now, the apparatus is calibrated to read in decibels of decay and the output volume control is set accordingly, it is immediately apparent that the values for coefficient of absorption may be calculated from the slope of the curves obtained by plotting values of $\log_{10}E$ against corresponding values of t.

Fig. 2 is a set of curves plotted from data taken as indicated. These curves show the logarithmic

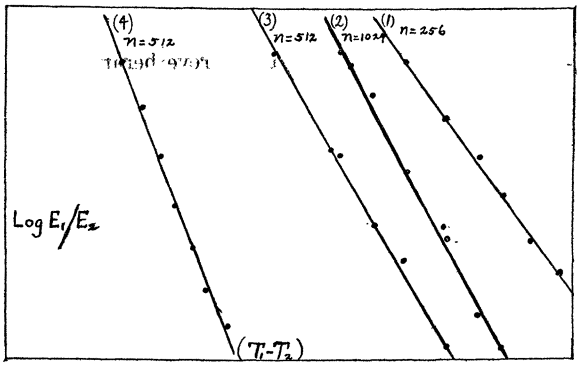

FIG. 2. Decay curves. (1), (2) and (3). Empty room values. (4). Room treated with 30 square feet of material.

nature of the decay quite as well as similar curves obtained by more complicated recording devices. The values for absorption coefficients obtained in this manner have been checked against values for the same kinds of materials found by observers in other laboratories and against values found by the ear method in another room at Indiana University and the agreement is very good.

It will be noted that a coincidence determination is substituted for a duration of time measurement in the older method. It is of course obvious that coincidence determinations are capable of a very high degree of accuracy, a conclusion which is borne out by the fact that the points thus determined fall so nearly exactly on a logarithmic decay curve.

It was intended at first to make an automatic device to cut off the air, and at some subsequent time to close the key, but measurements made in the manner described seem to indicate that little or no improvement would thus be afforded, probably not enough to warrant the added complication.

The apparatus was devised as a means of carrying out a research problem in architectural acoustics which is now in progress under the direction of Professor Arthur L. Foley. The writer wishes to acknowledge his counsel in the matter, and also the many suggestions offered by Professor R. R. Ramsey, of the physics department.

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A NEW DEHYDRATING AGENT FOR HISTOLOGICAL TECHNIQUE

RECOGNIZING the usefulness of a substitute for ethyl alcohol to be used as a dehydrating agent in histological technique, the writer experimented with isopropyl alcohol over a period of 18 months. Isopropyl alcohol, 98 to 99 per cent., may be obtained for about $2.85 per gallon. This percentage may be used directly as absolute alcohol if necessary. It may be made completely absolute by distillation from rock lime.

In the experiments pieces of animal tissues were treated in the usual way (merely substituting isopropyl for ethyl alcohol). Permanent slides made by the paraffin method were set aside for several months and were found to be perfectly good when examined. Later a piece of earthworm which had remained in a paraffin block for a year was sectioned and excellent slides were obtained. In the meantime a class of 38 men with no previous experience in histological technique was given isopropyl alcohol to use. These men made slides of Opalina, changing the grades of alcohol and xylol by pipetting the various solutions from small vials containing the Opalina. They also made whole mounts of trematodes, etc., using either cedar oil or xylol after the alcohol. Finally each man made serial sections of tapeworm proglottids. In every case the technique following the use of isopropyl alcohol was more successful than the technique of previous classes which had used ethyl alcohol.

From the various experiments made, the writer proved that not only is isopropyl alcohol as good a dehydrating agent for animal tissues as ethyl alcohol, but in addition that its use affords important advantages. It does not harden animal tissues as much as ethyl alcohol. Consequently whole mounts of large objects are less likely to break up and tissues imbedded in paraffin seem to section with greater ease. Isopropyl alcohol may be obtained readily by any one since it is not intoxicating. This fact should be of special interest to high-school teachers of biology. The only disadvantage is that it costs more than ethyl alcohol. This is compensated in part by the fact that isopropyl alcohol is less likely to disappear from the laboratory.

I suggest that some one interested in plant histology experiment with isopropyl alcohol to see if it is not superior to ethyl alcohol in respect to the extreme hardening effect of the latter upon certain plant tissues.

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