

When I was a child, I would usually wake in the morning with an intellectual/emotional attitude that could be expressed by something like "Wow! Another day! I wonder what interesting new things will happen today?" I would get out of bed with a sense of expectation and wonder, curiosity abuzz. "What is this? What is that? Why does this thing work this way? Where did this come from? Why am I thinking what I'm thinking? Why won't that thing work? What thought preceded this one?"

By the time I became a young adult, I

had been "properly" socialized. I would awake and immediately plan the things I had to do that day to be most efficient, to meet my responsibilities, and perhaps start worrying about the sorts of things responsible people worry about. Much of the light in which the child mind sees the world was gone. "Maturity" had set in.

My curiosity hadn't completely disappeared, but some of it was quite dormant and much of the rest was channeled into conventionally approved areas.

One of the most important fruits of the many years of psychological growth work in which I have participated has been the reawakening of much of my child mind. The little boy in me is again starting to open his eyes in the morning with an open expectation of interesting things happening. "Interesting" can sometimes include things normally considered negative, but somehow they are different if I really pay attention.

FIREWALK

By CHARLES T. TART

ILLUSTRATION BY LINDA CROTHERS. ADAPTED FROM PHOTO BY STEPHANIE GROSS.

NEW REALITIES

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In the last couple of years the adult and the little boy in me have been cooperating more and doing some assessment of my life. As a result, both the little boy and the adult are thrilled: I've had a far more interesting life than the little boy who grew up in a drab city in New Jersey ever expected! This article is to share a recent experience that is one of those thrills—and an experience that is of great interest to both the child and the adult in all of us.

The Firewalk

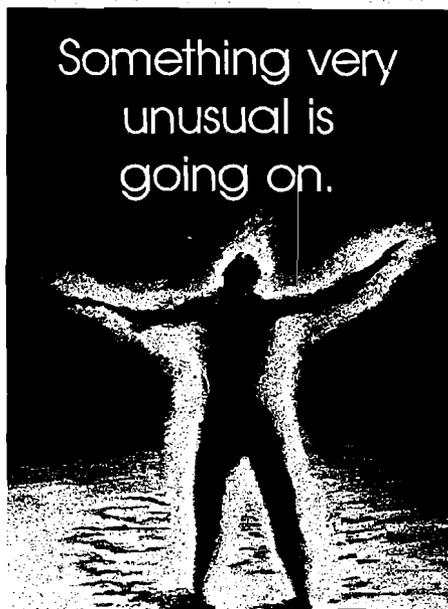
For the 25-some years that I have devoted part of my research time to parapsychology, I have been interested in the firewalk. The idea that people all over the world have walked over beds of blazing coals or hot stones is incredible: surely this is a very high-intensity form of psychokinesis (PK). And it certainly involves transcending our usual concepts of who we are! Even if PK isn't involved, something very unusual is going on, and understanding it would be an important step forward in science.

Whenever the subject came up, in casual conversations with friends or in public lectures, I advocated that we investigate firewalking. How could we ignore something that we had good evidence existed, yet seemed so impossible to our Western minds? The result of this advocacy was usually nil.

I found that most people simply weren't interested in firewalking: it was a sort of mythical idea, or something "primitive" peoples somewhere did, not something that civilized people took seriously. For all practical purposes, it didn't happen. Things that don't happen do not challenge your curiosity or your belief system.

Opinions were varied among the small number of people who knew of firewalking and believed it actually occurred. Some thought that it didn't really mean anything because the fires weren't actually hot, they just seemed hot. Recently this has been more precisely presented as the idea that the *temperature* of the coals may be hot, but the *heat capacity*—the specific heat of the coals—is very low (not much heat is contained in them) and/or that the coals are not good conductors of heat, so not enough heat is conducted into the skin to burn it during the short periods of contact in the firewalk.

An ordinary experience that illustrates this low specific-heat and low-conductivity theory is that you can briefly put your



hand into an oven that may be at 350 degrees Fahrenheit or so and not be burned. But if you touch a metal pan in that same oven, you will be badly burned. Air has very little heat stored in it, and doesn't conduct heat well; metal has a lot and can rapidly conduct that heat to your hand.

