5
Growing Up Superstitious

> Outwardly the children in the back streets and around the housing estate appear to belong to the twentieth century, but ancient apprehensions, even if only half believed in, continue to infiltrate their minds. . . . With simple faith they accept beliefs which have not changed since Shakespeare's day: that if a dog howls outside a house or scratches at the floor someone is going to die in that house; that if owls screech at night it is a sign of death; that if a person hears of two deaths he will assuredly be the third; and in the evening places where children meet, the telling of each dark precept is supported with gruesome instances.
>
> —Iona and Peter Opie, *Lore and Language of Schoolchildren*

> See a pin and pick it up
> All the day you'll have good luck
> See a pin and let it lay
> Bad luck you'll have all that day
>
> —J. O. Halliwell, *Nursery Rhymes of England*

In the mid-1950s, Philip Goldberg was a young Dodgers fan growing up in Brooklyn. He and his friends played stickball in the streets with mop handles and hairless pink rubber balls known as "spaldeens." As many as fifteen times a season, he passed through the gates of Ebbets Field to see the great Jackie Robinson take the field, and he watched many other games on television, either at home or at a neighborhood luncheonette. But Goldberg was not merely a passive observer. He helped the Dodgers win. He had a lucky blue Dodgers hat that he wore during every game, and a yellowed Dodgers T-shirt that was imbued with magical powers. Like many boys, he was concerned that the bill of his cap have just the right degree of curl, so at the end of the day, he would roll it into a cylinder and stick it in a drinking glass overnight. Soon he came to believe that this nightly ritual maintained the hat's power to make the Dodgers win.

Although Goldberg's own baseball magic benefited the Dodgers, his mother was a jinx. On several occasions, when he and his father were watching crucial games, such as those against the Giants in the 1951 National League playoffs, the team's fortunes changed as soon as Mrs. Goldberg entered the room. Bobby Thomson hit a home run to win the pennant for the Giants, or some other calamity befell the home team.

Thirty years later, having followed the Dodgers to Los Angeles, Philip Goldberg memorialized the Brooklyn of his youth in an autobiographical novel, *This Is Next Year*.[1] The main character, a young boy named Roger Stone, has a lucky hat and a mother who is a jinx, and he believes that if he sits on a particular stool at the local luncheonette and drinks an egg cream just before the start of the game, the Dodgers will win. At a dramatic point in the novel, which takes place during the 1955 championship season, Roger goes to Jackie Robinson's house and gives him his lucky hat.

The adult Philip Goldberg is still a Dodgers fan and still has a lucky hat. He wore it during every game of the 1988 stretch drive and throughout the playoff series with the Mets. He was wearing it when Kirk Gibson hit his famous home run, and he wore it during all the World Series games of that winning season.[2] He claims he does not believe as strongly as he did as a child, but he takes no chances: "The old saying is that there are no atheists in foxholes. Well, there aren't any in the bleachers either."[3]

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At the turn of the century, the most prominent psychologists of the day thought children were savages. Throughout the nineteenth century, even before Darwin's *Origin of Species* appeared in 1859, evolution was widely debated in scientific circles. Several theories of the development of species were proposed, but it was not until after Darwin that the theory of natural selection—the survival of those individuals who are physically and behaviorally adapted to their environments—took hold. Among the evolutionary ideas that were popular at the time was the law of recapitulation.[4] Although this principle was independently proposed by several theorists, it is most closely associated with the German zoologist Ernst Haeckel, who called it the "biogenetic law." The law, as he stated it, was "Ontogeny is the short and rapid recapitulation of phylogeny."[5] Simply put, the biogenetic law holds that as an individual develops from embryo to adult (ontogeny), it mirrors the evolution of its species (phylogeny). Thus, for example, the human fetus passes through a stage at which it resembles a fish—presumably an evolutionary ancestor.

The biogenetic law remained popular through the early decades of this century, exerting important influences outside the field of zoology. For example, before World War II, the concept of recapitulation was used as a scientific basis for the inequality of the races. African adults were said to resemble European children, a view that justified treating blacks as children, members of an ancestral race.[6]

The biogenetic law exerted a particularly strong influence on theories of child development. G. Stanley Hall, the most noted child psychologist of his day and founder of the American Psychological Association, believed that evolutionary recapitulation was a central theme of child development and was particularly evident in childhood play:

> I regard play as the motor habits and spirit of the past of the race, persisting in the present, as rudimentary functions sometimes of and always akin to rudimentary organs. The best index and guide to the stated activities of adults in past ages is found in the instinctive, untaught, and non-imitative plays of children. . . . Thus we rehearse the activities of our ancestors, back we know not how far, and repeat their life work in summative and adumbrated ways.[7]

Although psychologists no longer hold this view of children (it insults both children and our ancestors), two related points are important to our topic. First, we must treat children fairly. Youngsters move within our grownup society but are not yet bona fide members of it. As a result, their lapses in rationality can be excused as the products of their prescientific intellects. What children—particularly younger children—do and say cannot, in good conscience, be classified as true superstitions or paranormal beliefs.[8] Nevertheless, the curiosities of childhood belief often grow into genuine adult superstitions. For example, many of the traditional social superstitions, such as the fear of black cats, are first acquired in childhood—when our critical skills are not well honed—and are maintained through maturity—when we ought to know better. Thus, a full accounting of the psychology of superstition must include an examination of the beginnings of superstitious belief in childhood.

Second, although the world of developing children does not mirror the cultural evolution of Western society, as Hall believed, it does represent a rich and unique culture filled with distinctive literature, songs, customs, and systems of belief. Although almost every aspect of childhood has been studied in great detail, very few investigators have examined the society of children the way a cultural anthropologist would approach a different culture. The primary exceptions to this rule have been Peter and Iona Opie.

The Magical Lore of Schoolchildren

In 1959, the Opies published their landmark work, *The Lore and Language of Schoolchildren*. For this study, schoolteachers, headmasters, and

headmistresses served as informants, reporting observations of five thousand children from England, Scotland, Wales, and Ireland, which the Opies collected and categorized. The final product paints a detailed portrait of the child's world complete with rhymes, songs, riddles, games, epithets, and customs, many of which are magical pieces of childhood superstition.

Oaths

Perhaps the simplest form of children's magic described by the Opies is the oath. These ritual declarations of the veracity of a statement or the intention to perform an act are extremely common, and they are often sealed by a gesture, such as spitting, crossing the fingers, or touching cold iron. Of course, religious oaths are quite common. For example, the Opies found that the most popular of all oaths among English schoolchildren was "God's honor," sealed by licking the tip of the index finger and making the sign of the cross on the swearer's throat. Other religious oaths included "God's word," "Hate God if I tell a lie," and "May I sell my God if I am not telling the truth."

If, after an oath is made, there remains some residual doubt, the inquisitor may test the oath-giver's truth. For example, the truth might be tested by peering into the swearer's mouth, because according to legend, if you tell a lie, a blister will appear on your tongue. Another truth test reported by the Opies involved drawing two fingers along the ground. If both remained clean, a lie had been told; if one became dirty, the truth had been told.[9] (It is not clear what two dirty fingers would mean.)

