

than you might have if you undertook the operation yourself on a makeshift basis. If you choose, however, to process your own negatives, kits of chemicals with adequate instructions are available from many sources and, if used according to the directions provided, will give you a good end result.

After we have the negative, we must reproduce its image as a positive. In most cases, this is accomplished by printing the negative with incandescent illumination onto a light sensitive paper which is subsequently developed. Photographic papers are available from many manufacturers for a wide variety of applications.

At this point, we should mention a relatively recent camera development called the Polaroid Land camera which, within two minutes following an exposure, will give you a finished print. While this camera is relatively new, the theory is not. However, Dr. Land, the inventor, was able, by an ingenious method, to put both a negative material and a light sensitive paper together in the camera so that with the aid of post-developing and fixing agents a finished photograph could be produced directly.

A Polaroid Land camera is almost a must on the desk of every safety engineer. For with this camera, he can substantiate accident facts instantaneously, can record a scene of accident or accident potential before anything can be changed. He can have the immediate photograph to present to supervision, management, and other interested persons within seconds, and last but not least can tell whether or not a photograph is acceptable, for he has a finished print in his hand before he leaves the scene he is photographing.

So far, we have mentioned color photography only briefly. Since color is likely to assume increasing importance as time goes on, some additional details may be in order. There are two general types of color materials: color positive, and color negative films. Color positive films such as Kodachrome, Anscochrome, and Ektachrome, result, after processing, in a positive transparency (or slide) on the film exposed in the camera. Color negative films—Kodacolor is the only one presently widely available in this country—result in color negatives on the camera film after processing. Color negatives can be used to make color prints or enlargements,

color slides, or black and white prints or enlargements.

Color negative films are undoubtedly the form of the photography of the future. They offer full freedom of choice of the end product after the pictures are made, rather than requiring this decision before the film is placed in the camera.

Modern uses of photography include more than the casual snapshot, more than the photographic illustrations for newspapers, and even more than the pretty advertising scene. They include also pictures taken for medical research, for the industrial safety engineers' record books, for the construction engineer, and many, many other industrial fields. As an example, in a chemical laboratory, it is necessary to have a complete drawing of a very complicated glass apparatus setup which, should breakage occur and the inventor of the apparatus not be available, an unacquainted technician can make necessary replacements. To make such a drawing would take endless hours of intricate measurement and then more hours on the drawing board. However, the entire apparatus can be recorded by means of a series of photographs made in but a few minutes time.

The films used in industrial photography are the same films used everywhere. The cameras used are the same cameras used in general with a few modifications for special purposes such as motor drives on motion picture cameras, explosion-proof lights for hazardous situations, or special housings for underwater photography. The illumination used is also similar to that with which we are familiar as amateur photographers—either direct sunlight, flash bulbs, or tungsten light; and with modern available-light films, any kind of light.

All of us are aware of the important part motion pictures play in the industrial field today. No doubt, those in the sales end of industry have utilized motion pictures more than those of us in the service organizations. However, there is definitely a place for motion pictures in service organizations, such as the safety department, for here is an unlimited media which can be used to take some of the time consuming procedure from our indoctrination lectures; can simplify our training programs; can simplify our job study techniques; can record in detail and give

as a permanent record of severe emergency situations such as fires or explosions, floods, and other disaster which can be studied at leisure to determine places for improvement; points of heroic action, and even extensive damage.

To summarize, we can say that we are not attempting to make industrial photographers out of every safety engineer, but we are attempting to outline the potentials of the amateur photographer for use in a way that will provide the safety engineer with a reliable source of record for his everyday activities. It will further enable him to utilize his time to the fullest advantage of thorough investigation and reporting of accidents large or small. It may even result in taking a closer look at his overall safety program if he looks at it with a critical eye through a camera viewfinder.

To accomplish these things we use the same camera, the same light, the same chemical formula, the same film to get the same result, the same recorded image that we could get if we hired the best artist or even the best photographer in the world.

Do not be afraid of imperfection in your photography for the best artist or the best photographer or the best in any field of endeavor makes mistakes. You or I do not hear about these mistakes. Follow the same technique with the camera and film and you

will have an acceptable end result which will improve as you continue to utilize your camera.

We must not lose sight of the importance of the end result. It must be an accurate portrayal—a reliable record of the subject at the time the picture was made. It must show what we want to demonstrate.

One of the most important steps in the whole photographic process is knowing what you want. Knowing what you want to photograph is the result of your engineering training and experience. Knowing how best to record the subject and center the interest of the viewer on that point is the result of a little study of photography and some practice.

What is photography?

It is the art or process of producing images on sensitized surfaces by the action of light—extremely faithful, minutely detailed, or mechanically accurate reproduction or representation. Remembering this, you can easily see that the following is a most important statement:

You do not have to be a well-trained, well-versed, technical photographer in order to use photography as a means of communication. You must learn, however, to fit your need to your knowledge, and fit your knowledge to your need!

## DETECT AND CORRECT — UNSAFE PRACTICES

By KENNETH L. LEWIS

Supervisor of Safety, Delco-Remy Division, General Motors Corp., Anderson, Ind.

My assignment today is to tell you how we adapted a "before-the-accident" approach to accident prevention to our use, and to urge you, if you don't already have a similar program, to study what it has done for us with a view to tailoring the idea to suit your plant needs.

Safety experts generally agree that management of modern industry has recognized its responsibility for the safety of the worker, and has already provided adequate safeguards in the physical facilities of the workers' environment. A satisfactory com-

pany is a good place to work from the standpoint of safety because management has seen fit to provide proper equipment, tools, plant layout, methods, processes, and procedures; and all of these have been engineered to make them as safe as it is possible to make them.

We also know that this is only half the picture: good safety performance cannot rely entirely upon merely providing a working environment with employees' safety in mind. The principal remaining problem in safety is the need for doing the best possible job