

# Why Lost People Go in Circles

Physiology

By EMILY C. DAVIS

With your eyes shut, could you walk in a straight line across a big level field? Probably not, for in experiments on blindfolded walkers and automobile drivers, not one single person succeeded in taking himself where he intended to go.

Instead, the blindfolded persons went wandering across the field in spiral paths, making smaller and smaller circles as they continued to wander, corkscrew fashion. Pictures of their meanderings look like a child's scrawling attempts to draw smoke curling out of a chimney.

As a result of 300 of these blindfolded steering experiments. Dr. Asa A. Schaeffer, zoologist of the University of Kansas, has at last explained why people lost in the woods or desert go around in hopeless and frantic circles, and why blindfolded people have such hilarious difficulty in pinning the tail on the donkey at parties, even in a small room. More important than that, to the zoologist, he has demonstrated the existence of a steering mechanism in the entire world of animals and men that makes them turn in spirals when it gets control of a situation—a sort of "sixth sense" that most people have never dreamed that they possess.

Dr. Schaeffer was started off on this investigation by one of the smallest animals in existence, a single-celled ameba swimming in a glass of clear water. For several hours he observed the curving path taken by the tiny organism, and he became curious to know whether

other animals, and men too, are compelled to travel a crooked path in life if eyes and other senses fail to steer them.

After a light snowfall, the zoologist and several students went out to a race track, and each one set out blindfolded to walk in a straight line across the unbroken snow. To their surprise, when they studied the tracks in the snow, each path formed a clock-spring spiral of great regularity. Sometimes an individual started off in a comparatively straight walk, but the path soon veered to right or left, and after that it never regained its original straightforwardness.

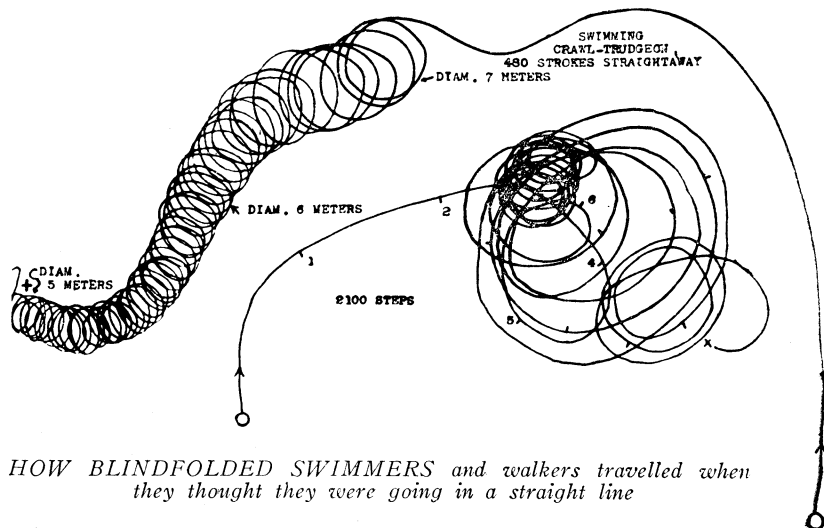
Some of the walkers circled to the right. Some circled left. Some varied occasionally. But generally an individual kept turning in the di-

rection first taken when he started on a blindfold trip.

Dr. Schaeffer continued the experiments. He took students and instructors out on big level fields in Kansas and Colorado and set them to walking blindfold, and recorded the spiral paths they took. He turned a Ford coupé loose on a Kansas prairie with a series of blindfold drivers, or sometimes with a blindfold person sitting beside the driver and directing the route, and the paths chosen by the steerers were more spirals. He had blindfolded swimmers dive into the water and try to swim straight ahead, using various strokes, and diagrams of their swimming, carefully recorded, showed the same clock-spring spirals that were becoming so familiar.

The paths taken by small swimming creatures were also studied by the zoologist. He found that even animals that seem to swim erratically and in unusual fashions, such as small jelly fish, young king crabs, tadpoles and sea worms, all swam in spirals.

In the experiments with men he attempted to shut off guidance from the eyes, ears, and other senses to reduce a human being more or less to the same level as the simple lower animals. If the sun was bright, the blindfolded walker carried an umbrella to shut off any clues that might be given by the heat and light of the sun. If a breeze was blowing, a coat was sometimes wrapped around his head to prevent the wind from blowing on his face and thus giving (Turn to next page)



HOW BLINDFOLDED SWIMMERS and walkers travelled when they thought they were going in a straight line



RECORDING THE PATH of a blindfolded walker

## Why Lost People Go in Circles—*Continued*

a direction clue to his sense of touch. To keep his mind occupied as uniformly as possible, the walker was asked to count his steps as he moved toward his goal.

