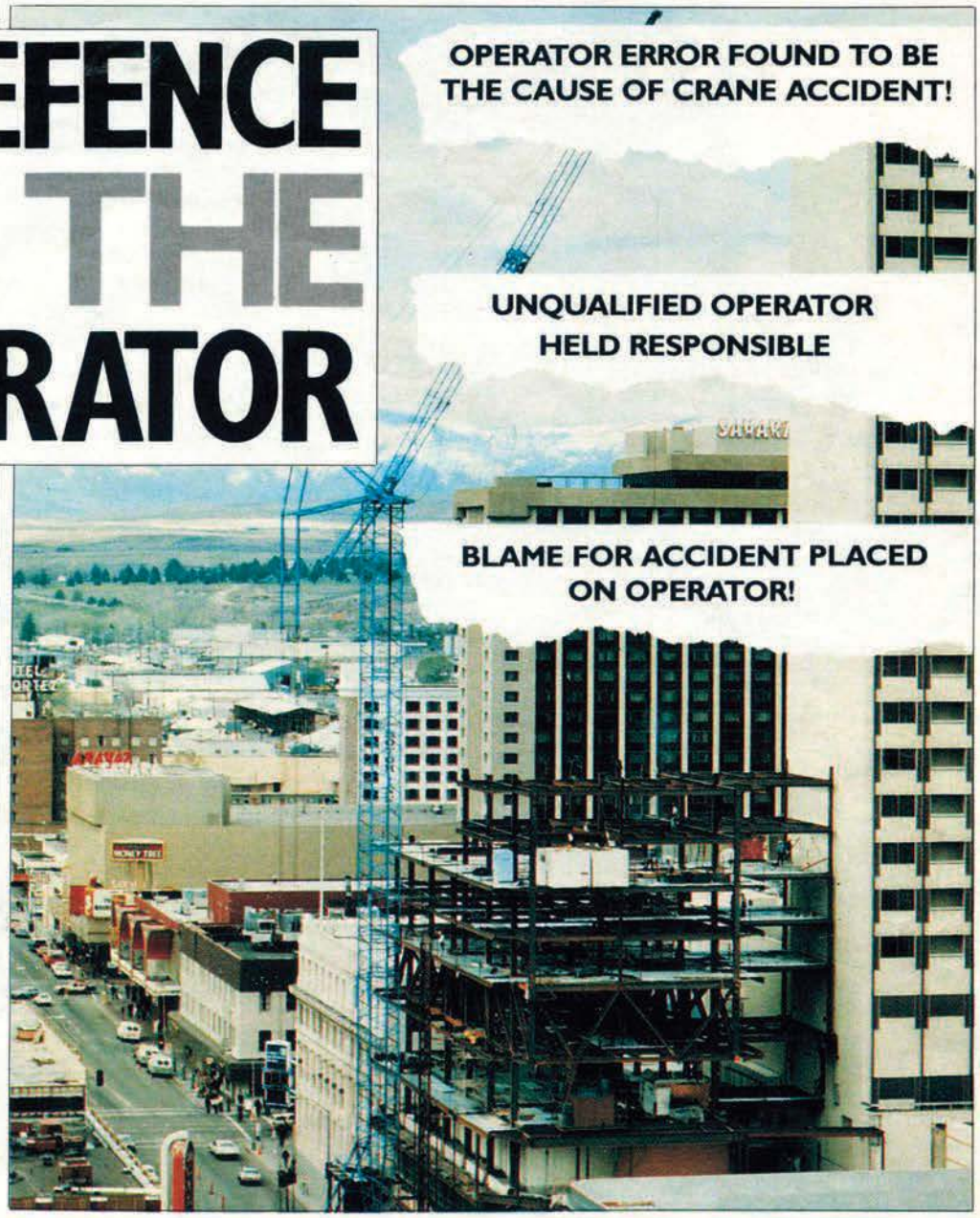
IN DEFENCE OF THE OPERATOR

Continuing his series of articles examining the issue of mobile crane safety, James Headley of the Crane Institute of America discusses the problem from the viewpoint of the operator himself. Already shouldering an enormous burden of responsibility, the operator also has to face almost total accountability for any mishaps that occur during a lift. But is this burden fairly apportioned – and should managers and supervisors be made more aware of the operator's plight?



These headlines are not uncommon where crane accidents are involved. Perhaps the age old phrase 'the buck stops here' has more application to the operator than its original intention.

