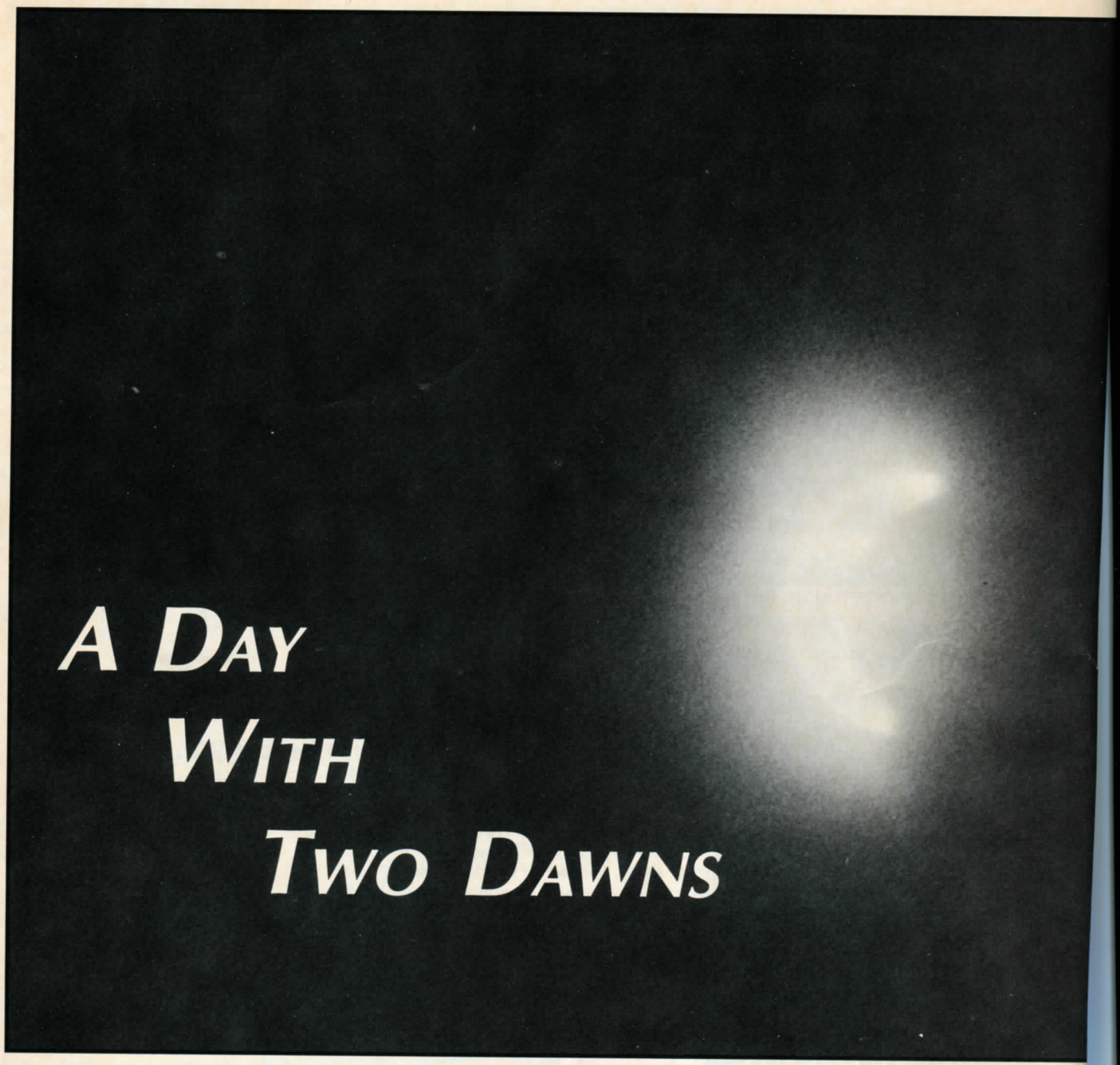


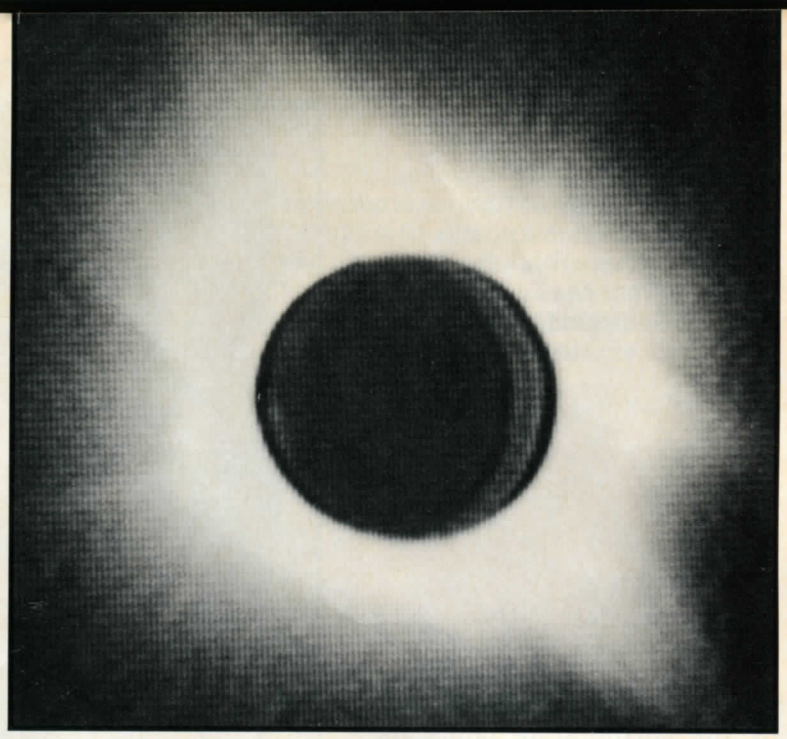
A Day With Two Dawns

Written and photographed by Phil Konstantin, I.D. 11643

(Officer Konstantin took time off from his Public Affairs job at CHP's Border Division to see with his own eyes this past summer's total eclipse of the sun.)

Called the "World's Greatest Light Show," our primitive ancestors were stricken with fear when it occurred. The course of ancient wars changed upon its arrival. And even today, animals become confused when these rare events unfold.

I knew it was coming, so I drove over 1,100 miles to get a front-row seat. For 12 years, I had been planning this trip to the southern tip of Baja, California. I had overcome numerous obstacles (money, time, etc.), but on July 11, 1991, I wasn't disappointed.



Left: Photographed through special mylar filters, the moon moves over the sun in a timely manner. Above: In this view of the total eclipse, the corona is clearly visible.

I witnessed a total solar eclipse. And it was awesome!

Total solar eclipses happen somewhere on our planet every 16 months or so. And, yet, they seldom occur anywhere close to the continental United States. The last total solar eclipse happened in 1979, lasted very briefly, and couldn't be seen over the northwestern U.S. because of heavy clouds.

