Frustrated Firemen

Fire-Fighting Gear Improves, but Cities Can't Afford to Buy It

New Technology Is Blocked By Squeeze on Budgets; Rapid Water and Jet-Axe

Bringing Insurers Up to Date

By JEFFREY A. TANNENBAUM
Staff Reporter of THE WALL STREET JOURNAL

Jarrold A. Parry, a volunteer fire chief in Pierce County, Wash., was wearing a white fireman's coat made from a relatively new synthetic fiber, called aramid, when he was showered with flaming oil from an exploding tank about 18 months ago.

The 38-year-old fireman suffered severe burns on the parts of his body that the coat didn't cover, but his torso wasn't harmed. "If I hadn't had that kind of coat on," he says, "I wouldn't be alive now. My doctor also said that. An old-style coat would have just burned up."

The fire district's taxpayers don't deserve credit for providing their volunteers with the latest and best equipment—Mr. Parry had paid for his $90 fire coat out of his own pocket. Today, the other 21 members of his volunteer district still have cheaper and less-effective canvas coats, like most of the nation's fire fighters.

And therein lies a problem: The technique of dousing fires, which hasn't changed much in decades and is considered incredibly old-fashioned by some critics, is now able to benefit greatly from recent scientific advances. A number of developments—including electronic fire-hose nozzles, new chemicals and even robot firemen—promise to make fire fighting both safer and more effective, saving lives and property. But fire departments, largely because of financial difficulties, are slow to catch on.

"Nobody Can Afford Them"

"There's no question that technology in the fire service is way out of date," says James M. Newman, a municipal official in Oakland, Calif., and co-author of a comprehensive recent study of fire-fighting gear. Adds Donald M. O'Brien, general manager of the International Association of Fire Chiefs, "We've discovered all these technological innovations, but nobody can afford to pay for them."

Ironically, money problems are blocking the advent of new technology just as many former problems are being cleared away. For instance, critics long have considered fire [illegible] to be [illegible] bound and riddled with internal politics as to be unreceptive to change; but more and more departments are showing signs of breaking out of this pattern and actively are embracing the new developments.

Governmental indifference also is being shaken off. On the federal level, a bill is expected to be introduced in Congress that would extend the protection of the Occupational Safety & Health Act to fire fighters who now are excluded because their employers are local governments. On the state level, Washington shortly is expected to implement the first state standards for fire-service equipment; other states are expected to follow suit sooner or later.

The insurance hurdle may be dismantled, too. Most fire insurers use a grading schedule to help judge the capability of local fire departments, which is a major factor in setting insurance rates. The grading schedule historically has been revised very infrequently—it wasn't updated at all between 1956 and 1973—which meant that there was no credit given to fire departments for new types of equipment and thus no incentive to invest in them; in fact, there was incentive to keep old equipment. But now the grading schedule is supposed to be updated more frequently, according to Daniel J. McNamara, president of the industry-sponsored Insurance Services Office, which has been responsible for it since 1971.

No Government Money

All these moves might be expected to lead to massive reequipping of fire departments across the country, except for one additional fact: Neither the federal nor state governments appear to be contemplating pumping very much money into fire-department modernization.

A new federal agency, the National Fire Prevention and Control Administration, was established in October, and it already has rejected several dozen appeals for capital-improvement funds. Joseph E. Clark, the acting administrator, says: "We don't have authority to give money away for the purchase of equipment. It's not in the legislation."

The outlook isn't much better in Washington state. Charles C. Soros, a 32-year-old Seattle fire captain, is asked how long it will take for the state's fire departments to meet the proposed equipment standards. "I'm afraid I might never see it in my lifetime," he replies. "Nobody has the money for new equipment."

As a result, the new fire-fighting technology is showing up in only a few, widely scattered cities. Even so, the effectiveness of the new equipment and materials is attracting a lot of attention among fire-fighting officials.

Raves for Rapid Water

Perhaps none has so dramatic an impact as Rapid Water, a chemical additive that Union Carbide Corp. started selling to fire departments about four years ago. The chemical, polyethylene oxide, is added to the water that flows through fire hoses to reduce the friction in the hose and cause the water to squirt out faster. Fire fighters can get up to 50% more flow than before with the same pump pressure and hose size—or get the same flow as before with a smaller hose that's much easier to use.

"We're getting water on the fires faster, and it's less tiring for the men," says Frank C. Burke, a deputy fire chief in Syracuse, N.Y., one of the first cities to use Rapid Water. In part because of improved manpower deployment, but largely because of new equipment, "I would say that the initial knockdown on a good fire at a residence is

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taking us five to 10 minutes now, and before it could go 30 to 40 minutes," he says.