Dealing with this is something I learned early in my operating career. While serving a crane operator apprenticeship I was hired to apprentice on a 60t crawler. After discovering that I had developed some operating skills, the operator began using me to handle the light loads. We were working with the iron-workers, moving various loads from one place to another when I was asked to place a long bundle of steel flat-bar strips across the bed of a truck. Following the iron-worker's signals, I picked the bundle up and positioned it about four feet above the truck bed. He directed me down about two feet and had me stop. After aligning the load he signalled me to gently place it crossways on the bed. Wanting to greatly impress my operator, who was standing beside me, I began with great care and precision to ease off the brake. However, my forgetting to engage the 'power down' caused the load to suddenly drop, striking the truck bed and slapping the sides.

Shocked by the sudden drop and with mouth wide open, the ironworker appeared ready to pronounce great judgement on me. Realising that his impression of my operating skills had greatly diminished, I quickly began a mental search for a good explanation.

However, before I could speak, the operator, apparently experienced in handling delicate and awkward situations as this, shouted, 'Now ain't this crane got a fast power down!' Regarding the blunder, nothing more was ever mentioned. But afterward, the operator gave me some excellent advice. 'Whenever you err,' he

said, 'always find some way to blame it on the crane, because as an operator they will always point the finger at you.'

SERIOUSNESS OF THE PROBLEM

Years later these words are more pronounced than ever, for the operator is held by many as being responsible for over 80% of crane accidents. This is not simply an overlooked cause of crane accidents, it is a personal indictment against the operator himself! What we are dealing with here is not a peripheral issue, but an area which has been labelled by many safety experts as having the highest potential for accidents and liability of all equipment currently utilized in industry and construction.

Costing thousands and even millions of dollars, mobile cranes have become more than just a useful tool. They have become an essential part of most operations. When under control they serve a wonderful purpose, but let them get out of control and they are likened to a terrible master.

Defying the laws of gravity, mobile cranes present a very special safety problem. Because of their enormous versatility and possible configurations, the variables encountered are more than any other type of material handling equipment.[1] Combining these variables with human factors makes it all the more difficult in predicting mobile crane accidents. There are load charts to understand and interpret; varied weights to lift at various radii; crane set up on different surfaces; and elements to consider. Having to allow for all this makes the operator more susceptible to an accident.

Donald Dickie, internationally known crane expert, and author of the widely acclaimed book, *Mobile Crane Manual*, stated, 'There still is no other piece of equipment that has the potential of causing so much damage or harming so many people as does a crane in an accident! Here are some facts, and it is significant to note that the pattern is relatively constant from year to year and, from what we have been able to learn, is consistent throughout North America and Europe.

— Cranes are involved in more serious accidents than any other type of construction equipment.
— Crane accidents are the most costly in terms of insurance claims.
— There are more construction fatalities caused by cranes and hoisting equipment than any other single cause.'[2]

Facts such as these must be taken seriously, especially since criminal charges are on the rise for workplace injuries and deaths. In particular would be those criminal charges filed initially against a subcontractor, foreman, and crane operator because of a serious crane accident involving a pedestrian in New York City.[3]

1 C R Thompson, *Clearing up the confusion in mobile crane safety*, Modern Materials Handling, February 1975, p39
2 D E Dickie, *Mobile crane accidents*, Construction Safety Association of Ontario, revised September, 1986
3 *Subcontractor found guilty*, Engineering News Record, May 1, 1986, p14

Still the overriding concern and bottom line should be the prevention of accidents. Yet, until we learn to look beyond 'operator error' as being the major cause, we will have failed in our endeavours. Though in our pursuit to identify the real cause we have not been totally wrong, only misdirected. Our major mistake has been our inability to relate to the operator, to sit where he sits and see things through his eyes and above all else, understand the tremendous responsibility he faces.

This inability to relate to the operator is derived mainly from the fact that only a small percentage of people in supervision, safety, or training have ever actually operated mobile cranes. Undoubtedly, some of these people have sat in the seat and run the ball up and down; perhaps even swung the crane around. But it's one thing to do that and entirely another to have the full responsibility of operating a crane under load in close proximity to other equipment and fellow workers. This can be especially true of the older conventional cranes, where a failure to properly engage the right levers can result in losing both boom and load; not to mention the danger posed to personnel. Certain operating techniques are not taught in books. They are passed down from operator to operator. And we need not be fooled into thinking that the smaller a crane is, the easier and less complicated it is to operate. Obviously large cranes and long booms require particular skills and present different challenges, but everything is relative. Lifting 10t with a 20t crane can represent the same potential for an accident as lifting 100t with a 200t crane.

The awesome responsibility one feels when operating cranes, is difficult to explain in words. To sit in a crane and look up the boom, to sense the enormous power and force created as the load leaves the ground is an extraordinary feeling. It is a feeling, not of superiority, but one of humility, for to sit and think of the disaster that could result from one mistake is overwhelming. It is a feeling that can only be experienced. And because of the potential dangers involved, a feeling reserved only for the operator: to assume that simply putting an unloaded crane through its motions duplicates that experience is absurd.