Once completed, an oath has a kind of legal status, such that if the contract is broken, important consequences will follow. For example, the Opies found that children would frequently demand of a cohort: "spit your mother's death."[10] Such a gesture would presumably lead to the parent's demise if her child was not true to his or her word. Often the terms of the contract were stated in rhyme. In the town of Ruthin, in northern Wales, the Opies heard the following couplet:

> Cross my heart and hope to die,
> Drop down dead if I tell a lie.[11]

Growing up in the Midwest, I heard the more gruesome American version:

> Cross my heart and hope to die,
> Stick a needle in my eye.

In this case, it is not clear whether the second line was meant to be a truth test that the doubting listener was urged to employ or a particularly grizzly way to accomplish the "hope to die" part of the bargain.

The importance of keeping an oath is often supported by stories of those who failed to be true and died instantly. The Opies reported one particularly dramatic case:

> A Somerset writer for instance has recalled that, in his day, schoolboys had a story in which a sinner was not only immediately struck dead when he perjured himself but became rooted to the spot where he stood so that no power on earth—not even a team of horses attached by ropes and chains—could move the body, which stood (like Lot's wife) as a terrible warning to other men and women.[12]

Childhood Superstitions

In addition to a belief in magical oaths, children hold genuine juvenile superstitions. Most of us have personal experiences with childhood superstitions, but again, the Opies provide the most organized collection and analysis of what they called "half-beliefs." They also recognized the peculiar social source of childhood superstitions:

> The beliefs with which we are concerned here are those which children absorb through going about with each other, and consequently mostly involve happenings out-of-doors: people met in the street, objects found in the road, and mascots carried with them to school. We find, what is understandable, that the younger schoolchildren treat the beliefs and rites of their companions more seriously than those practiced by their parents.[13]

In the United States, perhaps the most famous of all childhood superstitions is recited while walking the sidewalk on the way to school:

> Step on a crack
> You'll break your mother's back.

This couplet is recited all over the country with only minor variations, such as "you'll break your grandmother's back" or "you'll break the devil's back."[14] The Opies also found this ominous belief expressed throughout England, with several colorful variations:

> If you tread on a nick
> You'll marry a brick (or a 'stick')
> And a beetle will come to your wedding.[15]

One version, heard in Portsmouth, also required that attention be paid to places where water ran across the pavement:

> If you tread on a crack, or tread on a spout,
> It's a sure thing your mother will turn you out.[16]

Many of the childhood superstitions reported to the Opies involved finding lucky objects: buttons, pins, four-leaf clovers, coins, or stones. In most cases, finding something was not, in itself, enough; to tease luck from a newly discovered treasure the child must "step on it, threaten it, spit on it, implore of it, or, very often, throw it away."[17] Interestingly, English children placed special significance on finding particular cigarette packages. In Aberystwyth and Swansea, for instance, the Opies found that children looked for empty packs of Player's Navy Cut, and when they were lucky enough to find one they recited:

> Sailor, sailor, bring me luck
> Find a shilling in the muck.

The four-leaf clover is perhaps the most famous of all lucky found objects, and the Opies recount what must be the world record: on May 13 (was it Friday?), 1953, Joan Nott of North Finchley, London found nine four-leaf clovers near her home.

Both children and adults make wishes from time to time. Indeed, most public fountains are quickly filled with spare change.[18] On Thanksgiving, many a carver has taken the extra steps necessary to carefully extract the bird's wishbone in a single piece; later, often while the dishes are being cleared away, the familiar wish-making duel ensues. But the practice of making wishes is most strongly associated with children. Birthday cakes with candles are an important symbol of childhood, marking the passing of a milestone, and the ritual singing of "Happy Birthday" combined with the blowing out of candles is an almost universal ceremonial practice. As I learned the birthday wishing spell, to be successful you must (1) silently make a wish, (2) blow all the candles out with a single breath, (3) not tell anyone what the wish was (no matter how much they tease you about it), and (4) not speak again until you have eaten your first bite of cake. Another wishing procedure was the subject of Jiminy Cricket's famous song from the Disney version of *Pinocchio*, "When You Wish upon a Star."

The Opies found a number of circumstances that their young subjects hold propitious for the granting of wishes. Seeing a white horse was said to be lucky, and some said that after seeing such an animal your wish would

be granted. In some versions of this belief, the wisher had to perform an additional ritual, such as spitting or crossing her fingers and keeping them crossed until she saw a dog.[19] A particularly charming wish procedure reported by the Opies involved the chance occurrence of simultaneous speech. If two children accidentally say the same thing at the same instance, "they instantly stop what they are doing and, without uttering a further word to each other or making any sound, glide into a set ritual which varies only according to the part of Britain or, for this is an international performance, the part of the world in which they live."[20] For example, children in Alton, Hampshire, touched wood and said, "My letter in the post come quick," and then named a poet, usually Shakespeare.[21] In Carbondale, Illinois, children "lock the right-hand little fingers, wish silently, and then unlock simultaneously, each child giving the name of some animal or bird."[22]

Two categories of children's superstitions observed by the Opies closely parallel beliefs and practices used by adults. For example, like Canadian and American college students, English schoolchildren employ superstitions to give them luck in examinations. They often bring in "mascots," small toy pigs, elephants, frogs, dogs, or other animals, which they "set up in front of them on their desks (and tactfully ignored by the examiners), or are worn as brooches or pendants."[23] Others try to gain an edge by bringing a piece of coal in their pocket. The Opies make a particularly interesting observation about the kinds of students who used lucky objects when the stakes are high:

> They are particularly conscientious about bringing charms to the 11-plus examination, the "scholarship" as they call it, which, determines whether they shall go on to a grammar school or to a secondary modern; and it may, perhaps, be reflected that grammar school children (the children who were successful in the examination) are more likely to be superstitious than secondary modern school children, for children at grammar schools are children who have found that lucky charms work.[24]

Although the Opies seem to offer this view more as speculation than as fact, it is supported by the finding that successful athletes are more likely to be superstitious than less successful ones (see chapter 2). Furthermore, it is consistent with the win-stay/lose-shift pattern of superstition exhibited by gamblers.

The Opies found that, like Henslin's crapshooters, children often use magical incantations to improve their luck in games. When tossing a coin, some were heard to chant, "Lucky tails, never fails," or, when drawing a third playing card or hoping to roll a three at dice, "Lucky three, bring luck to me." Apparently marbles was a game that schoolchildren felt they

needed a little luck to win. The Opies reported a number of verbal spells used by players, including one heard in East Orange, New Jersey:

> Roll, roll, tootsie roll,
> Roll, marble, in the hole.

Other techniques involve making marks in the dirt (which—although I am a nonplayer, it seems to me, might change the course of a speeding cat's eye). For example, some children protected a marble from being hit by drawing a ring around it. These rituals are reminiscent of the practices of adult baseball players and gamblers.

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Peter and Iona Opie's study of schoolchildren is a window onto a culture that adults have forgotten. Americans reading their reports in the 1990s will find that some details differ from their own youthful experiences, but the basic framework is universal. Children live in a unique world filled with songs, oral literature, beliefs, and half-beliefs. But we cannot help noticing the similarities between these childhood superstitions and those of adults. Many of us acquire our belief in magic as children and retain it long after we have adopted grownup sensibilities. This observation begs the question: how do children learn to be superstitious? To see if we can find an answer, we must look at two primary forces in the child's world—the development of thought and the process of socialization.

