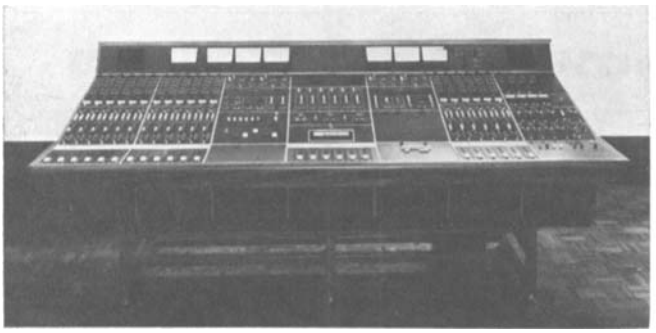

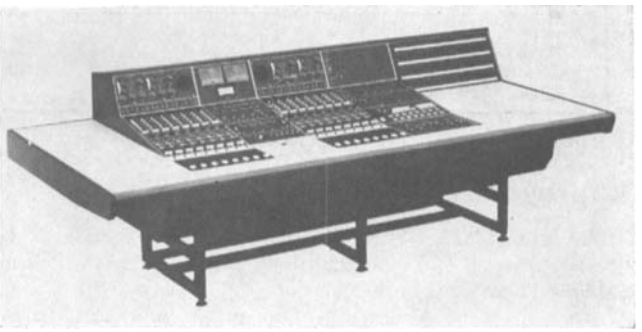

**Figs. 5 and 6. Film-dubbing consoles (Rupert Neve).**

includes a greatly improved MK II 10 × 8 still reflex projector, 70/35mm reflex moving projector together with its associated 65mm camera for photographing plates for reflex projection (front projection). Also, in development, is a new 20-hole pulldown 70mm movement that can be used for projection, camera or printing.

A number of reflex screens are now available including one of 4000 ft.² This equipment was used most successfully in filming *The Tales of Beatrix Potter* with great economic saving and enhanced pictorial results. Work is currently progressing in blimping the 70mm reflex projection equipment, enabling dialog scenes to be recorded simultaneously with reflex photography. EMI Research and Development are working in close association with Tom Howard in the development of even more sophisticated equipment in this area. The construction of a photographic effects studio is well advanced for the installation of rostrum animation camera equipment and matte painting facilities. Elstree Studios now have a total of three Mitchell background projectors and this process is being advantageously used on the *Jason King* television series using 35mm plates and photographing in 16mm. Interlock problems due to the nonavailability of suitable motors have been overcome by applying phase shift methods using both crystal-controlled and synchronous motors.

*Post Production Sound Facilities*

Updating of Elstree Sound Facilities has taken place over the current year and is still continuing. This has involved replacement of all projection equipment in all recording theaters with specially modified Philips FP20 35mm projectors with xenon light sources. All theaters have been equipped with Magna-Tech PJ16 16mm reversing projectors with xenon light sources. All theaters are served with a Magna-Tech Reversing Selsyn System and associated footage counters and all rerecording is now carried out using selective erase methods for which purpose RCA FR10 multitrack back-up recorders have been installed. In order to fully service television series shooting in 16mm, the looping theater has been equipped, in addition to the 16mm projectors, with Magna-Tech MD236 Combination 16/35mm dual dubber and Magna-Tech MR-1035-3 16/35mm three track pickup recorder. All looping is carried out using 16mm magnetic film and the same equipment is used for normal 35mm looping.

In the rerecording area six Magna-Tech MD236 Combination 16/35mm dual dubbers have been installed to provide facility for a 16mm re-recording operation, and at the same time to considerably increase the number of 35mm dubbers available. There is now a total of 34 dubbers available between two dubbing rooms consisting of seven three-quarter track 35mm dubbers, 27 single track 35mm dubbers as well as 10 Mackenzie $\frac{1}{4}$-in tape cassette loop machines. Optical recorders have now been replaced with RCA PM80 35mm recorders.

# Erratum

In the Progress Report in the May *Journal* under the *Special Effects* section beginning on p. 348 an entire bloc of subject matter is missing, having been erronously published on p. 360 along with Fig. 37. The text is as follows:

In 1970, Research Products, Inc., introduced its Model 2101 Aerial-Image Optical Printer (Fig. 37), utilizing an electronic drive system. Three Honeywell 72-pole stepping motors, one mounted on each head with direct drive to the cam and film movement, replace a central motor, gear shifts, clutches, and over 700 parts in a normal mechanical drive. The power supply converts 110-V ac to 32-V dc. Four printed circuit cards, conveniently mounted within the modular drive package, control all printer functions. The circuit boards are all solid state and are engineered for extreme long life, as the printer does not require their operation at maximum voltage load. A newly-designed operator panel board allows all printer functions to be controlled by switches, and the printer stops automatically if incompatible switches are set accidentally. By eliminating all mechanical drive parts, the printer can run at higher speeds without flash-frames, noise or vibration. Without moving parts, the friction-free drive system reduces wear on film movements by accelerating and decelerating stops and starts. Printed circuit cards can be replaced in the printer's card cage, if necessary, in a matter of seconds and without special tools, and the electronic package, including the control panel, can be removed from the printer as a single unit. The electronic drive has been tested and in commercial operation for over a year without a single failure, indicating long life with freedom from mechanical repairs and service costs. Included with the Model 2101 is an automatic zoom, an automatic tape-programmer for hold-frame or skip-frame printing, and an improved lamphouse for greater light and more even field.

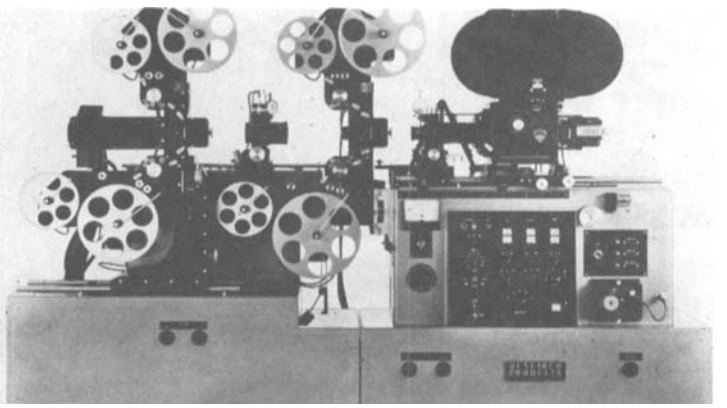

**Fig. 37. Research Products Model 2101 printer.**