SCIENCE

NEW YORK, AUGUST 26, 1892.

IS THERE A SENSE OF DIRECTION?

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ALTHOUGH it seems to me beyond dispute that among the lower animals there is an instinct which teaches them to find their way to a given point regardless of darkness or of previous knowledge of the locality, I do not believe, as I formerly did, that man possesses a similar sense, if we may so term it. I believe that man's ability to find his way to a given point is dependent solely upon a habit of observation, almost unconscious, to be sure, in many cases, but necessary to the end in view. I shall not discuss the truth or falsity of the ingenious theory advanced a few years ago, that the pineal gland in the brain is the seat of such a sense in animals, and that they find their way by means of some perception by this portion of the brain of the direction of terrestrial electric currents. All reasonable men, I believe, are satisfied that animals have this ability to find their way. Thus, most of us are familiar with instances in which a cat, for example, has been taken in a box or satchel for ten; twenty, or even fifty miles from home, and has returned in such an incredibly short time that we may be certain she has travelled by the most direct route. Carrier pigeons transported in closed cars or in ships have no difficulty in determining their direction of flight, even when liberated out of sight of land. I have repeatedly, when in doubt as to my direction upon a prairie without roads or paths, given my pony his reins, as riders commonly do in such circumstances, and never yet knew one to come out at the wrong place. The cowboys of this region make it a rule to pick for night-herding well-broken horses that are known to be anxious to reach camp when given the reins. Such ponies, even if obliged to follow the herd away from camp for several miles, will find their way back in safety in spite of the darkness. This selection of certain horses for night-work does not in the least vitiate our conclusion. They are not chosen for their power of finding their way back, but for their known inclination to do so. Even these horses sometimes fail, as, for instance, in the face of a severe storm, for they drift with the wind at such times rather than face it. Thus I once started for home at midnight from a ranch four miles away. For the first mile my road led westward to a road that ran in a northerly direction to town. Upon this first portion, with nothing to guide him, for it was dark and the ground was covered with new fallen snow, the horse found his way easily. As I struck the road and turned his face fairly to the storm, he would hardly face it. As the thermometer fell to 27 below zero that night, and the wind was strong, it was not strange. In this case the pain in his eyes from the cold and the driving snow more than counterbalanced his desire to get to his stable, and so he preferred to drift with the storm rather than face it.

As I cannot conceive that a horse or pigeon should guide himself by the position of the sun or of the north star, even if we eliminate from the problem the well-known fact that darkness seems to make no difference in the exercise of this homing instinct, I think that we may take it for granted that animals and birds have this sense of direction, for examples similar to those given above might be given by the score. It might be supposed that this instinct had formerly existed in man, but had been lost during his progress toward his present state of civilization. Writers speak of the "unerring instinct" which guides the red man through the vast stretches of pathless forest in which he resides. But we are also told of the accuracy of observation of the individuals of this same race. The Indian is familiar with the path of the sun and the position of the heavenly bodies. He observes every thing within his horizon, the mountain ranges, prominent peaks, and passes; he notes every stream, its size, character, and general course; he sees all the prominent objects along his trail. If the sun is obscured, and he is temporarily lost, he accomplishes his orientation by observing the rougher bark on the north side of some varieties of forest trees; or he finds the wild morning-glory facing eastward at day-break, for the faithful Moslem is not more certain to look toward the rising sun. He no doubt observes, also, that the warping action of the sun's rays detaches the bark sooner from the south side of the standing dead timber than from the other sides. These and a hundred similar signs are to be read by the student of nature. Such a student, most emphatically, is the Indian. I have had occasion to note his wonderful powers of observation, and those more familiar with his habits than I am, inform me that only after years of experience, if at all, does the white man acquire his proficiency in this direction. We are told by travellers that it is much the same with other primitive races, the necessary qualities being intensified by inheritance through long generations of nomadic ancestors. But as we have advanced in civilization, and sign-posts have taken the place of the signs which the Indian reads, we have retrograded in these matters until the civilized man, despite his knowledge, is lost more easily than his barbaric ancestors, unless he takes especial precautions to note those things which they observed without effort.

It seems to me that our proposition, viz., that we keep our direction by observation, conscious or unconscious, of surrounding objects, will be established if we are able to prove these three things:—

First, that those lacking in the power of observation are most easily lost.

Second, that those in whom this faculty is well developed are rarely lost.

Third, that the latter are easily lost when they lose sight of all external objects, as in fog or darkness, or when their attention is concentrated upon something else to such an extent that they do not observe their surroundings.

I trust that my term "power of observation" is plain to all. In this connection I mean that faculty which enables one to note surrounding objects, and to bear in mind their relations to each other and to himself. I take it that the power which enables one to look at a landscape and say that it is familiar is the same as that which permits some of us to look at a word and determine whether or not it is spelled correctly; for I have long believed that notoriously poor spellers were such, not from poor memories necessarily, but

from lack of the faculty in question. Thus I have a friend with whom I have hunted on several vacation trips to the Rocky Mountains. He has an excellent education and a memory far better than the average, but is utterly unable to spell. He is the only man with whom I ever hunted who was afraid to hunt alone in a strange country for fear of getting lost. I have often been struck, in other matters, with his same deficiency in this direction. Thus, when we hunt together, he scarcely ever sees the game first, although when discovered at a distance, he is immeasurably my superior in determining what class of game it is, if so far off as to render this a matter of doubt.