Magical Thinking in Childhood

The study of intellectual development in children is dominated by a single figure. Jean Piaget's theory of cognitive development is criticized by some contemporary researchers who believe several of its details to be inaccurate, but it is the most complete account we have of the development of thought. Furthermore, because Piaget was a tireless and careful observer, his theory faithfully portrays many important features of the real lives of children. His work, which filled many volumes, describes how children come to understand the world, as well as how they misunderstand it along the way. One of these misunderstandings is magical thinking, a superstition-like phenomenon of early childhood.

Piaget was a something of a prodigy. Born on August 9, 1896, in Neuchâtel, Switzerland, he had an early interest in biology. His prolific publishing career began when, at age ten, he published an article in a natural-history magazine describing an albino sparrow he had observed in a local park. A series of articles on mollusks, written when Piaget was

between fifteen and eighteen, led to an invitation to serve as curator of the mollusk collection at the Geneva natural-history museum (an invitation he had to refuse because he had not yet completed high school). By the age of twenty-one, Piaget had completed his Ph.D. in biology, and his interests turned to psychology. He continued his studies in Zurich and later at the Sorbonne University in Paris, where, in 1920, he accepted a position with Teophile Simon at the Binet Laboratory. Simon and Alfred Binet had developed the Binet-Simon intelligence test, and Piaget was chosen to help develop standardized items for intelligence tests.[25]

As legend has it, Piaget was less interested in children's correct responses to test items than he was in their errors. He noticed that older children were not just smarter than younger ones; they reasoned in a qualitatively different way. He began to publish articles on children's thought and soon took a position as research director for the Jean-Jacque Rousseau Institute in Geneva, where he continued his research in cognitive development. Having settled on his life's work, Piaget began publishing a long series of books outlining his theory of cognitive development, but he did not completely forsake his training in biology. His theory of child development was strongly influenced by biological and evolutionary processes, emphasizing children's methods of adaptation to the environment. According to his theory, as children grow, they pass through a series of cognitive stages, ending at the *formal operational stage* when they are approximately twelve years old. At this point, the child can engage in abstract thought and can reason using purely verbal and logical statements (see Table 5.1).[26]

Before children arrive at this point, their intellectual development is incomplete, and they make predictable reasoning errors. Piaget detailed these errors and used some of them as evidence for his stage-theory approach to cognitive development. Perhaps the most famous example is the so-called problem of conservation. From age two to approximately age seven, children are in Piaget's *preoperational stage*. During this period, children are beginning to use symbols and images but have not yet begun to think logically. If, for example, an adult places before a child two balls of clay of the same size, the child will agree that they are the same. However, if one of the balls is then rolled out into a long cylinder, the preoperational child will say that the cylinder is bigger. The child fails to understand that the clay retains (or conserves) its volume regardless of its shape. My four-year-old son once demonstrated this error by asking me to cut his grilled-cheese sandwich into four pieces "so there will be more." After the age of seven, children enter the *concrete operational* stage and understand the concept of conservation.

Another characteristic of children in the preoperational stage (but not limited to it) is *egocentrism*—the inability to take another's point of view.

Table 5.1 Piaget's Stages of Cognitive Development

Stage	Ages	Activities and Accomplishments
Sensorimotor	Birth to two years	Infants discover the world through sensory impressions and motor activities. They learn to differentiate the self from the outside world, and that objects continue to exist even when not visible. They begin to understand cause and effect.
Preoperational	Two to seven years	Children are unable to manipulate and transform information in logical ways or make general logical statements, but they can use images and symbols. They acquire language and play pretend games.
Concrete operational	Seven to eleven years	Children can understand logical principles that apply to concrete external objects. They understand that objects remain the same despite changes in appearance; they can sort objects into categories.
Formal operational	Over eleven years	Adolescents and adults can think logically about abstractions and can imagine other worlds. They reason about purely verbal or logical statements and reflect on their own activity of thinking.

Source: Bernstein, Clark-Stewart, Roy, and Wickens (1994). Copyright © 1994 by Houghton Mifflin Company. Adapted with permission.

According to Piaget, this attribute is the basis of several forms of magical thinking in young children. The classic demonstration of egocentrism is the three-mountains task, in which a child is seated in front of a three-dimensional model of a mountain range.[27] A doll is placed so that it also appears to be viewing the model, but from a different angle. Finally, the child is asked to select, from a number of pictures, that view that the doll sees. Piaget found that children under the age of approximately eight tend to choose the view that they see, rather than what the doll sees. More recent research suggests that children younger than eight can be successful on a similar task, but it is clear that various forms of egocentrism are common to children of this age group. Furthermore, this youthful self-centeredness is responsible for two other cognitive errors that lead to magical thinking: *realism* and *animism*.

Realism and Dreams

Piaget described young children as realists, by which he meant that they are unable to make the distinction between themselves and the external world and between thought and reality. The child's description of the nature of dreams is an interesting example of this problem. Piaget and his collaborators interviewed children of different ages about their dreams and identified three distinct stages of development. At approximately five to six years of age children report that a dream comes from outside them and remains external. At seven to eight children believe that a dream comes from within them but exists in the room in front of or around them. Finally, children of nine to ten years describe a dream as coming from them and residing in their heads or behind their eyelids.[28]

The following dialogue with one of Piaget's subjects, the six-year-old Sci, demonstrates the first stage, in which dreams come from and exist apart from the dreamer:

> Where does a dream come from?
> *From the night.*
> What is it?
> *It's the evening.*
> What is the night like?
> *It is black.*
> How are dreams made?
> *Out there* (pointing to the window).
> What are dreams made of?
> *Black.*
> Yes, but of what?
> *Of light.*
> Where do they come from?
> *From lights outside.*
> Where are they?
> *There are some out there* (pointing to the street lamps).
> Why do dreams come?
> *Because the light makes them.*[29]

Piaget's second stage, in which the dream comes from within the dreamer but exists outside, is demonstrated by Schi, who is described as a "very intelligent" six-year-old boy:[30]

> Do you sometimes have dreams? What is a dream?
> *You think of something during the night.*
> What do you dream with?
> *With the soul, with thought.*
> Where does the dream come from?
> *During the night. It is the night that shows us the dream.*
> What does that mean? Where is the dream whilst you're dreaming?
> *It is in the*—[he was about to say "head"], *it is between the night and the head.*
> While you are dreaming, are your eyes open or shut?

Shut.
Then where is the dream?
It's when you see black that the dream comes.
Where is it?
When you are not asleep it's in the head. While you are asleep it comes out. When it's night, it's night, but while you're asleep it isn't night any more.
When the dream comes, where is it?
In front of the eyes and it goes against the wall.
Could your father see it?
No.
Only you?
Yes, because it's me that's asleep.

It is as though Schi has distinguished between daydreams (waking dreams) and sleeping dreams. He knows that while he is awake his dreams exist inside him, but he believes that as he descends into sleep, his dreams leave his body, at least sometimes. Yet his father would not be able to see his dreams because they are somehow produced by and connected only with him.