After a number of tracks were recorded, it became evident that the same mechanism which caused the clock-spring spirals in the experiments also cause the "circles" when persons lose their way. The lost person's eyes simply become useless as orientating organs for distance.

The Emperor Jones, in Eugene O'Neill's play, went plunging through the African forest, heading, as he believed, straight for the coast and safety. He told himself that it was queer the tom-toms kept drumming in his ears as loudly as ever, as he struggled on, but he never realized that his eyes had failed as guides and he was circling around his enemies.

"Similarly," Dr. Schaeffer explains, "wild game, when hard pressed, run in circles because fear overcomes the orienting power of the eyes and nose and then the spiraling mechanism leads them in 'circles.'"

"This investigation is, therefore, not only a contribution toward explaining a deep-seated and widespread biological phenomena, but also an explanation for a bit of folklore about the paths of persons who lose their way and of game that is hard pressed in the chase."

Circles made by persons losing their way are much larger than the experimental circles with the eyes shut, he explains. With the eyes open, it is possible to walk in straight stretches as far as one can see clearly, which may be 30 or 60 feet in a snowstorm or fog, or several hundred feet in a forest. Then the lost person pauses, wonders which way he ought to go, and sets off again. The circles that are made in such circumstances are really polygons, irregular paths in which the person walks a straight line for a short distance, then turns at an angle and proceeds on around the "circle." The circles walked by a man lost in the desert or forest may have a circumference of 15 or even 50 miles, according to some accounts.

The belief that persons who lose their way go around in circles is deeply ingrained in folklore of many races, from the Hindu to the Norwegian and from the Chinese to the American.

There is evidence that European

cave-dwellers of the Old Stone Age held the same belief, for the ancient hunters left behind them a reindeer antler with well-drawn clock-spring spirals carved on it, the oldest record of a clock-spring spiral carved by man.

The traditional explanation of why lost people do go in circles is as widespread as the belief itself. The answer always given is that, of course, a person turns to the right, or to the left, because one leg is stronger or longer than the other, so that leg takes a slightly longer step.

Biologists have taken measurements of arms and legs to prove that they do not match in the average human being. Their figures indicate that 95 to 99 per cent. of a group of people is likely to be right-handed. Seventy-five per cent. of them will have longer right arms. And 72 per cent. will have stronger right arms, according to pulling tests made with a dynamometer. Fifty-two per cent. will have longer left legs, and 52 per cent. will have stronger left legs.

But strangely enough, no one has ever recorded the paths taken by lost or blindfolded persons to see whether a man with a long right leg really does veer to the left as his long right leg carries him farther along than his short left leg does.

Dr. Schaeffer's experiments clear up this point by showing that there is no connection between a right-handed or right-legged person and the direction of the turns he is likely to make. A number of right-handed persons drove an automobile blindfolded. Some curved right and some left. In one test, which proved rather conclusively that the form of the body does not explain the circling, subjects were asked to walk forward 50 steps and then backward 50 steps, then forward again. If the longer leg, or some other one-sided feature of the body really steered the body to one side, then when the individual reversed and walked backward, the curve should be reversed. But this did not happen to any convincing extent.

From the variety of living things studied, the zoologist has concluded that spiral movement must be a universal property of moving, living matter. Experiments show that blindfolded college students and blindfolded mice swim in paths,

very similar to the simplest water creatures that lack eyes and other senses completely.

One of the discoveries of the investigation is that pictures of paths made by a blindfolded person are decidedly individual in detail, and show something about his personality. People who concentrate easily on what they are told to do walk in smoother spirals and fall into the spiral path more quickly than others.

People of the plodding type who concentrate on one idea for a long time make paths consisting of long and regular series of spiral turns all in the same direction and gradually growing smaller, the diagrams show. Temperamental people, on the other hand, who change frequently from one idea to another, make open paths with few spiral turns, frequent reversals and many almost straight stretches.

It is possible, the zoologist believes, that further understanding of the connection between temperamental differences of this sort and the character of the paths may give a measuring stick for certain traits of personality. In other words, the shape and number of the spirals made by an individual may prove an index to the amount of certain traits that he possesses.

Spirals are much more common and important in nature than most people suppose. Even an organism as small as a spirochaete, only one two-thousandth of an inch long, has a spiraling mechanism hidden in its microscopic body. This germ produces the smallest spirals known in living matter.

Even to the world of atoms, the spiral is traced. Some of the atoms of which the universe is made are chained in spiral form.

An old mathematician once warned his followers that study of spirals could drive a man insane. Dr. Schaeffer says that this might be so if he pored too long over spirals expressed on paper in dizzy mathematical formulas. But the spirals of nature represent a fundamental force in man and animals which should be understood.

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More than one-third of the people in the United States are without public library service.

The Army and Navy flying schools require that their students spend at least 300 hours flying.