If all firewalking were done on soft, powdery ash, this theory would carry a lot of weight. But I have read reports of firewalking on heated stones¹, which would be quite comparable to the metal pan in the oven!

Others accepted the idea that the fires were hot, but assumed there was some sort of trick involved. The favorite mechanism for this trick was a paste applied to the feet that protected them. I do not recall that anyone ever specified what this mysterious paste was supposed to be, and then demonstrated the usefulness of their paste theory by putting some on their feet and showing that they could successfully firewalk, though. Still others had a belief that "primitives" had thick callouses on their feet that protected them from pain. Why the callouses didn't burn, even if they protected the walker from pain, was usually left unexplained.

I remember an article in *True* magazine that I read when I was a teenager. The author proposed that the reason the firewalk worked was that sweat was flashed into tiny globules of steam that protected the feet. If you have ever dropped some water onto a very hot object, like a frying pan, you saw that it formed tiny balls which danced above the surface of the pan for a while. Supposedly the sweat from the firewalker's feet is flashed into

such a steam layer by the heat of the fire. If you think of a firewalker as very frightened, "in a cold sweat," this puts that sweat to good use.

What impressed me most about this theory was that its author successfully firewalked! This was much more interesting than the usual arm-chair theories whose authors never touched a fire. (Formally the micro steam-ball theory is usually called the "Leidenfrost theory," after the 18th-century physicist Johann Leidenfrost, who first observed the effect.)

The most interesting reactions came from a few people I met from foreign countries. "Oh yes," they would say, "They do that each year on the feast of so and so out in the mountain villages, but it's a primitive thing. We moderns aren't interested in it. Let us return to our discussion of sophisticated intellectual things."

What Do We Need to Explain?

Two things need explanation about the firewalk. First, we must explain the fact that, when successful, the walkers don't feel pain during or after the walk. Second, their feet don't burn.

The lack of pain is not hard to apparently explain in terms acceptable to the Western mind: it's some sort of hypnosis. It is well known that you can anesthetize the hand of a deeply hypnotized subject by suggestion and then hold a match under the subject's hand. The flesh will char without the subject reporting any pain! Incredible, but true.

I have never done this to a subject myself, for the desire to witness it directly was not of enough consequence to me to be worth inflicting such damage on anyone. But I have done experiments where deeply hypnotized subjects received non-damaging, but ordinarily quite painful, stimuli, like strong electrical shocks. They neither reported pain nor showed any signs of feeling it. So if we must explain the firewalk in conventional Western terms, it's easy to invoke hypnosis as an explanation for the firewalker not feeling pain, during or after the firewalk. The occasional walkers who do feel pain obviously aren't very talented at hypnosis.

But why don't they burn?

1. See, for example, D. Stillings, "Observations on firewalking," *PSI Research*, 1985 4, No. 2, 62-88.

2. J. Walker, "The amateur scientist: Drops of water dance on a hot skillet and the experimenter walks on hot coals." *Scientific American*, 1977, 237 (August), 126-131.

I remember reading a report while still young about a firewalking experiment conducted early in this century by the Society for Psychical Research of London, testing the Pakistani fakir, Kuda Bux. As I recall, oak logs were burned for hours and then the coals raked into a bed about four feet wide and at least ten feet long. This bed of coals was so hot that the experimenters could not stand closer than about three feet without feeling their hair begin to singe! To rake the coals flat, they had to use wooden shields to protect themselves.

Kuda Bux prepared himself for the firewalk by meditating for a while. His feet were examined. There was no obvious paste or anything covering his bare soles. He walked the entire length of the pit at a normal walking pace, showing no sign of pain or discomfort. Immediate examination of his feet as he stepped out of the pit showed no signs of injury. Indeed, a measurement of the surface temperature of his foot indicated it was one degree centigrade cooler than just before he stepped into the pit!

A skeptic was present who knew that the fire could not really be hot, it only seemed hot. He walked onto the coals, and was burned badly enough to be hospitalized for several days.

Kuda Bux repeated the firewalk some months later, again with no sign of pain or injury. The same skeptic again tried to do it. This time he was hospitalized for several weeks!

Walking the Coals

On the evening of January 23, 1986, the firewalk became real for me as it had never been before.