Older children acquire a more mature understanding: that dreams come from inside and remain internal. Tann, an eight-year-old, retains some unusual ideas about dreams, but he shows the important features of Piaget's third stage.

Where do dreams come from?
When you shut your eyes; instead of its being night, you see things.
Where are they?
Nowhere. They aren't real. They're in the eyes.
Do dreams come from within you or from outside?
From the outside. When you go for a walk and you see something, it makes a mark on the forehead in little drops of blood.
What happens when you are asleep?
You see it.
Is the dream inside the head or outside?
It comes from outside, and when you dream of it, it comes from the head.
Where are the images when you are dreaming?
From inside the brain they come into the eyes.
Is there anything in front of the eyes?
No.[31]

Realism and Participation

Dreams are magical. In a dream, the physical limitations of waking life are stripped away to reveal a world of pure imagination and wonder. But they are common to both children and adults, and although a small child may need to be reminded in the middle of the night that nightmares—and all dreams—are not real, most children soon learn to distinguish dreamscapes from waking landscapes. Thus dreams do not represent the kind of magical thinking we associate with childhood superstition. For this it is necessary to have magical beliefs about cause-and-effect relationships in the everyday, waking world. Here, also, the problem of realism plays a role.

For his discussion of magical thinking in children, Piaget borrowed anthropologist Lucien Lévy-Bruhl's term "participation" to describe a child's belief that there is a causal link between two unconnected people or events. His observations of children led him to identify four forms of magical participation.

Magic by Participation between Actions and Things

The childish magical beliefs recounted by Piaget are very similar to those described by the Opies. Most represent the superstitious hope that some act or thought will bring something good or stave off something bad. The following story of an anxious boy is typical.

> A boy who lived in a somewhat lonely house was always very frightened on the evenings when his parents were out. Before going to bed he used to draw the curtains by unwinding a sort of roller. He had always the idea that if he could succeed in drawing the curtains very quickly the robbers would not come. But if the curtain took some time to unroll the house was in danger.[32]

Many of the magic prescriptions of schoolchildren described by the Opies fall into this actions/things category—avoiding cracks in sidewalks, finding four-leaf clovers, and picking up pins.[33] According to Piaget, belief in the magical participation between actions and things is produced by a form of realism that confuses a symbolic action with the cause of a subsequent event.

Magic by Participation between Thoughts and Things

When something is wanted very badly, many children—and even some adults—will avoid thinking about their desires, sometimes thinking the opposite, to keep from "jinxing" themselves. This kind of behavior represents Piaget's second kind of magical participation. Here, the principle of realism leads children to believe that their private thoughts have an external reality that can affect objects and events in the physical world. Piaget recounted the memory of a colleague which demonstrates this kind of magical thinking. As a young girl, this colleague would play school, imagining that she was the teacher giving various grades to her friends. In general, she

gave better grades to her friends and worse ones to children she did not like. When later she went to school, the young girl was convinced that she had influenced the actual questions asked by her teacher. She believed that somehow she had helped her friends and hindered her enemies.[34]

Magic by Participation between Objects

Children often see certain events or objects as ominous or emblematic. Thus, a shooting star or a white horse may be seen as lucky. But children may believe that physical entities share some occult connection—that objects themselves interact. Piaget offers the following recollection by a young girl as an example:

> When I had just won certain marbles (by taking them from my opponent), I never used these marbles to play with again, because I thought I was more likely to lose these than the others, since I had the idea that they would be in some way attached to their former surroundings and have a tendency to be returned to their former owner.[35]

As in the case of participations between thoughts and things, participations between objects come from a failure of the child's realistic—literal—mind to separate signs from events or thoughts from objects.

Animism

Some children believe that inanimate objects are living things, or even that objects are obedient. This form of participation is called animism. In its most extreme form, it leads children to believe that they are "masters of the universe" controlling all that they survey, but the most famous examples concern the behavior of the sun, moon, and clouds. A four-and-a-half-year-old answered the following question:

> Can the moon go wherever it wants, or does something make it move?
> in this way:
> *It's me, when I walk. It comes with me, it follows us.*[36]
> A seven-year-old, when asked,
> Does the moon move or not?
> answered:
> *It follows us.*
> Why?
> *When we go, it goes.*
> What makes it move?
> *We do.*
> How?
> *When we walk. It goes by itself.*[37]

Origins of Magical Thinking

Having identified these categories of magical thought, Piaget offers some explanations for the development of these superstition-like phenomena. At the core, is the concept of egocentrism. Piaget goes so far as to describe the infant's egocentrism as being a form of solipsism—the belief that only one's self exists and all else is imaginary. The baby makes no distinction between self and the world—indeed, the baby feels it *is* the world. It takes delight in watching the movement of its hands and feet and the movement of a mobile bouncing above the crib. But according to Piaget, these are the same to the child. Internal and external are one.

Soon children learn that the world is responsive to their commands. Limbs and objects move as they direct. Even parents appear to behave as if they were extensions of the child's body, supplying food, toys, and physical comfort at the slightest whimper. This kind of experience leads the child, in later stages, to make magical commands to the world and expect that they will be obeyed. The development of symbolic behavior further contributes to magical thinking. As children learn the names of objects, they often exhibit what Piaget called *nominal realism*—the confusion of the name with the object itself. It is this principle that Rozin and his colleagues observed in college students who were uncomfortable eating sugar from a container marked "sodium cyanide" (see chapter 1, page 9). In children, nominal realism leads to the expectation that names and thoughts are connected with objects and can influence real world events. Thus, a practice such as thinking the opposite of what is desired can emerge.

Piaget also suggested that in some instances, gestures or actions with innocent beginnings later take on a magical role. For example, the lowering of the window shade described above may have begun as a simple action to protect against robbers and other undesirables by making people and things in the house less visible. Later, the precise manner in which the action is completed took on a supernatural function. Similarly, a child who is walking on a sidewalk may begin to walk in a particular way—hopping over the pavement lines, for example—purely as a game or for aesthetic reasons. Then one day, while walking in this characteristic way, the child is possessed by a particular fear or strong desire. This accidental contiguity of action and desire gives rise to the ritualization of the walk.[38]

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Piaget's account of magical thinking has come under some criticism. Some have questioned the basic premise that children are unable to distin-

guish between the internal and external worlds, and others point out that adults—who are presumably in the formal operational stage of cognitive development—often exhibit religious and philosophical beliefs that share features with the magical thinking of younger children.[39] To examine adults with such magical beliefs, Ronnie Lesser and Marilyn Paisner of the City University of New York compared women who were members of the Institute of the New Age, a nonsectarian spiritual community that denied the existence of chance and attributed great control to the individual, to a second group of women who were not involved with a spiritual community.[40] Members of the New Age group believed in reincarnation, karma, and the notion that, prior to birth (or rebirth), one chooses one's parents. First, Lesser and Paisner measured the developmental level of both groups using a permutations task developed by Piaget and Bärbel Inhelder.[41] The study participants were asked to find all possible reorderings of the four letters ABCD (ABDC, ADBC, etc.). (Successful performance on this task is associated with the rule-based, abstract reasoning of the formal operational stage.) The results indicated that both groups were firmly rooted in the formal operational stage and equally adept at the permutations task. Next, Lesser and Paisner assessed the level of supernatural belief in both groups and, as expected, found significantly higher levels of belief in ESP, plant consciousness, UFOs, magic, and witchcraft in the New Age group.

