is secured to the skin with adhesive tape. A 20-gauge needle, the bevelled point of which has been ground off, provides a suitable adapter for connecting the end of the tube to the intravenous apparatus. When not in use the cannula is plugged with a large sterile pin. The plastic tolerates boiling or sterilization with 70 per cent. alcohol.

Such cannulae have been used for continuous intravenous penicillin therapy, for the infusion of glucose and saline solutions and for a total intravenous feeding with a mixture of 10 per cent. glucose, amino acids and vitamins. Although the longest time the same cannula has been left in place is 12 days, it should be possible, with proper care, to keep them in for much longer periods. There is no tendency for the tubes to become plugged even when they are not used for several days. Thrombosis of the vein itself, on the other hand, occurs when concentrated or otherwise irritating solutions are infused for extended periods. Although the method appears to be of definite value in selected cases, further investigation regarding both technique and materials must be completed before its general clinical use can be safely recommended.

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A DEVICE FOR MEASURING AVENA COLEOPTILE CURVATURE

A TRANSPARENT celluloid protractor with a movable arm attached at the center of the base is commonly used in hormone research for measuring Avena coleoptile curvatures. This instrument is somewhat difficult to use accurately because it is necessary to orient the coleoptile shadow picture while looking through two thicknesses of celluloid. The contacting surfaces of the protractor and movable arm become dulled with use and may become somewhat translucent instead of clearly transparent. At the base of the protractor and movable arm there are a considerable number of lines, which also adds confusion when using the device.

A simple measuring scale was developed to overcome the above difficulties. This device consists of a series of carefully constructed angles which are photographed and then printed on contrast process Ortho film to give narrow black lines on transparent celluloid. Fig. 1 illustrates this measuring scale, which is 3×5 inches. This device is used by moving it laterally over the shadowgraph of the curved coleoptile being measured, until the bottom and top of the coleoptile are oriented parallel with the bottom and top lines of one of the angles. The degree numbers at the top of the angle lines are written in both directions so that by turning the scale over either positive or negative curvatures may be measured.

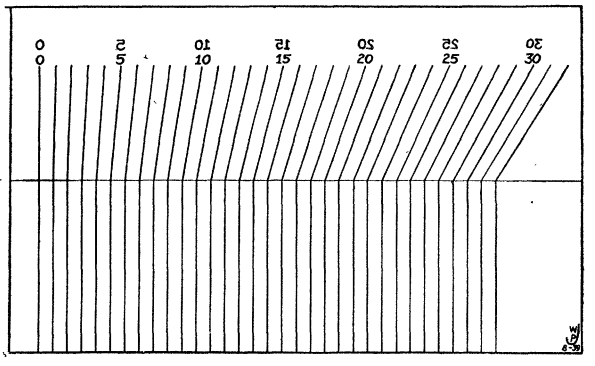

FIG. 1. Avena coleoptile curvature measuring device.

The measurement of coleoptile curvatures with this device is rapid and accurate. The scale illustrated in Fig. 1 contains angles from 1 to 32 degrees and covers the majority of reliable curvatures encountered in Avena tests. A second scale (not illustrated) contains angles from 25 to 57 degrees.

The measuring device has been used in the research laboratories of Dr. G. S. Avery, Jr., at Connecticut College for several years, and by a number of other laboratories where hormone tests are conducted.

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