This example I may count as the first point in establishing our first proposition. Next to observers poor by nature, we might place those who lack experience, as those who have always dwelt in cities. Of course the great majority of these acquire proficiency by practice. Short-sighted persons who do not correct their myopia by the use of glasses come under the same head, for, being unable to observe their surroundings, they are very prone to become lost. Fortunately this disease is comparatively rare in primitive races, natural salection, no doubt, contributing to render it so, for it is vastly more common in civilization.

Among the female inhabitants of towns and cities the faculty in question has had no opportunity for development for many generations, perhaps. They ordinarily have a very poor "sense of direction." I have yet to see a woman from civilized life who could be trusted to point out the way across a pathless region of any considerable extent.

Second, good observers do not readily lose their way. My experience in this regard has been largely with two classes of men, hunters and cowboys. Men of either of these classes, to be even moderately successful, must be the closest of observers. The appearance of a man or an animal anywhere within the circle of vision is ordinarily noted at once. The habit of seeing what lies before one, a thing not given to us all, is formed. With men who travel much alone, the exercise of this faculty fills the gap left by the lack of opportunity for conversation. It gives the mind a certain amount of exercise. The Mexican sheep-herder who is alone on his range will tell you, a week after, who has passed by, what kind of a horse he rode, whether a colt followed a certain wagon the trail of which he has seen, and other details that surprise one not accustomed to such matters. The cowboy who rides a hundred miles across country will tell you the brand of every stray steer he has seen. These men, realizing that they are dependent upon their own exertions for safety, unconsciously develop those faculties of service to them. Other men, placed in similar positions, develop in the same manner, as trappers, explorers, and scouts. Think, for instance, what chance there would be of a trapper's getting lost when he is able to place fifty traps in a new region and find them all without effort. Here his memory is, of course, of as much importance to him as his close attention to his surroundings.

Our third proposition is, that even those who are ordinarily entirely competent to find their way get lost easily in darkness, fog, or snowstorms, and especially if interested in something which thoroughly occupies the mind. This I believe to be utterly inconsistent with the theory of a proper "sense of direction." Examples are, no doubt, familiar to all, but I will quote one from my own experience, which to me is conclusive. I have for years been in the habit of hunting alone in my vacation trips, upon the plains as well as in the mountains, and have travelled much in unsettled districts, both night and day. Realizing the possibility of getting caught in a snowstorm, I have made it a rule to carry a pocket compass as well as a waterproof match-safe at all times. For eight years I never had occasion to use the compass to learn my position, and I almost believed I was infallible so far as the question of getting lost, in daylight at least, was concerned. But the undeceiving came, and it was that which led me to this study of the subject. One fine September day I started out from camp on a deer-hunt. We were in the part of Wyoming between the headwaters of Savory and Jack Creeks, about two miles from that portion of the Continental Divide which lies between them.

Within half a mile of camp I struck a deer trail and followed it. I pursued it for two or three miles, mostly through heavy timber, without seeing any signs of game, although momentarily expecting to do so. When I finally stopped for a moment, it had begun to rain, and the dense clouds shut in every hilltop. I could see nothing to indicate the position of the sun, and there was not a breath of wind. The rain increasing, I decided to start for home, and, turning farther to the right, followed, as I supposed, a tributary of Jack Creek down into the valley. What was my consternation to find that the creek into which it led flowed to the right instead of to the left as Jack Creek should do! Every thing was unfamiliar. I had crossed no ridge, to my knowledge, high enough for the Divide; I was dumbfounded. I knew, however, that I was upon the westerly side of Jack Creek, for I had crossed no stream of any description. In two hours I could not possibly have walked far enough up or down to cause me to miss it if I adopted an easterly course. The difficulty was in the fact that I had supposed that I had been following such a course in arriving at my present position. As the mist and rain now shut in every thing, I had nothing to do but to complete my humiliation by a forced resort to the compass, for I had to admit for the first time that I was lost. At first sight I was tempted to believe that the needle was wrong, as I am told all men in similar position are. I carried the compass to some distance from my rifle, fearing that the needle was deflected by the metallic barrel. The result was the same. Fearing that I had found a body of iron ore by accident, I tried various localities, but the needle still persisted in pointing, as it seemed to me, south. After a few moments' consideration I started over a ridge a little to the right of the way I had come, and due east by compass. I still felt that I was going west, and could not get over the idea. A tramp of half an hour brought me within sight of the valley I sought, and north seemed to come around where it should have been all the time. I had unconsciously crossed the Divide at its lowest point, far lower than the one at which I now crossed, evidently having made an entire turn when starting homeward instead of a half one as I had intended. I now made a bee-line for camp, but I carried home with me less faith in my "sense of direction" than I had upon starting out.

I might quote from the experience of others a dozen similar examples of losing one's way. Some seven or eight men have been more or less severely frozen in this very county, by losing their correct route. I believe that further examples are unnecessary. It is sufficient for me to say, in conclusion, that, whatever instincts man may have had in a former state, he has at present no means of finding his way at all resembling that possessed by birds and animals.

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