Although the presence of formal operational thought in combination with magical thinking appears to contradict Piaget's theory, the authors resurrected Piaget's account by making a distinction between the magical thinking of preoperational children and that of the New Agers. Lesser and Paisner argued that when young children say they make the moon move, it is a naive statement of fact. In contrast, when one of the New Age participants said that people's actions collectively affect the weather, she understood this to be a statement of belief. This woman's awareness of the different status of her ideas reflects formal operational, rather than preoperational, thought.

The Socialization of Superstition

When we critically consider Piaget's explanation of the ritual of avoidance of cracks in sidewalks, it is clear that his theory is insufficient. The avoidance of cracks and most of the other beliefs reported by the Opies are social superstitions that, in all but a very few instances, must have been passed from person to person. Given the wide popularity of these beliefs across diverse areas of England, the United States, and other countries, it is extremely unlikely that each superstitious child went through a parallel process of accidental contiguity between a habitual practice and a current fear. Cognitive maturation is undoubtedly important to the development of personal superstitions in children, but those who acquire a fear of sidewalk cracks and other social superstitions need the help of others to do so.

Critics of Piaget's theory suggest that many of a child's most common beliefs are established through socialization—the process by which parents, teachers, and other authority figures teach the skills and social norms that children will need to function in their social environment.[42] As they grow and develop, children acquire the language, social customs, and ethical systems of those around them, and for most children, this educational process includes learning about a number of traditional superstitions. Several processes—some more fully researched than others—are responsible for the transmission of social superstitions, but the two most important ones are direct instruction and social learning.

Superstitious Instruction

Children believe what they are told. Skepticism is an adult characteristic acquired, if at all, with age. As a college professor, I spend much of my time prodding students to critically evaluate what they have been told, to question authority. Even at their relatively advanced ages, college students and other adults are often more accepting than is justified. But when we are young, we trust those around us almost completely. This naiveté is so inherent to childhood that adults must routinely warn children about strangers who may not have their best interests at heart. The same youthful gullibility undoubtedly allows the word-of-mouth transfer of superstitious beliefs. Schoolchildren, like those whom the Opies' chronicled, teach each other what they have learned from others. In addition, just as Nancy Reagan's parents taught her the magical rituals of the theater, superstitious adults teach their offspring to be superstitious children.

Perhaps because the effects of direct instruction on children seem so obvious and uncontroversial, there has been little research into this mode of spreading superstitious behavior, but one study clearly shows how misinformation can produce simple superstitions in preschool children. Edward Morris and his colleagues at the University of Kansas,

who in chapter 3 employed Bobo the clown to condition superstitious behavior, recruited him again in a test of social transmission of superstitions.[43]

In this case, individual preschool children were observed in a small room with Bobo, who, as before, was simply a mechanical toy clown mounted on the wall. The children were told that whenever Bobo's red nose lit up he would dispense marbles from his mouth, and that if they collected enough marbles they would be able to take home a toy. All of the children who participated were prompted to press Bobo's nose once during this early instructional period, but only some of the children were told that Bobo would give marbles if "you press his nose a lot."[44] In fact, Bobo coughed up his prizes on a variable time schedule averaging one marble every fifteen seconds—*irrespective of the child's behavior.*

The effect of this subtle difference in instructions was dramatic. Those who were told that pressing made Bobo give his marbles responded rapidly and consistently whenever his nose was lit. The children were observed for ten minutes a day, five days a week, and one four-year-old girl pressed Bobo's nose for more than four weeks—averaging sixty-seven responses per minute on some days. The children who did not receive the instructions to press a lot merely collected the marbles as they arrived and never pressed Bobo's nose again. They were dismissed from the experiment after five sessions—presumably with a new toy in hand.

This experiment is a simple yet clear demonstration of how superstitions can be passed from person to person. The kind of behavior engendered by adult instruction was an essential feature of the study. Because the instruction was to press "a lot" and because the trusting children did as they were told, Bobo's programming guaranteed that each marble appeared shortly after a nose-pressing response. Not every press was followed by a marble (in fact, the children made hundreds of responses per session in return for approximately forty marbles), nor did the children press the same number of times for each marble. Nonetheless, rapid pressing guaranteed that each marble would appear shortly after a press, and the temporal contiguity of response and reinforcement maintained the apparent power of Bobo's nose.[45]

The relationship to everyday superstition is clear. If a schoolchild is told that bringing charms to an examination will bring good luck, the potential for coincidental reinforcement is established. A good grade is likely to encourage the use of charms at future examinations. Even if the magic fails on the first try, other factors—such as witnessing another child's success with charms—may sustain the behavior until it is accidentally reinforced.

This leads us to the second important form of social transmission: social learning.

Social Learning

Parents are their children's first and most important teachers, and the sheer scope of their job is daunting. If children are to learn to walk, speak, and take care of themselves, adults cannot simply wait for a time-driven process of cognitive development to unfold. Neither can they wait until children exhibit desirable behaviors by chance, and then lavishly reinforce these lucky episodes.[46] Of course, parents do reinforce and punish the behavior of their children all the time, but most of these pokes and prods are aimed at altering the future likelihood of some already established behavior. Children are praised for playing together without conflict and admonished for running with scissors. Without social learning, the task of educating children would be painfully slow.

Simply put, what psychologists have come to call social learning or observational learning is imitation. The child observes someone else engage in an action (e.g., an adult placing a videotape into a VCR) and later attempts to do the same thing. For more than fifty years, psychologists have given much attention to imitation, and three primary theories of social learning have emerged from their work. Perhaps the longest-held theory is that imitation is a form of instinctive behavior. In 1890, in his classic text, *The Principles of Psychology*, American psychologist William James asserted that "imitativeness is possessed by man in common with other gregarious animals, and is an instinct in the fullest sense of the term."[47] Others also expressed this view, but it was not until almost a century after James's text was published that convincing evidence emerged. In a famous series of experiments, Andrew Meltzoff and M. Keith Moore tested newborn infants, some only hours old, under controlled conditions and found that babies could imitate facial movements (e.g., pursing the lips or sticking out the tongue) that had been modeled by an adult.[48] Because Meltzoff and Moore's children showed this behavior at such an early age, well before any learning could have taken place, many developmental psychologists came to believe that humans are born with the ability to imitate some simple gestures. These findings created a sensation in the field of developmental psychology because they revealed that the newborn infant has the remarkable ability to take a visual stimulus—the sight of an adult's face—and, despite being unable to see its own face, connect it with a set of parallel muscular movements. These results were particularly

impressive because Meltzoff and Moore's children were too young to have had any experience watching themselves in a mirror and had probably not seen their own faces before.

