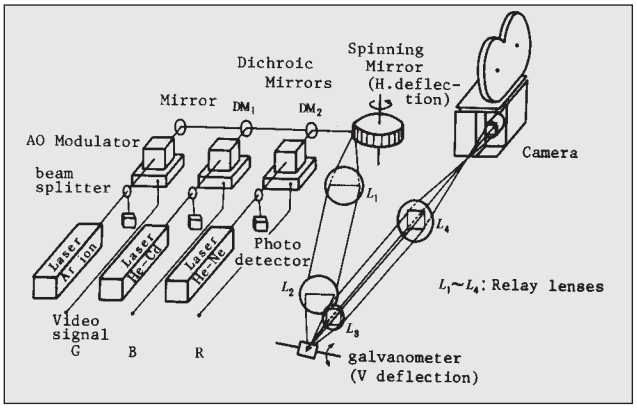
SMPTE ALMANAC

By Michael Dolan

In this column we provide interesting historical briefs from Journal articles of days past. The purpose of this column is primarily entertainment, but we hope it will also stimulate your thinking and reflection on the Society's history, how far we have come in the industry, and (sometimes) how some things never change. This is not meant to be an authoritative reference, and no attempt is made to correct any past errors or omissions of the Journal. We simply hope you enjoy the material.

25 Years Ago in the Journal

The February 1977 *Journal* reported in an article on *Direct Laser-Beam Recording of Color Television Signals on Color Print Film* by T. Motoki and Y. Sugiura: "Fundamental limitations of the cathode-ray tube have so far limited the quality of the images that can be obtained in kinescope recordings for videotape-to-16mm-film transfer. An alternative to kinescope recording – laser-beam recording on color reversal film – has not been widely accepted because of the high equipment cost and high on-going costs for film. Now, a new laser-beam recorder has been developed to overcome these disadvantages. Image quality with the new recorder is much superior to kinescope film, and film costs are one-quarter to one-fifth of the cost of color reversal film. The new process uses comparatively inexpensive color print film which, though it has a very low ASA rating, has very fine grain. Components of the system include: three small lasers (helium-neon, helium-cadmium, and argon ion); beamsplitters; acoustooptical modulators; dichroic mirrors; a spinning polygonal mirror for horizontal deflection; a galvanometer for vertical deflection; relay lenses; and a 16mm camera."



Block diagram of the laser-beam recorder.

50 Years Ago in the Journal

The February 1952 *Journal* reported on the *High-Constant-Speed Rotating Mirror* by J. Beams, E. Smith and J. Watkins: "…where it is necessary to study accurately phenomena which occur in very short intervals of time, it is desirable to have a high-constant-speed rotating mirror. It is particularly important that not only the number of revolutions per second of the mirror must be known with high precision, but the mirror must be free of so-called hunting or rapid variations in speed… The rotating mirror is magnetically suspended in a high vacuum and spun by a rotating magnetic field. The mirror is accelerated to full speed in a way similar to that of the armature in an induction motor, but at running speed it performs as an armature of a synchronous motor. The frequency of the rotating field is determined by a piezoelectrically controlled circuit. Also, it is free of hunting. The maximum rotational speed of the mirror is determined only by the strength of the mirror. Mirrors are described which rotate at 20,000 rps."

75 Years Ago in the Journal

The Summer 1927 *Journal* reported on the *Illusions in Cinematography* by F. Waller: "The most important part in the production of an illusion is the planning of the scenes and the determining of the particular methods to be used…The problem here was to produce an effective, realistic scene of a storm at sea to cut in with the action made of the real people in the studio, and to do this in a small a scale as possible...it was decided that 5/8 inch to the foot would give us a good long shot effect of breaking waves…Previous experience had shown that towing boats by an invisible wire, or running them on a track, gave an unnatural movement and therefore the 5/8 inch model, which was actually 8 feet long, was equipped with two small high-speed motors…This little model, under its own power, actually pushed its way up against the three-foot waves and the wind from four airplane propellers, without assistance…the next problem was to produce the correct type of breaking wave. This was solved by designing four special wave machines…They were formed so as to present a 4 foot surface at a 45 degree angle to the surface… These heavy wedges were actuated by long levers and…it was cheaper to use man-power than to install mechanical means…it took 24 men to produce the waves."