

## PART 2

### RPD ON THE FIREGROUND

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#### EXECUTIVE SUMMARY

We all like to believe we'd be cool, calm and capable in any emergency, but lack of experience may cause us to stumble. A recent study concluded that fireground commanders make pressure-based decisions in a most—untraditional way—and past experience is the key.

#### RPD on the Fireground

How to Avoid the

Blank Screen Syndrome

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I recently took a weekend trip to San Diego. As I passed the nuclear power station at San Onofre, I found myself thinking: Wouldn't it be something to be first-in on a runaway reactor that spreads from the containment building and digs a quarter-mile hole on its 8,000-mile journey to China?

Yes, how cheated I would feel if I was off duty when the meltdown came. Can anyone identify with this?

Or say it's your first day as a new battalion chief. As you drive through your new district, you pass a refinery. You think: Wow, what if there were a fire in a cat cracker on my very first shift!

Or how about the recent train/hazmat wreck in San Bernardino County, CA? Did anyone else out there say: It sure would have been exciting to be first-on on that one—would I have dazzled my peers with some fancy footwork!

The first-due company and battalion officers that did respond to that incident may well have said: "Thank goodness I'm on duty today!" Wouldn't most of us react that way? After all, we're fully prepared.....aren't we?

Even new company officers or battalion commanders usually feel that, since they ranked high on the list and were chosen over other qualified candidates, they must be more than ready to command any emergency...right?

It's only natural that the first thing we want as new company officers or battalion commanders is to be tested so we can prove to our peers, crews and, yes, even ourselves that we have been sent to earth by God as a gift to firefighting.

Sure, there are probably a lot of things that we are gifted at when it comes to firefighting. But I just mentioned nuclear, petro-chemical and hazmat control. How about multi-casualty incidents, highrise and wildland fires, structure collapse, flooding, swiftwater rescue, USAR, civil disturbance, air crash, shipboard fires, auto extrication, bio-chemical, EMS and plain old structure fires? And of course, there's electrical—my personal favorite is fighting something I can't see.

Honestly, does anyone reading this article truly feel comfortable commanding any one of these incidents, no matter how many years of fire service experience they have? No way!

The point is that no one feels comfortable about everything the modern firefighter is responsible for knowing. The reason for this lack of confidence is that firefighting is not an inherited skill; it is not inborn. Simply put, it is acquired through experience.

None of us is born with the skills to be a firefighter. They are all learned.

Nonetheless, right from the first shift, most of us expect to perform as if it all came naturally. One of the few benefits of age—and the wisdom that sometimes accompanies it—is the ability to look back at where we came from and be honest in assessing the journey. It took me 26 years to realize and admit this.

To some, this realization will take some of the pressure off. For others, it will pour it on. Only an honest self-assessment will determine which is the case. Upon being promoted to company officer, almost everyone is scared to death. If they aren't, they should be.

Believe it or not, the best company officers and battalion commanders are at least uncomfortable for their entire career! This shouldn't be surprising, because there is plenty out there to be uncomfortable about.

Any one of the incidents listed at the beginning of this article could happen on any night in nearly any district. So how comfortable can anyone be with so much to learn and so little time to learn it?

## **RECOGNITION - PRIMED DECISION-MAKING**

In 1988, the U.S. Army Research Institute for the Behavioral and Social Sciences commissioned a study leading to Technical Report 796 from Klein Associates of Ohio. The objective of "Rapid Decision Making on the Fire Ground" was to understand how military officers make decisions under extreme time pressures when lives and property hang in the balance.

Since, at that time, there had not been a major conflict since Viet Nam, the Army wanted to know how they could best train their officers to make quick decisions

under combat conditions. First, they needed to know how quick, effective decisions are made.

After Klein Associates reviewed the different occupations that possibly share decision pressures, they found that (surprise!) fire service incident commanders face the same decision pressure on a daily basis as a military combat officer.

The study went on to examine experienced fire company officers in order to determine just how they made rapid decisions. Dr. Klein, the founder of Klein Associates, derived from these studies what he thought was a radical hypothesis: Experienced company officers did not use the conventional laboratory or university model of analytical decision-making. This involves reviewing all the pros and cons of many possible solutions to choose the correct course of action.