A second view of observational learning holds that it is simply another form of operant conditioning. In the middle decades of this century, operant conditioning was psychology's dominant theoretical model. In 1941, Neal Miller and John Dollard published *Social Learning and Imitation*, promoting the view that imitation was a conditioning process like that studied by B. F. Skinner and others except that in this case, the antecedent condition that set the occasion for learning was the behavior of another person. Such an interpretation might hold for those cases in which someone observes a particular action, immediately imitates it, and then receives reinforcement, but as the critics of this approach were quick to point out, not all imitation occurs immediately after observing a model.[49]

In contrast, Bandura's social learning theory provides a mechanism for both immediate and long delayed reproduction of the models actions. Albert Bandura, the Stanford University psychologist who is most strongly associated with social-learning theory, is also responsible for increasing the sales of Bobo dolls. (Edward Morris's Bobo was named in honor of the doll used in Bandura's experiments.) The Bobo is an inflatable plastic clown approximately four feet high, with a weighted bottom that cries out to be hit. Once hit, poor Bobo rocks backwards on his heels, often banging his airy head on the ground, and then, thanks to the sand in his shoes, returns to an upright position, ready for more abuse. In his most famous series of experiments, Bandura and his colleagues used a beleaguered Bobo as the object of children's aggression, and psychology professors who admire Bandura's work have kept Bobo dolls in their offices ever since.

In a typical experiment, children watched through a window while an adult in a playroom struck and shouted at poor Bobo in a ritualistic way.[50] Later, when the children had an opportunity to go into the playroom, they mimicked the same forms of aggression they had seen demonstrated by the adult minutes before. Children who watched a nonaggressive model behaved more temperately in the same playroom. This research has been replicated many times under a variety of conditions with essentially the same results. When children observed the model's actions being reinforced (or at least not being punished), they imitated the behavior when given the opportunity to do so. It is this line of research that is largely responsible for the continuing concern about the effects of violent television programming on the behavior of children.[51]

Bandura's research demonstrated delayed imitation. In most of his experiments, the time between observation and reproduction was brief, just a few minutes, but the children did show delayed imitation in the playroom after the adult model had left the scene. To bridge this temporal gap, Bandura developed a theory of observational learning built on four processes that combine to produce the final mimicking action:[52]

Attentional processes. For learning to take place, the observer must observe. He or she must be able to perceive what the model is doing and must have the cognitive ability to interpret what is seen. Models, too, can enhance the observer's attention, by being interesting, by being emotional, or by engaging in simple, rather than complex, actions.

Retentional processes. To exhibit the model's behavior at some later point, the observer must remember it. Retention is affected by the observer's cognitive abilities and the use of strategies such as rehearsal (i.e., mentally replaying the scene).

Production processes. If one has attended to and retained the memory of the model's behavior, imitation may still not result. The observer must be capable of the necessary motor behavior to reproduce the observed action. I have witnessed countless NBA and college basketball players slam dunk a basketball through the hoop, yet I remain stricken with a life-long inability to imitate such behavior.

Motivational processes. Finally, when the opportunity to imitate presents itself, one must be motivated to do so. The behavior must have intrinsic reinforcement value—as dunking would for me—or the local environment must offer external sources of reinforcement for such behavior.

Thanks in large part to Bandura's research and his several books on the topic, social-learning theory has emerged as one of the most important accounts of personality development.[53] The effects of social learning have been observed in all manner of human activity, and at least one study has attempted to demonstrate that children will imitate superstitious behavior. Using their marble-dispensing version of Bobo again, Edward Morris and his colleagues attempted to produce superstitious nose-pressing in preschoolers through the observation of a peer.[54] During the previous study of the effects of instructions on children's superstitious behavior, the experimenters videotaped one child rapidly pressing Bobo's nose. In this second experiment, five children watched this videotape as part of their introduction to the task of obtaining a toy by collecting the requisite number of marbles. They were given no other information about how the marbles were produced. Five other children assigned to the control group watched a videotape that simply showed Bobo.

The videotape did not lead to nose-pressing in all of the children who watched the child from the previous study, but three of the five did press the clown's nose consistently over three weeks of daily sessions. The five children in the control group were observed for three sessions, during which one child pressed Bobo's nose a few times in one day. None of the others ever pressed Bobo's nose. Thus, according to this study, observation of a peer model can engender simple superstitions in children.

Of course, imitation is not limited to young children. Using a procedure similar to the one Roger Boshier used in his Auckland ladder study (see chapter 2), an experiment conducted at the University of Maryland demonstrated the imitation of *non*superstitious behavior by college students.[55] The researchers placed a fourteen-foot, free-standing step ladder in the lobby of a dormitory so that it straddled the most popular exit. Students exiting the dorm had to choose between walking under the ladder or going nine feet out of their way to an adjacent door. The ladder did not block the door, and both doors were propped open during the experiment. In half of the trials, when a student approached the exit, a confederate in full view of the unsuspecting walker went under the ladder and out the main entrance. On the other half of the trials, no model was provided. The result was a significant decrease in superstitious behavior when students observed a nonsuperstitious model: sixty percent of those who had observed the model walked under the ladder, as compared to only 24 percent of those who had not. Interestingly, the effect of the model disappeared when there was a rational reason to avoid walking under the ladder. When the investigators placed a window washer with a bucket and sponge on top of the ladder, approximately the same number of walkers went under the ladder in the model and no-model conditions.[56]

There are no other published experimental studies of social learning and superstition, but these demonstrations and the hundreds of other studies showing the power of imitation in the acquisition of a wide variety of behaviors make it safe to assume that social learning is an important path to superstition. The child who watches his Catholic mother light a candle for good fortune or her father repeatedly wearing his "lucky socks" on the golf course is likely to engage in similar superstitions. In actual practice, parents or peers may combine instruction ("cat's-eye marbles are lucky") with modeling (demonstrating the use of cat's eyes) —undoubtedly a particularly effective method of teaching magical practices.[57]

Social Influence and Superstition

In addition to the social and developmental processes we have already touched on, children—like adults—are susceptible to social influences, such as conformity and obedience. The most important theory of social influence is the Bibb Latané's Law of Social Impact.[58] His is a field theory, in the tradition of Gestalt psychologist Kurt Lewin, which suggests that we are influenced by social forces that vary in intensity in relation to the number of people (or sources of influence) around us, their intensity, and their immediacy. Thus, several people have a greater impact on an individual than a single person does, and someone far away has less impact than someone nearby. If, for example, you wished to convince someone of a particular point of view, the law of social impact would suggest that you should summon a group of people who hold your point of view, assemble them in the same room as the person you hope to persuade, and collectively argue with the poor individual as forcefully as possible. Such a strategy employs the principles of number, immediacy, and intensity (forcefulness of each persuading individual) to maximize the chance for success.

