

the greasy image since oil resists water. The image is picked up on the paper when the plate is moved through a press. Lithography can be a complex and demanding process, but in contrast to woodcut and engraving, it does not require special professional training; anyone who can draw can make a lithograph.

Screen prints are familiar to most of us since this is the process used to print most T-shirts. In the silk-screening process, a photograph or other image is transferred or adhered to a silk or synthetic fabric that has been stretched onto a frame. The image serves as a sort of stencil, blocking out areas of the permeable fabric. When ink is forced through the fabric using a squeegee, at those areas not blocked by the stenciling, the image is transferred to the paper or fabric beneath.

Because multiple originals can be made through printmaking processes, the cost of an individual print is considerably less than that of a painting. Printmaking techniques have been used in the print industry for illustrating newspapers and books since the development of the printing press in the fifteenth century.

Painting

Painting encompasses a wide variety of media and techniques. Paint is usually composed of three different materials: **pigments**, **binders**, and **solvents**. Pigments are finely ground materials that may be natural or synthetic. Natural pigments include clays, gemstones, and minerals, as well as plant and insect materials that make color when powdered. These powdered pigments are mixed with a binder that holds the grains of pigment together and allows the paint to adhere to a surface. Egg yolks, linseed oil, and wax can all be used as binders.

A solvent such as water or oil can be added to change the consistency of the paint or alter its drying time. As with drawing, painters can apply the media to a variety of surfaces such as boards, paper, canvas, and plaster walls. Paint can be applied to a surface with many different tools. We usually think of paintbrushes as the tools used to apply paint, but fingers, sticks, palette knives, and anything else that an artist imagines will make the desired kind of applicator may be used.

One specialized technique of painting that has a long history is the **fresco**. The fresco technique is usually used to paint on walls or ceilings. In creating a fresco,

the artist mixes pure powdered pigments with water and applies them to a wet plaster ground. The paint is permanently bound in the plaster, so the artist must plan carefully because he or she will not be able to make changes after the fact. This kind of fresco is termed **buon fresco** (“true” fresco). If an artist uses the technique called **fresco secco**, he or she will apply paints to dry rather than wet plaster. Frescoes have been found in the ruins of Pompeii and in many medieval and Renaissance churches. Diego Rivera, the famous Mexican muralist of the early twentieth century, used this technique for his murals in Mexico and the United States.

When we think of painting, oil painting usually comes to mind first. Oil paints were not widely used until the 1500s, and prior to that time, tempera was the most commonly used paint. Tempera is a water-based paint. Many of us remember using tempera paint in elementary school. Traditional tempera paint, which uses egg as a binder, has been used by fine artists throughout history. **Tempera** painting requires great skill, and there are limitations to this medium. Tempera colors dry quickly, and so they cannot be blended once they are applied to a surface. Tempera also has a narrow tonal range—colors are either light or dark—and it cannot achieve the close imitation of natural effects that oil paints can. Nonetheless, the positive qualities of tempera are evidenced by the many ancient tempera paintings that still retain their clear and brilliant colors.

Oil paints are much more versatile than tempera paints. Oil paints can be easily mixed, and they may be thinned to build up layers of delicate **glazes**—thin transparent or semi-transparent layers that are applied over another color to alter it slightly. The translucency of glazes permits, for instance, a crimson layer underneath to shine through a yellow layer on top and can thus create brilliant, luminous effects that are impossible to achieve with tempera. Oils can be applied thickly or in heavy lumps to make an **impasto** surface. Since oils dry slowly, it is possible for an artist to work on an oil painting over a long period of time—days or even weeks.

In ancient Egypt, grave markers were painted with wax-based paints called **encaustic**. With encaustic, colored molten wax is fused with the surface via the application of hot irons. The fact that Egyptian markers have survived through the ages indicates the durability