Dr. Klein discovered that company officers faced with an emergency incident usually didn't have enough time to completely analyze all the possible options. Instead, they invested what little time they had on sizing up the situation rather than choosing among options of what to do.

Initially, Klein was surprised to find that experienced company officers did not select from several options, but instead identified a situation as typical of

incidents they had experienced before. Then they would act on this experience by recognizing what to do without even considering a second option.

In other words, under time pressure, experienced officers produced a more "intuitive" approach to problem solving. However, few consistently selected one particular option of attack over others. Instead, they used a matching process—rather than calculation—to achieve a decision.

When faced with extreme time pressure, the officers conjured up mental pictures instead of words to compare the incident at hand to a prototype or picture they had in their minds. When a memory picture matched the incident (which the first picture did 80 percent of the time), they implemented the course of action that worked before.

If the officer encountered an incident that didn't match any previous experience, he would come up with a mental picture he thought was closest to what he was seeing. The officer would quickly play out the corresponding course of action in his mind and, if it worked, he would go with it. If not, he would mentally alter the course of action, using a process called "mental stimulation, until the problem was solved.

Dr. Klein called this process "Recognition-Primed Decision," making or RPD. To understand it, think of the

mind as holding a big slide carousel. New slides are placed in this carousel by experience, whether real or created. These slides/experiences can be drawn from later.

As a basic example, say a company officer gave an order to go to the truck and get the gas-powered smoke ejector. The crew member who received the order instantly calls up a picture of what the smoke ejector looks like. Despite the array of various equipment on the truck, he has no problem fetching the piece of equipment that resembles the picture he has in his mind. It also helps that, on the way to the truck, he pictured which compartment the ejector was in to reduce the hunt.

Obviously, even this simple slide picture was not there from birth, but put there through experience. This is the same mental process that goes on when responding to an emergency that will require tactical decision-making. The mind projects a slide picture of the closest experience to the present incident.

What all of this tells us is that we may not know how to handle all the incidents listed in the beginning of this article. It is not surprising that we may be uncomfortable attacking a fire in a nuclear reactor, a petroleum cat cracker fire or even a train derailment with hazardous materials. We simply may not

have the slides in our carousel to deal with these incidents.

So, when the new guy pulls up to that first fire and stumbles, he or she shouldn't feel bad—the slide carousel is probably not fully developed yet. This also explains why a great wildland IC may stumble at a highrise incident. His slide carousel is whirling through a panoply of wildland slides, but there's an empty section labeled "Highrise."

Returning from our first room—and—contents fire as a new company officer, most of us realized that things could have gone a whole lot better. And most of us made some decisions differently at the next fire.

Our minds can also change the slide carousel, so we can compare the last incident to the next similar incident and take action based on the experience gained. When the same type of fire occurs again, the slide carousel presents the similar picture—and the course of action that will be successful. Hence the term "Recognition-Primed Decision."

It takes skill to recognize situations as typical, and correctly using the prototypes or slide pictures is enhanced by experience. The ability to know if "X" applies is dependent on situational awareness, i.e., experience.

It is never enough to simply teach rules to a novice and expect to make him or

her an expert. For example, a sign that a roof is near failure is often described to new firefighters as a “spongy” feeling. So the first time they set foot on lightweight, panelized roof, most rookies think it’s about to fail.

In fact, what they’re feeling is the typical bounce of a good roof assembly. It will take many walks on many different types of roof assemblies and possibly many fires under an experienced company officer to supply the critical cues appropriate to roof-collapse to the new firefighter’s carousel.

## **CRITICAL CUES**

Critical cues are the signs and symptoms that help with a correct diagnosis. Examples of critical cues are those things that company and battalion officers evaluate in an initial size-up, such as:

- Life hazards
- Special population (elderly, disabled, prisoners)
- Smoke (color, amount, location)
- Fire (color, amount, location, duration)
- Structure (house, factory, office, vehicle)
- Construction (age, composition)
- Weather
- Time of day
- Resources (available, needed, special needs)
- Product involved

- Signs of structural failure
- Water supply

New officers may make “cheat sheets” or command boards to help with early size-up and decision-making, but as experience is gained, the cheat sheets are consulted less and less.

The experienced officer makes the size-up in a more intuitive way, without much active thought. If you ask the experienced officer to recite the list of what factors he/she considered, the officer will take longer to express them than a rookie will. This is because the experienced officer observes the fire and compares it to the slides in the mental carousel. When a match is found, he or she gives the correct, time-tested orders.

