the world.

The western coast of America along the enormously long line from Vancouver's Island to Chiloe is one of the most unbroken in the world. It is significant that the change in the coast at Chiloe from an unbroken one to one very much broken into fiords is accompanied by a great and comparatively abrupt change in the height of perpetual snow on the Andes. The following are the heights of perpetual snow at three different latitudes, according to Mrs. Somerville's "Physical Geography." The first two are north of Chiloe, the third south of it.

About 33° S. (near Valparaiso) . . .	12,780 feet
,, 37° 40′ S.	7,960 ,,
,, 53° (Strait of Magellan)	3,390 ,,

Although the height of the snow-line depends chiefly on latitude, it is sensibly influenced by the aspect of the mountains respecting the rain and snow-bearing winds. The best instance of this is probably that of the Himalayas, where, according to Mrs. Somerville (page 314), the height of the snow-line is 16,620 feet on the north side, and only 12,980 on the south. According to another authority (Capt. Strachey), quoted by Mrs. Somerville (p. 54), the heights are 19,000 to 20,000 feet on the north side, and 15,500 on the southern. The difference of the two estimates is about the same. The reason of the difference is evidently that the south side receives the moisture-laden winds from the Indian Ocean.

Old Forge, Dunmurry JOSEPH JOHN MURPHY

NOTE ON A POLYDACTYLOUS CAT FROM COOKHAM-DEAN

BY the kindness of Dr. Plumbe, of Maidenhead, I have been able to procure one of these cats; and from the many curious points he possesses, I think a note on his peculiarities will interest some of the readers of NATURE.

Readers of Mr. Darwin's "Origin of Species" are familiar enough with the illustration he gives of correlation of arrest of development in the deafness of blue-eyed cats. Some years ago I showed that our great naturalist had fallen into error on this point, and that the correlation is not between the blue eyes and the deafness, but between the latter and the sex of the cat.

I have made a great many inquiries on this point, and have completely confirmed my former observation, that all perfectly white tom-cats are deaf, and that they have blue eyes occasionally, because that item of beauty is common among white cats. I have seen many white Tabithas with blue eyes, but none of them were deaf. My little "Pudge" from Cookham is perfectly deaf, and has one blue eye and a yellow one. For the first few days after I had him, I thought he could hear a little, but am now quite satisfied that his deafness is complete, though he is alive to sounds conveyed through solid media. A further point of interest is that he is not mute as most deafs are, but there is a kittenish shrillness in his voice and a loudness in his purring, which are not commensurate with his age. I think, therefore, that it is possible that early in life he may have heard a little, for I know of two instances where perfect mutism accompanied the deafness in cats, and I do not know of any contrary condition. The one yellow eye favours my view that "Pudge" may have heard in infancy his mother's voice. His sense of touch is extremely acute compared to that of another cat I have, but his sight does not seem so sharp as that of cats generally is. He has twenty-six digits, and these are arranged—seven on each fore limb, and six on each hind limb. The supernumerary digits on the fore limbs are thumbs, and are placed one on either side of the true pollex, being joined to it, but having no metacarpal bones. In the hind limb the supernumerary digit is probably of the same nature, or a supernumerary index, being placed on the outer side of the hallux, and attached to the tarsus by a completely-developed metatarsal bone.

LAWSON TAIT

*ON ACTION AT A DISTANCE**

I HAVE no new discovery to bring before you this evening. I must ask you to go over very old ground, and to turn your attention to a question which has been raised again and again ever since men began to think.

The question is that of the transmission of force. We see that bodies at a distance from each other exert a mutual influence on each other's motion. Does this mutual action depend on the existence of some third thing, some medium of communication, occupying the space between the bodies, or do the bodies act on each other immediately without the intervention of anything else?

The mode in which Faraday was accustomed to look at phenomena of this kind differs from that adopted by many other modern inquirers, and my special aim will be to enable you to place yourselves at Faraday's point of view, and to point out the scientific value of that con-

* Lecture delivered at the Royal Institution, Feb. 21, 1873, by Prof. Clerk Maxwell.