Inspired in part by the famous case of Kitty Genovese, who in 1964 was brutally murdered in the Kew Gardens neighborhood of New York City, Latané and co-investigator John Darley conducted several studies of the influences on altruistic behavior. The Genovese case had drawn considerable attention because it was soon discovered that thirty-eight neighbors had seen the murder in progress through their windows over the course of half an hour, yet none had intervened or even called the police. In their book *The Unresponsive Bystander: Why Doesn't He Help*,[59] Latané and Darley outlined the results of several experiments examining the problem of altruistic behavior in natural settings. Among other things, they discovered that multiple witnesses decrease the likelihood that any one witness will act. This principle, known as the diffusion of responsibility, is created by the division of impact (see Figure 5.1). Here, one individual or source (Kitty Genovese) is exerting influence on several targets (the thirty-eight witnesses); thus, the influence on any one target is reduced. The diffusion of responsibility can be felt in our different reactions to a person in need. If an elderly person stumbles and you are the only other person present, you will probably respond unhesitatingly. If, on the other hand, the same episode occurs in the middle of a small group of people, the possibility of hesitation—or complete inaction—is much greater. Further-

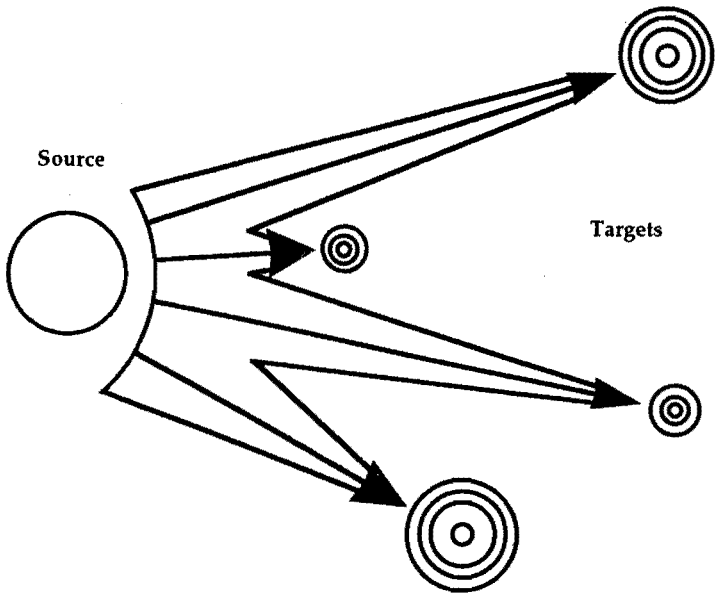

Figure 5.1 Division of impact. *Source:* Latané, (1981). Copyright (1981) by the American Psychological Association. Adapted with permission.

more, the principle of immediacy usually compels the bystander closest to the person in need to react first.

Conformity

At least some of the time, other people have the power to make us say things we would not normally say and do things we would not normally do. In most of these cases, we say what they are saying and do what they are doing: we conform to the group. Imagine the following situation. You and six other people have been asked to participate in an experiment on "visual judgment." You all sit around a table, and a psychologist presents pictures of lines of different lengths. In something of a multiple-choice format, you are presented with two white cards. The first contains a single vertical line, the standard line. The second contains three comparison lines. One of these matches the standard line, but the other two are substantially different.

At the beginning of the experiment everything is routine. The job seems exceedingly easy. Everyone agrees on the answers to the first few sets of

cards, and you begin to wonder why anyone would bother to conduct such a silly experiment. Then something rather troubling happens. When the third or fourth set of cards is presented, the first participant chooses a line that is clearly different from the standard. Amazingly, when the others around the table chime in, they agree with him—making an obvious error. Then it is your turn. If you give the correct answer, you will have to contradict the six other participants. This is precisely the situation in which several Swarthmore College students found themselves in the early 1950s when Solomon Asch conducted his classic experiments in conformity.[60] What was unknown to the participants was that six of the students were confederates, following a script designed by Asch. Only one person—the hero of our scenario—was a true participant.

Asch's findings were dramatic. Despite the concrete nature of the judgments in these experiments, Swarthmore college students made errors in keeping with the majority—they conformed—on up to 35 percent of these trials. A number of factors affected the degree of conformity. For example, consistent with Latané's Social Impact Theory, the larger the opposing group of confederates, the greater the conformity observed in the true participants.[61] But in many replications of Asch's original studies, large numbers of participants expressed judgments that—we can be certain—they would not have made under different circumstances. Did the students actually believe what they were saying when they went with the majority and chose the wrong line? Not all of them. Conformity is defined as "a change in behavior or belief toward a group as a result of real or imagined group pressure."[62] When the change is in behavior only, it is called *compliance*; when it is a change in belief, it is called *private acceptance*. Asch's college students appear to have shown both kinds of conformity. Some came to believe that the group was right and they were wrong. Others told Asch they went along with the majority to avoid "spoiling your results."[63]

Asch's experiments focused on conformity as behavior under the control of social forces, but it can also be studied as a trait: a conformity disposition. In children, this disposition is thought to follow an inverted U-shaped developmental trend. In the early years, conformity is relatively absent, but it increases steadily to a peak during adolescence, when the need for affiliation with a group is greatest.[64] With further maturity, this need diminishes and, with it, so does the conformity disposition. Studies of adolescents have found that both social forces—peer pressure, for example—and a disposition for conformity increase the likelihood of "misbehavior" (drug and alcohol use, sexual behavior, and delinquency).[65]

Although no one has explicitly examined the relationship between conformity and childhood superstition, the link is undoubtedly there. The

behavior and beliefs documented by the Opies are part of the culture of schoolchildren, and for any individual child, the adoption of this behavior is likely to be affected by subtle (and not-so-subtle) peer influence, as well as the child's disposition toward conformity. The research also shows that if one wishes to be liked—as most of us do—going along with the group is the best strategy. The famous social psychologist Stanley Schachter conducted a classic study in which he engaged small groups of people in discussions.[66] Three of the participants in each group were confederates: *the deviant*, who was instructed to oppose the group unswervingly, *the slider*, who disagreed with the majority at the beginning but gradually switched sides as the discussion progressed, and *the mode*, who consistently agreed with the majority. As you might expect, groups arranged in this way spent much of their time trying unsuccessfully to recruit the deviant, but Schachter also discovered that when the discussion was ended, group members found the deviant significantly less attractive than either the slider or the mode. Thus, the study suggested that if you dare to buck the majority, you can expect both to be the focus of much peer pressure and to be disliked, each of which are strong incentives to conform. To the extent that children want to be accepted and liked, they are often willing to adopt the magical practices of their social group, even when—like Asch's line-judging college students—they know better.

Obedience to Authority

Conformity, again, is a change in belief or behavior in response to peers. When the social influence comes through request of someone of a higher status, it is called obedience. One of the most famous of all psychology experiments demonstrated very dramatically the extent to which average people will obey an authority figure.[67] Yale University psychologist Stanley Milgram asked people to participate in an experiment that would look at the effects of punishment on human learning. In one version of the study, two people were recruited and greeted in the laboratory by a male scientist dressed in a gray lab coat. Straws were drawn to determine which participant would be the "learner" and which the "teacher;" however, because the drawing was rigged and one of the participants was actually a trained actor working for Milgram, the same friendly gentleman who said he had a "heart condition" was always the learner. Only one person, the teacher, was a true participant in the experiment.

