

sugar to promote this desirable fermentation.

This difficulty is overcome in the new grass-and-legume type of silage by adding cheap molasses while the silo is being filled. The molasses is not only ideal stuff for the fermentation bacteria to work on but it adds energy-food value and desirable mineral salts for the livestock. Incidentally, it also adds to the cash revenue of the cane-raising regions,

making them better markets for North-eastern products.

Grass silage and corn silage can be stored in the same silo, experience has shown. It will therefore be possible to withdraw erosion-threatened steep-sloping lands from corn, plant them in protective grass or legumes, and still make a combined profitable use of the whole product of the same fields.

Science News Letter, May 14, 1938

PHOTOGRAPHY—ENGINEERING

Multiplane Camera Developed To Give Depth Illusion

A SPECIAL multiplane camera, making photographs of drawings at different distances from the camera, has been devised for use in the production of cartoon motion pictures that give the illusion of depth, it was reported to the Society of Motion Picture Engineers.

W. E. Garity of Walt Disney Productions described the camera, only one of many pieces of equipment that have been devised in recent years to enable the manufacture of realistic cartoon movies. Use of the new camera gives the motion pictures the vitality that comes with having depth in the drawings.

Cartoon pictures made under the old technique, in which the animated character moved across a background in the same plane, did not adequately give the illusion of real-life movement, Mr. Garity explained. Consequently, the camera which simultaneously photographs the drawing of the character and of a background drawing at a distance from the figure was developed. Its operation, he declared, is quite complex, requiring a detailed control sheet and a special periscope finder with which the operator can check before taking the picture.

"The results in giving increased pow-

er to animated motion pictures have been very satisfactory," he concluded.

Two new electrical devices that help to take the guesswork out of determining whether a given sound is the correct one were reported to the meeting.

One shows when a speaker's voice is too low or too strong or if it is just right. The other, which may be used in testing a singer's voice or in tuning a musical instrument, indicates whether the note being tested is just right or sharp or flat.

Described by S. K. Wolf, S. J. Begun and L. B. Holmes of Acoustic Consultants, Inc., both devices use cathode ray tubes as the indicators.

The sound level indicator consists of three portions, one fluorescing blue, the center portion green and the upper portion red. If the speaker's voice is too low the electric signal it controls will be too low and the blue portion of the tube will light up. If the voice is just right, the green portion glows, and if too strong, the red portion is illuminated.

The tuner links a cathode ray tube and twelve electrically-controlled tuning forks, one for each note in the scale. The device compares the note being tested with the standard notes, a wave pattern on the screen of the cathode ray tube moving to one side if the note is high or sharp, to the other side if it is flat.

Sound Recorded by Color

A unique sound recording system taking advantage of the fact that the sensitivity of certain types of film to light of different color or wavelength varies with the change in wavelength was described by A. L. Williams of the Brush Development Company of Cleveland.

Sound is normally recorded by converting it into electrical energy which in turn controls an electric light focused on the film sound track. Mr. Williams' method changes the color of the light in accordance with the sound; the different colors are recorded with widely different sensitivity by the film in accordance with the change in color, thus producing an accurate record of the sound.

Science News Letter, May 14, 1938

CHEMISTRY

First Case of Color Change Heavy Hydrogen Reaction

THE FIRST recorded case where the substitution of heavy hydrogen, or deuterium, for ordinary hydrogen in a chemical reaction produced a color change, is reported (*Journal of Chemical Physics*, May) by Prof. Victor K. LaMer and Samuel H. Maron of Columbia University whose color-change experiments are still in progress.

It is well known that the substitution of a deuterium atom (D) for hydrogen atoms (H) in chemical compounds produces a material with different physical characteristics but, until the LaMer-Marmon experiments, this change was never observable to the senses.

In the Columbia tests the change from hydrogen to deuterium atoms produced a light yellow color in a previously clear solution. The chemicals involved in the tests were a solution of proto-nitroethane in heavy water and a compound made of barium, oxygen and deuterium.

Science News Letter, May 14, 1938

ZERO TO EIGHTY

by Dr. E. F. Northrup

The Inventions and Reflections of an Eminent Scientist. Explaining—Life from 1920 to 2000 A.D.—Future Space Ships—Possibility of Interplanetary Travel—Electric Gun of Tomorrow.

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May 19, 3:00 p. m., E.S.T.

LOST ARTS OF THE STONE AGE—Dr. H. C. Shetrone, Director of the Ohio State Museum.

In the Science Service series of radio discussions led by Watson Davis, Director, over the Columbia Broadcasting System.