I had been attending the first Archaeus Congress at the West Pecos River Conference Center, near Santa Fe, New Mexico. A fine and very stimulating array of papers concerning the psychological, parapsychological, and spiritual dimensions of health had been presented, and now we reached the program item headed "Transforming Fear into Power," by Eric Best.

Eric Best, an industrial systems analyst, has been giving seminars of this sort for over two years. His prime objective is to show people that they do not have to be limited by their fears: they can overcome them and use the liberated energy to live fuller lives. The primary tool to reveal this to people in a short time period (four hours for us) is firewalking. After all, if you can get yourself into a state where you can walk over a bed of glowing coals

Is It Spiritual?

After describing this experience to some people a couple of weeks later, one asked me: "Was doing the firewalk a spiritual experience? Do you feel it has given you special spiritual qualities?" I hadn't thought about it from this angle at all, and had to reflect before replying.

I certainly don't feel special in any way, spiritual or otherwise, as a result of doing the firewalk. Pleased, yes, special, no. I could conceptualize it as "spiritual" or "transpersonal" in a very general sense of feeling that our being comes from and interacts with higher dimensions of Being, but in that general sense seeing the beauty of a sunset or sharing something good with another person are also spiritual acts.

I know that some people who firewalk do it in circumstances where it is considered a test of their spiritual purity. Some of those people are badly burned and I'm sure it must be very depressing. Those who don't burn may indeed feel spiritually uplifted. If one of them were to claim spiritual authority over me as a result of being able to firewalk, though, I would think it silly. So no, I don't think the firewalk is spiritual in that sense.

C. T. T.

without pain or injury, most, if not all, of the things you fear in everyday life will seem trivial! If I can walk over glowing coals, who really cares about slighting remarks, lack of appreciation, mundane worries, and the like?

I came to the seminar curious, open-minded, thrilled, and reserved. I would see firewalking firsthand, which would be fascinating. The curious child in me, who had read about firewalking so long ago, was going to actually see it! My adult self felt I might or might not try it myself. I knew that Eric insisted that you walked or didn't walk purely on the basis of your internal feelings, not because of social pressure or external reasons, like trying to impress someone. That was fine: I am accepting enough of myself that I knew I could try it if I felt the inner urge, or not try it if I didn't, and either outcome would be fine. I had no need to prove anything to myself or to anyone else.

We began the seminar by standing in a circle around a huge bonfire. The New Mexico winter night was dark and cold. The stars and deep chill contrasted starkly with the darting flame and smoke of the fire, whipped around unpredictably by strong gusts of wind. We were going to deal with that?

I will not detail the psychological methods Eric used to work us up to the proper, energetic state for firewalking. That needs to be experienced, not considered abstractly, if you want to get much out of it. Suffice it to say that I wholeheartedly went along with letting my fears in life come up in me (very unpleas-

ant), and I stayed with them instead of denying them. I found I was still there, still sane, not overwhelmed, even if bothered, and the insights into hidden fears thus found were very valuable. Even if there had been no firewalk, I learned a great deal from this process. Knowing the firewalking opportunity was going to come at the end of the evening, of course, made it a lot easier to bring up buried fears.

Finally Eric told us that if we thought we *might* firewalk, we should take off our socks and roll our pants up six inches or more. I admired the implicit suggestion here that we could protect our flesh from burning, but we should not expect to be able to protect the fabric of our pants!

We ran outside. Assistants had taken apart the bonfire. After burning for four hours, it was a rich source of glowing coals! A bed of coals about three feet wide and ten feet long had been prepared. I did not find it fearful. Indeed, it was attractive, for it was cold outside, and I liked the fire's heat.

A towel at one end marked the start: you could wipe off any sand or gravel that was on your bare feet. A damp towel at the far end marked the finish: we were specifically instructed to wipe our feet on it as we stepped out of the fire, for pieces of glowing coals sometimes stick to your feet or get stuck between your toes. You didn't want any glowing coals sticking to you after you stopped concentrating at the end of the walk!