This is not meant to disparage the use of cheat sheets or command boards. They can serve as useful reminders of items that may otherwise be overlooked or act as an assist on incidents that are not common in the district—where the slide library may be a little weak.

In conjunction with the previous statement that the experienced officer may have trouble articulating the steps in his/her decision-making process, let me relate a personal example.

I was a paramedic for 12 of my 26 years in the fire service. I responded to dozens of full arrests, and my carousel is pretty full of relevant slides. But when it comes

time to pass the CPR exam, I have to go back and study all the “dance steps,” because the raters are more interested in the exact process I use than the outcome!

Also, the exam process very seldom resembles the sight, sounds and circumstances of a real incident. Therefore, the slides in my carousel don't relate particularly well to a hypothetical situation.

Most of us are frustrated by the annual changes to CPR procedures after some new doc decides that “X” number of ventilations prior to starting CPR are better than whatever last year's number was. And let's not forget those constantly changing compression rates. Are these process changes really better for the outcome of the patient, or are they just designed to throw our carousels out of whack?

This is why training officers should avoid getting too carried away with the exact steps in the process. Instead, concentrate on the ideal outcome of tactical objectives on the fireground.

It's okay to teach novices step-by-step methods to achieve a proper outcome, but more experienced crews need to be given performance standards that state the desired result, critical safety considerations and absolute dos and don'ts. It's better to skip the exact foot and hand placements.

So many improvements in our art can be missed if firefighters aren't given the latitude to experiment with new ways of doing things. Crews that are held to rigid step-by-step procedures for performing a tactical objective on the drillground may not take the initiative to overcome fireground problems that weren't covered in the drill manual.

## **FILLING THE CAROUSEL**

There are many worthwhile training methods that will help load the slide carousel with pertinent pictures. Examples include hands-on training and live-fire recreations where ideal actions are practiced.

Another good idea is to obtain buildings in the district that are going to be torn down and use them to practice everything from search and rescue to forcible entry, ventilation, salvage, and fire attack. (Of course, practice only ideal performance for emulation at a real incident.)

Simulators are another good idea. Simulators create the time pressure that an IC faces at a real incident. This forces RPD, the “intuitive” model of decision-making.

Success at the simulator comes from making it typical of incidents encountered in the jurisdiction. If proper mitigation is applied, the IC must “win” the exercise.

Also, read trade journals. Study fires other departments have faced, and discuss their actions. Watching videos of incidents will help stock pictures in the mental carousel. The crews should discuss them to help build better decision-making.

It is also good to train in context. This means always training in actual combat mode.

Pre-planning—“chalk talking” incidents that could occur in the jurisdiction is also helpful. Get the crew involved on every shift.

Learn from people with a full carousel—experienced people. This doesn’t just mean those with a lot of time on the job, but those who continually train to make themselves better and strive for ideal performance. These people are usually pretty easy to identify—they may even be subordinates.

Slide pictures have a tendency to fade over time, so if you don’t use them, they may not be there when they are needed. This is a most important consideration for chief officers who find themselves spending more time working in boxes than incidents. Anyone who is still responsible for commanding the Big One had better be involved with the preparations for it.

For novices: Don’t wait to fill the slide carousel with experience gained at actual incidents. This risks losing the whole carousel—and the projector with it!

Finally, please give the new guy a break! Even great ICs can be reduced to quivering wrecks when working outside their usual environment.

Most importantly of all, never be afraid to admit your carousel is empty. This is the first step to getting it filled.

*For additional reading on the subject of Rapid Decision Making, see:*

“Naturalistic Decision Making: Implications for Design,” April 1993, Gary Klein, Ph.D. Klein Associates Inc., Dayton, OH (Ordering info: CSERIAC Prog. Officer, 2255 H St., AL/CFH/CSERIAC, Bldg, 248, Wright-Patterson AFB, OH 45433)

“Decision Making in Action: Models and Methods,” edited by Orasanu, Calderwood and Zaambok. (Ordering info: Ablex Publishing Corp., 355 Chestnut St., Norwood, NJ 07648)

“Advances in Man-Machine System Research,” Vol. 5, 47-92. Greenwich, CT JAI Press, Inc.