the production of hybrids between strains of insects physically unable to mate in the natural way. Such insects are frequently of interest from a genetical point of view, but since reproduction has never been possible the way has hitherto been barred to laboratory experiments.

Dr. Gottschewski describes his method and discusses its significance in the German science journal, *Die Naturwissenschaften*.

Science News Letter, October 23, 1937

ENGINEERING

Movies Have 3 Dimensions In Sound As Well As Sight

Stereophonic Film Viewed With Poloroid Glasses, Each Lens Polarized Differently, Gives New Depth

THREE-dimensions in both sight and sound are added to the movies by demonstrations before the Society of Motion Picture Engineers meeting in New York City.

The motion picture of the future thus promises to have the "depth" or perspective of real life with the sound localized as it is from a stage or actual scene.

The sound perspective or "stereophonic" movies were shown by J. P. Maxfield of Electrical Research Products, New York, while the three-dimensional movies produced by use of polarized light were demonstrated by G. W. Wheelwright of the Land-Wheelwright Laboratories, Boston.

By adding sight and sound perspective to the conventional color and faithful sound of today's theatrical movies, themselves hardly a decade old, the motion pictures of a few years in the future promise to reproduce all attributes of the senses of sight and sound. With such progress already made, it may not be too much to expect smell, taste and feeling to be portrayed by equipping future theaters with subtle perfumes, synthetic food pellets to be consumed at the proper time and auditoriums wired in some manner that would appeal to the spectators' sense of touch!

The sound perspective movies are a development of the three-dimensional sound system demonstrated a few years ago by Bell Telephone Laboratories before the National Academy of Sciences. It consists of two independent sound systems that feed two loud speakers so arranged that the sound from the screen is given direction and depth. On this new stereophonic film, two sound tracks are squeezed into the space on the film where one is usually placed. Theaters to use the new system would need to have two sound systems instead of one.

Actors gave a fast-moving skit and an orchestra played in Mr. Maxfield's demonstration to show the assembled engineers what sound perspective can do for future movie productions. A year or so in the future the public may be presented the first stereophonic dramatic production.

The movies that are three-dimensional in sight utilize polarized light to produce the effect. The audience wears glasses with lenses of Polaroid, a synthetic substance that cuts out all light except that which vibrates in one direction. One lens is blind to all the light that the other lens can see. In taking the Polaroid movies, two cameras are used with similar lenses, and the projector has a similar optical system. Two movies are flashed on the screen simultaneously, but each eye can see only one. The two movies are taken from distances apart similar to the spacing of the human eyes. The principle is that of the old, successful and simple stereoscope that a generation ago graced the parlor table. The actors and scenes appear as though in three dimensions.

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STONE AGE STRIFE IN SPAIN

There has been hard fighting in the hills of Spain before, if the above drawing, copied from the walls of a cavern in the western part of the peninsula, is a dependable record. Here, the little fellows seem to be getting all the better of the argument, and their bulkier opponents are interested only in making their escape.

ENGINEERING

Two-Way Electric Plow In Use in Soviet Russia

See Front Cover

THE large hydroelectric plan on the Dneiper River in Russia's Dnepropetrovsk province, makes it possible for them to use electric farm equipment like the two-way plow shown on the front cover of this week's SCIENCE NEWS LETTER.

No tractor is attached to the plow, which can reverse and travel in either direction. It is particularly useful on large areas of flat ground without rock like that on which the implement is pictured.

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