Eric had given us specific steps to follow. They will not be completely mean-

ingful outside of the context of the event, but they consisted of first shouting out "Energy in!" then "Strong focus!" then "Eyes up!" and then (repeatedly, as you walked), "Cool moss!" The group usually (but not always) shouted these along with the walker.

Like a true leader, Eric walked first. Not ran or jumped or anything strange, just a normal walk. It took about four paces to traverse the pit of coals and he just did it, making it look very normal and prosaic.

Now was the time for decision. If you thought you wanted to walk, you stood at the end of the firepit and went through

the chant, focusing your energy. If it felt right inside to walk, then you walked. If it didn't feel right inside, you stepped aside, being true to your inner self, not succumbing to any feeling of obligation or group pressure. A number of people did not walk, and we all respected their decisions.

Person after person walked the coals, without pain, without injury, jumping and shouting with joy at the end. Young women, older women, quiet scientists, physicians, believers, conference center staff, and a physician who was a professed "skeptic." When I decided I wanted to walk, my primary difficulty was having to

push my way into the line, so many people wanted to walk or repeat their walk.

The Moment of Truth

Finally my turn came. "Energy in!" "Strong focus!" "Eyes up!" "Cool moss!" And I walked.

Now the point of the psychological ritual is to keep your attention fully focused on the ideas of being full of energy and walking on cool moss. I did this for the first couple of steps. But I'm so curious about what is happening that I hate to miss anything. So I kept most of my attention on the ideas, but I had to turn part of it downward to check out the feelings in my feet, to see if the fire felt at all hot.

So I did, and sure enough I could feel very hot heat on that step. That was enough of turning my attention downward!

And yet . . . I walked the fire. Except for the focused look-at-foot feelings, I felt no other pain. I stepped out, jumped and shouted for joy. Wow!

I really meant that wow. Some of the scientists in the group were monitoring the fire with thermocouples. Those coals were radiating at 1,000 to 1,100 degrees Fahrenheit. Yet I had walked through. I had not completely followed instructions, but all the injury I had to show for it were four tiny (1/8" to 1/4" round), hardly noticeable red spots on one foot, only one of which was slightly painful if I focused my attention on it. All I did to "treat" that spot was put a bandaid over it so my shoe wouldn't rub hard against it when I walked. It showed no sensitivity at all 24 hours later. Not bad for four steps on 1,000 degree coals! I had done my firewalk and inserted my own "control condition" in the middle.

So Much for Theories

I and others certainly did not rub any mysterious pastes into our feet. Nor could you classify us as "primitives" with thickly calloused feet. Most physicians, psychologists, psychoanalysts, engineers, physicists, and corporate executives do not have thickly calloused feet. Personally I am barefoot on an Aikido mat for an average of three hours a week, but the mat is smooth and slightly soft. If anything, my feet are a little on the tender side and I have never enjoyed walking barefoot. Indeed, I found the sand and gravel around the firepit quite uncomfortable before and after the firewalk.



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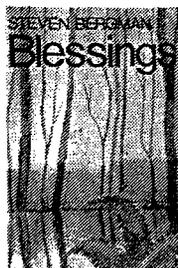
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For Further Reading

If you are curious about the scientific literature that I slowly beginning to build on firewalking, the June 1985 issue of *Psi Research* contains some excellent articles to get you started.

Blake, J. "Attribution of power and the transformations of fear: An empirical study of firewalking." *Psi Research* 1985, 4, No. 2, 62-88.

Jamal, M. "The sacred fire." *Psi Research* 1985, 4, No. 2, 110-112.

Heinze, R. L. "Walking on Flowers" in Singapore." *Psi Research* 1985, 4, No. 2, 46-51.

Stillings, D. "Observations on firewalking." *Psi Research* 1985, 4, No. 2, 51-59.

Vilenskaya, L. "Firewalking and beyond." *Psi Research* 1985, 4, No. 2, 89-110.

This experience also showed me the inadequacy of the balls-of-protective-steam-from-sweat theory. The usual example given to illustrate that theory is putting a drop of water on the surface of a hot frying pan. The water drop will float for several seconds on the cushion of steam formed on its underside, until that steam is finally used up. I find it easy to envision how two perfectly flat surfaces could be temporarily insulated, with a thin steam layer in between, especially if the upper flat surface was quite light—it does have to float on the pressurized steam.