The experimenter escorted the learner into a room, strapped him into a chair, and attached an electrode to his wrist. The teacher was seated at a table in an adjoining room. On top of the table was a large shock generator equipped with a row of thirty switches, each labeled with a voltage ranging from 15 volts on the left to 450 volts on the extreme right. In addition, verbal indicators were given for various voltages: starting with "Slight Shock" on the left, "Moderate Shock" in the middle, "Danger: Severe Shock" on the right. The final switch was designated simply "XXX." To give the teacher an appreciation for what his pupil would be experiencing, the experimenter gave him[68] a sample shock at 45 volts and said, "Although the shocks can be extremely painful, they cause no permanent tissue damage." Of course, the generator was not real, and the only shock actually given throughout the experiment was the "sample" received by the teacher.

The experimenter then explained that the teacher would be reading multiple-choice questions to the learner over an intercom system, and the learner would indicate his choice by throwing one of four switches that lit colored lights in the teacher's room. Whenever the learner made an error, the teacher was to shock him by throwing one of the switches on the panel, starting with the low voltages on the left and moving up with each successive error.

The learner followed a standard script. As you might guess, he made many errors, which meant that, to satisfy the scientist, the participant had to administer many shocks. As the voltages went up, the learner—who was not visible in his adjoining room—made a number of sounds. At 75 volts he began to grunt with each shock. At 120 volts he shouted that the shocks were becoming painful, and at 150 volts he pleaded with the experimenter to stop the experiment, saying that he refused to go on. At 270 volts (if the teacher continued to this point), the learner gave out a loud scream, and at 300 volts he announced that he would no longer answer. The experimenter indicated that no response must be considered a wrong answer and that the shocks must continue. For the next few questions, the learner screamed loudly after each shock, and eventually there was no sound at all from the learner's room.

The experimenter also followed a script. If the teacher, the true participant in the study, hesitated, the experimenter would say, "The experiment requires that you continue" or "You have no choice; you *must* go on." Thus, in the framework of Latané's Law of Social Impact, the participant in Milgram's experiment was being squeezed between the forces of the learner and the experimenter. The experimenter had several advantages in this conflict of social influences. He was more immediate than the learner because he was in the same room as the teacher, and he drew intensity from his status as an authority figure. Latané's third concept, number, was even in this case, since there was only one learner and one experimenter.

For his part, the learner was less immediate, but his influence grew (through increased strength) as his tortured performance progressed. The experimental question was, of course, Would people keep shocking this poor man with the heart condition, or would they act humanely and defy the evil scientist?

Milgram's research in this area is important because the results were unexpected. To get a sense of what professionals might expect from his experiment, Milgram described it to a group of forty psychiatrists and asked them to predict how many participants would obey the experimenter all the way to the 450 volt level at the end of the panel. They said only approximately one person in a thousand (0.125 percent) would be pathological enough to continue to the end. In fact, a full 63 percent of the teachers obeyed to the bitter end.[69] Most people in Milgram's study, and in replications of his study in other locations in the United States and other countries, never defied an authority figure who would have to be described as cruel and unreasonable.

Milgram's findings were also important because they challenged common notions of evil. They suggested that someone like Adolf Eichmann, who presided over the murder of millions of Jews during World War II, might not be the monster we think him to be, but rather a more ordinary person behaving under the influence of powerful social forces. Indeed, descriptions of Eichmann support this view.[70] To be sure, the situations experienced and actions taken by Eichmann and the participants in Milgram's study were quite different. For example, Eichmann's deeds were done over several years, whereas Milgram's experiment lasted only an hour. Nonetheless, Milgram's research and that of Latané, Asch, and other social psychologists shows that behavior which we think results from stable personality characteristics or dispositions is often caused by more immediate social forces.

To what extent does obedience to authority figures contribute to the development of superstition? By virtue of their youth, children are of relatively low social status. To a child, almost everyone is an authority figure, and parents are particularly important authority figures. When, as a young girl, Nancy Reagan was instructed not to put her hat on the bed, the greater social status of her parents played a role in her compliance. What is unknown is the role of authority figures in the lasting acquisition of superstitious behavior. Does compliance with an authority lead to sustained behavior later in life? Does direct instruction in superstition by a parent lead to greater levels of adult belief than instruction by a peer?

These questions will not be answered without additional research, because existing evidence suggests that children have a fairly sophisticated

view of parental authority. Piaget thought children viewed adults as monolithic authority figures who derived their status from advanced years, superior size, and greater power.[71] More recent research suggests that children view parental authority in a more detailed fashion. For example, according to one study, children felt that parents had legitimate authority to make rules regarding stealing and the completion of household chores, but they described their choice of friends as outside the bounds of parental influence.[72] Children place similar boundaries around the authority of other adults.[73] In addition, changes in our culture since Milgram conducted his research in the 1960's may have altered the view of authority figures. Thus, the role of authority figures in the social transmission of superstition represents a complex and largely unanswered question.

Imagination

When I was in elementary school, my teacher wrote a comment on my report card that became a source of lasting amusement for my family: "Stuart is a pleasant child, but he daydreams too much." Although waking dreams may have been my downfall in second grade, those who study childhood imagination and make-believe suggest that this kind of behavior has many positive effects.[74] Pretend play, like other forms of play, provides both immediate benefits and preparation for later life. According to various theorists, imaginative play helps children assimilate new information, modulate their emotions, and define their identities.[75] Children express their imagination to varying degrees, but the absence of pretend play in young children is a source of some concern.

It has long been thought that imaginative play in children is related to creativity in adulthood. Imagination opens the child to the "realm of the possible,"[76] which is a prelude to divergent thinking—the ability to generate alternative possibilities. In turn, divergent thinking is an important constituent of intelligent and creative behavior. Although no one has studied the relationship between make-believe play and superstition, it seems reasonable to suggest that a such a relationship might exist. Unfortunately, there is some ambiguity about its nature. Being open to the "realm of the possible" sounds remarkably close to the attitude taken by New Agers and others who are willing to believe in various unscientific and paranormal phenomena. "Keep an open mind," they implore. Those who are more imaginative than others may be more accepting of alternate realities and unusual cause-and-effect relationships. For example, in his book *Supernatural on stage: Ghosts and Superstitions of the Theatre*, Richard Huggett asserts that "of all professional bodies, actors are the most superstitious,"

and in an effort to explain this characteristic he cites actors' "strong imagination and sense of fantasy."[77] This is not scientific evidence, but it does support the common view that imagination promotes superstitious belief. On the other hand, a talent for divergent thinking—a common form of creativity and imagination—enables one to generate alternative explanations for various phenomena. Psychic predictions are not so impressive if we can think of other ways they might have been accomplished.[78] Of course, there is a third possibility: that childhood imagination is not related to superstitions at all. The answer awaits future research.

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Both our own personal experiences and the Opies' careful documentation make it clear that superstitious behavior is a common feature of childhood. Underdeveloped reasoning abilities and social learning are important determinates of early superstition, and a number of other psychological forces—conformity, obedience to authority, and imaginative play—may further contribute to its development. Nonetheless, much is unknown about the early emergence of superstition. For example, there are no longitudinal studies to tell us whether childhood superstition leads to adult superstition. Common sense and the testimony of believers, such as Nancy Reagan, suggest that it does, but we have no direct evidence.

The superstitions that are typical of schoolchildren seem harmless enough. They have the quality of games or amusements shared by youthful playmates. But can superstitions be harmful? Can superstition or belief in the paranormal be a form of abnormal behavior? It is to these, and related, questions that we now turn.