Mathematically, a total eclipse can last only eight minutes. "Totality" lasted nearly seven minutes on July 11. The last eclipse with a similar duration visible in North America occurred in 1806, and it lasted only five minutes. It will be 2045 before a six-minute total eclipse is seen in North America, but we will have to wait until June 13, 2132, to witness another seven-minute total eclipse here in the United States. It's easy to understand why astronomers were calling this the "Eclipse of the Century."

The physics of an eclipse are really quite simple. The moon's diameter is about 1/400th of the sun's and it is also about 400 times closer to the earth than the sun. So, the apparent disks of the moon and the sun are the same when seen from the earth. According to astronomers at the Palomar Mountain Observatory, this condition does not exist on any other planet in the solar system. If it wasn't for the fact that the orbit of the moon is at a slightly different angle to the earth than the Earth's orbit is to the sun, we would have a total eclipse every month.

The difference between a total eclipse and a partial eclipse is that, from the Earth, in a total eclipse the moon completely covers the sun. And it is only in a total eclipse that you can see the sun's corona (the halo, or crown, of light that surrounds the sun). During an eclipse, it can extend out for almost four moon diameters in some places.

From my vantage point in southern Baja on July 11th, the naked eye discerned little visible difference as the moon slowly moved across the face of the sun. The moon had covered nearly three-quarters of the sun before there was any loss in apparent light, but as it continued, the sky took on an eerie color.