Nine of Syracuse's 14 pumpers now are outfitted to use Rapid Water, and the other five will be so equipped soon. But Union Carbide and Bendix Corp., which makes the related pumping equipment, say that orders still only trickle in. Only about 20 fire departments of the nation's approximately 25,000 have started using the system, a Carbide manager says. "It's always a problem for fire departments to get capital funds," he adds. "We recognize it's going to be slow growth."

An electronic fire-hose nozzle, designed to operate a pumper by remote control, is being marketed by a subsidiary of Grumman Corp. Grumman has tackled a universal problem of fire fighters—the inability of those who carry a fire hose to control the water flow. The water always has been controlled by another fireman at the pumper itself. The attempts at coordination, involving hand signals and hollering, are often clumsy, inefficient and downright dangerous for the fire fighters.

By using a dial on the Grumman nozzle, a fire fighter can alter or stop the water flow quickly. "It's far more effective and safer for the guy using the nozzle," says William J. Patterson, a deputy fire chief in Long Beach, Calif., which has been using a prototype. The nozzle also frees the fireman at the pumper for other tasks. "We feel that the nozzle speeds our attack a great deal," Mr. Patterson says. The only drawback: It costs about $12,000 to automate two hoses, an expense that few fire departments say they could afford.

Another expensive new wrinkle is using controlled-charge explosives to break through walls instead of picks and axes. Crestwood, Mo., fire chief William J. Kramer credits Jet-Axe, an explosive developed by a subsidiary of OEA Inc., with curtailing the spread of a shopping-center blaze in neighboring Warson Woods not long ago. Fire fighters blasted through a four-inch-thick concrete-and-steel floor in seconds and headed off the rapidly spreading flames. But Jet-Axe's makers say it has been slow to catch on with fire departments, at least partly because of the cost: $85 to $150 per explosion.

Probing Smoky Rooms

Still another new aid is Probeye, which helps fire fighters make their way through smoky rooms. Derived by Hughes Aircraft Co. from military equipment that tracks missiles, the cameralike instrument detects infrared radiation rather than normal light and thus can pinpoint cinders in concealed places or people caught in smoke-filled rooms. The Anaheim, Calif., fire department has been testing a prototype, and Hughes says it has a handful of orders. Many fire departments are balking at the price of $3,575, though, and Hughes says it might find a better market among utilities, for which the device also has applications.

New technology also promises to relieve fire fighters of highly flammable clothing, plastic helmets that melt and breathing apparatus that is so bulky it contributes to exhaustion. Many injuries and deaths are attributed to inadequate equipment. W. Howard McClennan, the president of the International Association of Fire Fighters asserts—and federal officials say that he isn't exaggerating—that "many firemen are still wearing coats that are far more flammable than babies' night clothing."

None of these problems has yet been solved to the satisfaction of fire fighters, but a good deal of progress has been made in some areas, notably the fire coat. Many coat makers have switched to aramid, a fiber developed by Du Pont Co. that is much more fire-resistant than the materials it is displacing. More recently, Carborundum Co. has developed another new fire-resistant fiber, called novoloid; the company says that a fabric made of novoloid can be splashed with molten lead without burning through.

Among other developments, federal officials recently started field tests of an improved breathing apparatus for fire fighters. The new compressed-air system, designed by the National Aeronautics & Space Administration, is made of glass fibers rather than steel or aluminum and weighs about 13 pounds less than conventional gear.

Budgetary and other barriers to change may fall in time, but then a new one could spring up. Many fire chiefs expect opposition from labor unions because technology can eliminate some fire fighters' jobs. New York City says the use of Rapid Water on a portion of its pumpers has led to the elimination of 265 jobs, a move accepted by the union only in return for some expensive contract concessions. Grumman's nozzle also could replace fire fighters, some sources say.

In the not-too-distant future, another source of union controversy may even be robots designed to carry fire hoses. In Scottsdale, Ariz., the privately owned Rural-Metro Fire Department has built a four-wheeled, tank-like device called the Snail, which led the attack on a leaking tank car of butane not long ago and presumably is ready to tackle an actual fire. So far, though, the Snail isn't likely to replace a human. "He still doesn't climb stairs very well," says the Snail's designer, Louis A. Witzeman.

City of Cambridge

IN CITY COUNCIL

March 3, 1975

Councillor Wylie

ORDERED:

That the City Manager be and hereby is requested to confer with the Chief of the Fire Department relative to the information contained in the attached clipping from the January 30, 1975 issue of The Wall Street Journal regarding new technology in fire fighting equipment, and be it further

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City Council March 3, 1975

Adopted by the ... vote

of 7 ... bers

Paul E. Healy

City Clerk

CCM-101

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Adopted by the affirmative vote

of 7 members

Paul E. Healy

City Clerk

Order # 1 87

C. Wylie re: new technology in fire fighting equipment.

In City Council,

March 3, 1975

CW/A

M Munson

Passed