When I got back to my room after the firewalk and examined my feet, they were filthy with soot in irregular patterns, heavy in some places, non-existent in others. All that irregular soot would have absorbed sweat heavily in some places, not at all in others. Some soot would be brushed on and then off by the motion of walking, taking any moisture away with it. Too, the coal surface was very irregular, and my feet are not perfectly flat surfaces. These conditions would seem to have made it impossible to build up a continuous protective steam layer. Further, I am enormously heavier than a drop of water, so my weight would have squeezed out any steam. So I can imagine isolated spots where a steam ball would have protected tiny portions of my foot, but I can't see how it could protect most of my foot.

Where would the moisture for the sweat come from? Fear is one likely cause, but I'm fairly good at monitoring my internal state and I wasn't afraid or in a cold sweat. Waiting to walk, my feet

were *cold* on the sand and gravel (the air temperature was below freezing at that time). There was a towel at the beginning of the pit that might have been damp initially, but every person stepping onto the towel dropped a little sand onto it, which would absorb moisture. So perhaps there were small moist areas here and there on my foot, but certainly not the uniform coating we would need for the steam-ball theory. So I am tempted to say "No sweat!" about firewalking.

As to theories about how firewalking works, as a psychologist I note that the main requirement for successful firewalking that we know of currently is that the firewalker have a strong belief in a theory that rationalizes that he can firewalk without burning. It is not clear to me that it makes any difference whether that theory is about microballs of steam, specific heat, the protection of the Goddess Kalibaliwali or Saint Somebody, or cool moss.

The low specific heat theory that says there is very little heat in the coals and/or that they have low-heat conductivity sounds very good, but then why did I get my little burns when I turned my attention to my foot? The fire can't be both hot and not hot.

The curious little boy in me is very pleased. He did something "miraculous," and he got to eat his cake *and* have it too—not feel the pain or be really injured, and yet take a tiny peek and get a tiny injury just to prove it was really hot. Wow! I wonder what will happen tomorrow!

To Walk or Not to Walk

The child in me is part of my essence, and I am very glad I have been able to nurture it and sometimes be one with its vitality and joy. Childhood essence is one

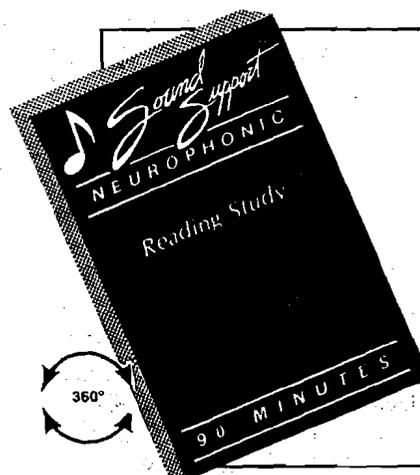
part of the Self, though not everything, so some adult perspective must be added.

Do you want to firewalk? Should you? There is some real danger involved. You could get burned. Perhaps worse than a minor burn, you could hurt yourself psychologically if you saw it as some sort of test of your worth, and you didn't measure up to your standards. Additionally, some of the firewalk seminars I have heard about strike me as very coercive and manipulative, with enormous group pressure to walk. If you succumb to this kind of pressure situation when your inner voice says no, it would be too easy to interpret any burns as a judgment that you are unworthy—or be upset by the feeling of being manipulated even if you are successful.

So I don't necessarily recommend firewalking. Nor do I know that it will make a permanent change in anyone's life. Those kind of claims require formal study.

I have no personal desire to repeat the experience myself, but I'm glad I did it. My scientific curiosity is higher than ever and I want firewalking researched. In a way, the firewalking is a gimmick, anyhow: the important thing is facing your fears and transforming them into power. That is a long-term process, as well as a momentary high, but now is the best time to begin.

Charles T. Tart is a professor of psychology at the Davis campus of the University of California and is well known for his studies of altered states of consciousness and parapsychology. His most recent book is Waking Up: Overcoming the Obstacles to Human Potential, published by Shambhala Publishers. This article appeared in Parapsychology Review, May/June 1987, Vol. 18, No. 3.



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