You can be a crane engineer, responsible for crane design and calculating its many capabilities. You can even own cranes and supervise crane operators, but you will never be able to understand what the operator goes through without sitting where he sits and experiencing what he experiences. It would be impossible for everyone working with cranes to have these experiences. But, until we change our attitude, the way we perceive the crane operator and his responsibilities, there will be no lasting effect on reducing crane accidents.

Although unspoken, the majority of people hold the crane operator totally responsible and depend entirely on him for the success of a lift. Without realising it we have come to expect too much of the crane operator.

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These expectations and our current attitude towards the operator's job are not consistent. On one hand we expect him to perform great feats with the crane, but on the other hand he receives from us anything but high esteem. This has not always been the case, for in the past the operator held a job considered among the highest of all skilled crafts. Many may disagree with this, but the fact remains that in the minds of many the skill once thought required to operate a crane is declining. And this attitude is having detrimental effects on safety.

Recently, while conducting a management and supervisor seminar, one of the topics under discussion was operator training and how much training should be required before their operators would be considered qualified. Most of those in the class felt that a day or two would be sufficient. The company had previously experienced several serious crane accidents resulting in two fatalities. Aside from property and equipment damage were large law suits. After reminding them of this, I asked why such a low view of the operator existed. Upon examination, one of the supervisors reluctantly said, 'I know this is wrong, but we just don't view the job as requiring much skill.'

Sadly, this attitude seems to be representative of most management and supervisory personnel. This mind-set, plus our current economic situation, has led to the widespread use of what is commonly referred to as 'multi-crafts'. This is where crafts are required to perform more than one job skill. While I sympathise with those companies forced into this situation, and while I don't disagree with the concept, companies will pay a terrible price in terms of accidents by requiring a multitude of inexperienced personnel to operate the crane. It's one thing to have a mechanic perform an electrician's job, but it's totally another to require a mechanic to operate a crane. Connect the wrong wire and you burn up a motor, but turn a crane over and you have a disaster.

Not only is the crane operator viewed as semi-skilled, but we many times require him to perform lifts that endanger his life as well as others working around the crane. Unwarranted demands are placed on the operator by people who are not at risk and who have little understanding of cranes and their limitations. This is usually the result of management not being knowledgable of how cranes are rated. Too often, a 50t crane is thought of as being able to lift 50t anywhere it will reach. In reality it may only have a 50t capacity at, say, a 3m radius.

Once when operating a large 165t crane, I was asked by a sincere, but overzealous supervisor to lift and place a load a considerable distance beyond the radius specified in the load chart. After resisting to the point of being threatened with a lay-off (that's being fired while they are hiring), I told the supervisor to stand behind my seat and I would give it a try. He replied by saying he would watch my outriggers and tell me when the crane started to tip. He wouldn't stand behind the seat so I wouldn't attempt the lift. He ordered a larger capacity crane.

To be supervised by personnel lacking the required crane knowledge is a persistent problem. To those people all cranes appear to operate the same. No time is allotted the operator to familiarise himself with the manuals, instructions, load charts, etc. Yet cranes are different, each one having it's own idiosyncracies, especially true of mechanical versus hydraulic cranes. To operate one crane while being accustomed to another, without first receiving instruction and time for familiarisation can be confusing: and the lack of which can greatly increase the chance of an accident.

Mobile cranes have also undergone tremendous change through the years. Industry demands have brought about an increase in technology effecting both design and limitations. Capacities which were once based solely on stability are now based more on structural competence. The operator, being unaware of this can cause serious structural damage to the machine. Operating cranes by the 'seat of your pants', or relying on the raising of outriggers to indicate an overload is a dangerous practice, and one to be avoided at any cost.

Also, the operator is often required to perform daily monitoring and annual inspections on the crane without prior training. It is one thing to operate a crane and yet another to be knowledgeable of applicable codes, standards, and regulations. This is not to mention the abilities required to accurately detect deficiencies and prescribe certain measures toward correction. Additionally the operator could find himself relying on a fellow employee or an inspection company to inspect the crane, both of which could be unqualified to ensure the crane's safe mechanical and structural condition. Either way, whether it be the operator, fellow employee, or inspection company a crane inspection performed by incompetent personnel puts the operator and those working around the crane in jeopardy.

What the operator needs to perform his job safely is a support team where each person involved in the overall crane operation is knowledgeable and responsible. The failure of one or more of these people to perform their required responsibilities cannot result in the operator being blamed. As we will learn in the next article, total responsibility for a lift cannot be placed exclusively on the operator, but must be shared by everyone involved.

In conclusion, let me stress that it is not my intention to single out or degrade any particular industry or company, but only to present what I have observed and experienced over the last 20 years, with the hope that this information will go far in reducing accidents □

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