By the time the moon covered 90 percent of the sun, the temperature in the Baja desert had dropped at least 20 degrees and all of us

One of the most famous landmarks in Cabo San Lucas is this "arch," which separates the Pacific Ocean from the Sea of Cortes (Gulf of California) at the southernmost tip of the Baja peninsula.

sharing this experience could enjoy the surrounding landscape without wearing sunglasses, unheard of with the usual bright sunlight glare.

Moments before the total eclipse began, I witnessed an unusual phenomenon called "shadow bands," or the "ripple effect." These are a series of faint lines that run along the ground, which are quite similar to the reflections you see on a wall next to a lighted pool. Scientists believe that these ripples are caused by the refraction (bending) of light as it moves through our thick atmosphere. I could clearly see the bands flowing in two distinct groups.

It seemed that almost suddenly

At 11:49 a.m., twilight conditions covered the entire horizon. This 360-degree sunset was truly a once-in-a-lifetime sight.

The CHP

Posing under this sign produced by the Mexican Tourism Department, Phil Konstantin is ready for a viewing of the eclipse. The sign reads, "You are crossing the center line of the Total Eclipse of the Sun. July 11, 1991, 11:45 a.m."

the western horizon was much darker than it had been just minutes before. The shadow of the moon was racing toward me at almost 1,900 miles per hour and its arrival was only seconds away.

At the moment just before totality (11:49 a.m. at my location just north of Todos Santos, Baja), there was one final bright point of light on the eastern edge of the sun. This dazzling light combined with a faint band of light that now surrounded the moon is called the "diamond ring effect." This brilliant light had more "fire" than any diamond I have ever seen and was almost worth the long trip all by itself. It was only at this split second that you could look directly at the sun without any harm to your eyes. Then, only seconds after it had started, the diamond's fiery glow was extinguished and the total eclipse had now truly begun.

Almost suddenly, the bright lights were gone, replaced by a wispy white wreath that encircled the moon. The corona extended to two lunar disks in some spots and glowed with an ethereal beauty that no photograph could ever truly duplicate or even reveal. The light from the corona was slightly brighter than a bright, full moon. In just a few seconds, our late morning had gone from a bright sunny day to a pale glow and, then,

Under normal conditions the Federal Patrulla (Mexican Highway Patrol) has 15 officers assigned to Baja California South. Officer A. Gutierrez L. was one of 100 officers brought in to "Serve and Protect" the motoring public during the July 1991 eclipse.

to night with stars visible in the same sky as the sun.

I was standing in a shadow that stretched 160 miles. As I gazed at the moon and the corona, a red flare appeared on one edge of the moon. The flare was, in reality, a solar prominence, or a great eruption on the surface of the sun that stretched out for tens of thousands of miles. It was only visible to the naked eye because the moon was blocking the brightest part of the sun (photosphere).

Suddenly, I was aware of the "chirping" sounds of crickets — those sounds normally heard only after sunset. The insects were acting as though the sun had set for the day. Looking toward the horizon, I saw a "360-degree sunset" — the horizon had a pinkish cast in all directions.

Seven minutes can seem like a lifetime when you are doing "leg-lifts" as a cadet at the CHP Academy, or if (as an officer) you have confronted an "armed and dangerous" criminal alone and your help is seven minutes away.

But seven minutes can also pass so quickly that it seems like only seventy seconds. That's how I felt during the eclipse. I couldn't believe seven minutes had passed when I saw the western horizon grow brighter and the "diamond ring" suddenly reappear.

As quickly as it had begun, the total eclipse was over. And even though the shadow bands reappeared and I managed to record them on videotape, I was longing for the continuation of the corona and the twilight that, only moments before, had graced the horizon in every direction. Yet, I knew how fortunate I was to have experienced this rare occurrence. I have met other eclipse chasers that traveled halfway around the world at great expense to watch an eclipse that lasted only 50 seconds!

Along with an estimated 50 million other people, I experienced one of the longest eclipses of this century as the moon's shadow traveled from Hawaii to Brazil. It was exciting. It was breathtaking. It was worth the time, the travel and the money spent to see it.

The only thing I keep thinking is, I hope I get to see the next one!

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