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**CORONER**

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with  
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the telltale soot. But was there any other evidence to indicate that the fatal shot had been fired only a few inches away? I remembered that unburned powder grains were tattooed in a circular pattern on Kennedy's right ear. But if there had been soot on his ear, it was washed away when a surgical nurse scrubbed it.

Because of the soot in the hair, I believed that the muzzle distance of the fatal shot had been from one to three inches away. But I decided that a ballistics test would be necessary to determine the precise distance. And I conceived a test that would attempt to duplicate the tattoo pattern of unburned-powder stains on Kennedy's right ear.

That afternoon, a lab technician was startled by my request. "Seven pigs' ears?"

Explaining the reason for my request, I then asked him to affix the pigs' ears to padded muslin configurations, each simulating a skull. We would then take the "skulls" to the Police Academy shooting range for a unique ballistics test which I would supervise.

The next day at police headquarters, a plainclothes officer approached the "skulls." I asked him to fire at each of them, beginning with a firm contact shot, then moving back to a quarter inch, a half inch, one, two, three and four inches. I put on earmuffs while one of my staff measured the distance for each shot. Every time the marksman pulled the trigger and a bullet plowed through a muslin "skull," the sharp sound pierced the protection over my ears. *Crack! Crack! Crack!* The marksman moved down the line, carefully, until he had completed seven shots.

At three inches from the right mastoid area, I discovered we had a perfect match of the tattoo pattern

of unburned-powder grains on Kennedy's right ear. At that distance, the shape of the entrance wound was also duplicated, and it accounted for the carbon particles found in Kennedy's hair. I now knew the precise location of the murder weapon at the moment it was fired: one inch from the edge of his right ear, only three inches behind the head. But I also realized that this evidence seemed to exonerate Sirhan Sirhan. Eyewitnesses are notoriously unreliable, but this time their sheer unanimity was too phenomenal to dismiss. Not a single witness in that crowded kitchen had seen him fire behind Kennedy's ear at point-blank range.

But even apart from the autopsy findings of a close-range wound, there was other evidence to challenge the belief that Sirhan Sirhan had acted alone. For example, four bullets were fired at Kennedy; three of them struck him, and one passed harmlessly through his clothing. Five persons behind Kennedy were also struck by bullets, which were recovered in their bodies. And three bullet holes were found in the ceiling. Thus, the tracks of twelve bullets were found at the scene, and Sirhan's gun contained only eight. Police believed that the extra tracks could be accounted for by ricochets. But to the day he died (the victim of an assassin's bullet himself), Allard Lowenstein, one of Senator Kennedy's strongest supporters for the Presidency, said that Sirhan had not acted alone. And such professional homicide investigators as Vincent Bugliosi, the deputy DA who convicted the Manson killers, insisted there was a second gunman in the room.

What was the truth?

x  
x  
x

And yet . . .

My own professional instinct instructs me that Sirhan somehow killed Senator Kennedy alone. He has always insisted he acted alone, and he kept a diary in which he wrote, "RFK MUST DIE." But instinct and even educated guesses are not enough. Forensic science must concern itself only with the known facts. And I believe that the Kennedy assassination must go down in the history of forensic science as a classic example of "crowd psychology," where none of the eyewitnesses saw what actually happened. But until more is positively known of what happened that night, the existence of a second gunman remains a possibility. Thus I have never said that Sirhan Sirhan killed Robert Kennedy.

Perhaps the whole truth will never be known. And that is a dilemma that sometimes confronts modern forensic science—a dilemma that in the Kennedy case began through the discovery of particles of soot in Kennedy's own hair. The night of his assassination, Robert Kennedy did indeed seem to be riding the ninth wave. It bore him upward to a great political victory, then plunged him to his death. And thinking of him today, I remember what he said to the reporter Jack Smith about the ninth wave. Bobby Kennedy's reply must be my own as a forensic scientist when I consider the circumstances of his assassination: "I don't know the number of the wave, but I know the result."

## The Heorings

The Kennedy autopsy report was hailed by forensic pathologists across the nation as "a prototype for all autopsies of legal significance." It was an important victory for my profession. At last forensic science was being