PHOTOGRAPHY

New Color Process Takes Three Pictures on Two Films

One Film Records Blue, Other Takes Green and Red; Special Method Provides Way of Separating These

THREE separate photographs are taken on two films with a new color photographic process, just granted United States Patent 2,224,163. The patent is issued to Virgil B. Sease of New Brunswick and Deane R. White, of South River, N. J. Rights have been assigned to the Du Pont Film Manufacturing Company.

For any successful method of color photography it is necessary to record separately the greens, blues and reds of the original scene. By properly combining colored prints from these, the color picture is produced. One means of obtaining the set in an ordinary camera, with one exposure, is with a tripack.

This is a sandwich of three films, held closely together. The sensitive emulsions on the first and second films are in contact, and the third is immediately in back, its emulsion facing the front. Objection to this, the patent specifications state, is that "the rear film lacks detail and sharpness due to the fact that it is separated physically from the front image by at least the thickness of one emulsion support."

With the Sease-White method, there are only two films. The front one records the blues. On the rear one are coated two emulsions. The top or front one is sensitive to green, and the bottom to red. Between them is a layer of gelatine, to make possible the removal of the top one without damaging the lower.

After exposure, the two films are developed, and the first, or blue sensitive one, is placed aside. The other shows the location of the reds and greens combined, though there is no color at this stage. From this, on another film a print is made, which is a transparent picture, resembling a lantern slide.

Then the top or green layer is bleached out, and what is left shows only the reds. Next, this is placed in contact with the film print, so that the two pictures are accurately registered. Using this combination as a negative, another print on film is made. The result shows the distribution of the greens. That is, it corresponds precisely to the original top layer, which was washed away and destroyed. This, with the other two original films, provides the set of three negatives, and the finished picture may then be printed by any one of a number of processes.

Science News Letter, December 28, 1940

CHEMISTRY

Water Forms Compound With Stuff It Dissolves

IDEAS of chemists that when a chemical is dissolved in water, both it and the water are unchanged were challenged by Dr. David Harker, associate in chemistry of Johns Hopkins University, as a result of experiments by him and other chemists.

Reporting to the Chemical Society of Washington, Dr. Harker showed how most inorganic compounds, that is, those which do not contain carbon, actually react chemically with water when dissolved.

Aluminum chloride, for example, breaks up into atomic fragments or ions of aluminum and chlorine when in a water solution. The aluminum ions, he has found, unite with six molecules of water, which is hydrogen and oxygen, to form a large molecule of aluminum, hydrogen and oxygen. This is a strong acid.

In the case of ordinary salt, sodium chloride, there is also a reaction, when dissolved, though it is less well defined, Dr. Harker stated.

When grease is dissolved in petroleum, he said, there is no change of either. The grease molecules mingle with the petroleum molecules, but are not different from what they are when separate. Chemists had supposed that solutions in water were of the same sort. Therefore in studying chemical reactions between such solutions the water was almost as neglected as were the test-tubes and beakers in which the reactions took place.

This idea is wrong, and it is necessary to include the water in the reaction, Dr. Harker told the chemists.

Science News Letter, December 28, 1940

The *automobile* industry is very young —more than one-third of all the 80,000,000 automobiles and trucks ever produced in the United States are still in use.

RADIO

Highlights of the AAAS meeting and a forecast of scientific events of 1941 will be presented by Watson Davis, director of Science Service, over the coast to coast network of the Columbia Broadcasting System, Thursday, Jan. 2, 3:45 p.m. EST, 2:45 CST, 1:45 MST, 12:45 PST. Listen in on your local station. Listen in each Thursday.