is given in Fig. 1, and it can be seen that when the external field is altered, it takes in many cases an appreciable time before a final value of the induction is reached.

After this experiment, the cylinder was worked down carefully to the shape of a sphere. The change of induction observed now (Fig. 2) is nearly reversible, and no time effects were observed.

In both experiments, the first determination of the induction was carried out about 10–15 seconds after the field had been changed. In the second experiment, no variation of induction was observed after this time, whereas a variation was observed even after 3–4 minutes in the first case.

The results show clearly that in the same sample time effects may or may not occur, and that their occurrence depends on the geometrical form of the specimen. Considering the facts stated above, the experiments seem to confirm our assumption that the time effects indicate a slow expansion or contraction of macroscopic supra-conductive regions.

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Determination of Physico-Chemical Constants

THE high sensitivity of W. Swietosławski's ebulliometric test of the purity of liquid substances[1] permits the correlation of data for any physico-chemical property with Δt, the difference between the boiling point and condensation temperature of the substance under investigation, in order to calculate the constants for the pure substance or azeotropic mixture.

The difference mentioned, Δt, when measured in an ebulliometer of standardised dimensions, is a criterion of purity of liquid substances, and for a pure substance it equals zero. Having made measurements of Δt and of a given constant for a series of preparations of the same compound having different degrees of purity, as for example a few successive fractions of distillate from an efficient column, one may plot Δt, the difference between the boiling point and temperature of condensation of each of the preparations, against the data obtained for the given constant. Direct extrapolation of the curve to the point where Δt equals zero gives the constant corresponding to the pure substance or azeotropic mixture.

The determination of the boiling point of iso-amyl alcohol by W. Swietosławski's comparative method[2] may serve as one example of such a correlation. In Table 1 there are listed: number of the fraction, the difference Δt, the degree of purity on W. Swietosławski's scale[2], and the normal boiling point of each of the samples investigated.

Table 1.

No.	Δt	d.p.	b.p.
1	0·032	III	131·067
2	0·019	IV	131·450
3	0·005	V	131·779
4	0·002	V	131·802

The boiling point of pure iso-amyl alcohol obtained by extrapolation of these data is 131·806° C.

The precise determination of density by means of the twin pycnometer method[3] furnishes another example of measurements which may be correlated with Δt to obtain the densities of pure liquids. In Table 2 the densities of two fractions of *n*-propyl acetate are given, together with the corresponding values of Δt and degree of purity. The density of pure *n*-propyl acetate obtained by extrapolation to $\Delta t = 0$ is $0{\cdot}88299_3$ gm./cm.³ at 25° C.

Table 2.

Δt	d.p.	d(gm./cm.³ at 25° C.)
0·011	IV	0·882832
0·004	V	0·882939

It is worth noting that as the degree of purity of the substance investigated becomes higher, the change in the property measured becomes more nearly linear with Δt, thus permitting a reliable extrapolation to $\Delta t = 0$. Details will be published elsewhere.

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Metabolism of Cartilage

IT has been found by means of Warburg's manometric method that the metabolism of cartilage is entirely anærobic; it splits glucose to form lactic acid at a rate of about 0·2 c.mm. carbon dioxide

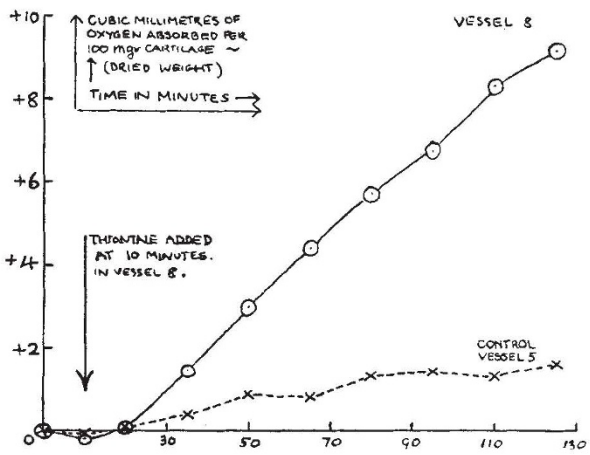

FIG. 1. Diagram showing oxygen uptake of cartilage with addition of dyestuff.

(produced from bicarbonate solution) per mgm. dry weight per hour, that is, about a tenth the rate of nearly related connective tissues forming the synovial villi, and a fiftieth the rate of the choroid plexus[1]. By means of cell counts and corrections for specific gravity and drying, it has been shown that this glycolysis is essentially of the same order per cell as in most other adult tissues. This glycolysis is the