completely for pelargonin, the difference being that of a single oxygen atom.

In certain cases in animals a dominant colour factor has been shown to cause the production of a definite oxidising enzyme, and in this case it is not inconceivable that the factor with which we are dealing is in some way concerned in the oxidative processes of the plant.

The close connexion between these two anthocyanins in the *Pelargonium* species is further demonstrated by cases of sporting from one pigment to the other.

It is interesting to note that these pigments are also found side by side in certain varieties of *Dahlia variabilis*, and that the purple-red aster contains both callistephin and asterin, the 3-monoglucosides of pelargonidin and cyanidin respectively.

No Mendelian factor has yet come to light which effects a change in the identity of the anthocyanin pigment by means of an alteration in the nature or position of the glucosidal residue, instead of in the superficial structure of the aglucone, and it is the purpose of this note to invite further evidence as to whether this latter alternative may be the general rule.

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Diamagnetism of Liquid Mixtures.

TREW and Spencer [1] have recently reported some very surprising results regarding the magnetic susceptibilities of organic liquid mixtures. They find large deviations from the additive law for many pairs of liquids, and in some cases, for example, mixtures of acetone and chloroform, they even claim to find the mixtures to be paramagnetic over a certain range of composition.

During the past year I have been engaged in the investigation of magnetic susceptibilities of liquid mixtures, and have developed for the purpose a modification of the Quincke method of capillary ascension which has proved very convenient and accurate in practice. Using dark-ground illumination, the alterations produced by a strong magnetic field in the level of the liquids contained in two tubes placed side by side between the poles of an electromagnet are photographed under high magnification on the same plate. One of the tubes contains benzene, which serves as a standard of comparison, and the other contains the liquid mixture under investigation. The plates when measured give results which are reproducible to within one part in a thousand.

The results obtained by me do not confirm the work of Trew and Spencer. For example, with mixtures of benzene and carbon tetrachloride, for which they report large deviations from the additive relation, I find that the graph connecting susceptibility with composition is a perfect straight line. In the case of mixtures of acetone and chloroform, I find that there is a definite departure from the additive law, which is most pronounced at the concentration at which the density of the mixture shows the largest abnormality. But the deviation is very small, being nowhere greater than three per cent of the observed value, and is incomparably smaller than that reported by Trew and Spencer.

From a theoretical point of view, there is reason to expect that molecular association in liquids may influence diamagnetic behaviour to a slight extent; but the results of Trew and Spencer seem wholly outside the range of theoretical possibility. It will be noticed that the susceptibilities as measured by them for the pure liquids show large deviations from the accepted values.

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[1] *Proc. Roy. Soc.*, **131**, 209; 1931.

A Simplified Lecture Demonstration of the Thomson Effect.

ELEMENTARY theory represents the Thomson effect as an absorption of heat by a current traversing a temperature gradient in one direction, and an evolution of heat in the other direction. In other words, when a current passes over a temperature peak, the originally symmetrical temperature distribution becomes asymmetrical, one side becoming steeper than the other.

The converse effect, the production of a potential difference by an asymmetrical temperature distribution, is easily demonstrable. Connect a piece of steel wire across the terminals of a sensitive galvanometer and heat to redness any part of the wire by means of a bunsen flame. So long as the flame is kept steady there is nothing unusual; but move the flame slowly in one direction along the wire, and the galvanometer gives a decided deflection, which is reversed on reversing the direction of motion of the flame. The order of the effect is several microvolts, and can also be shown on a potentiometer. Nickel wires also give good results, though copper, of course, conducts too highly.

Apparently the motion of the flame produces an asymmetry of the temperature in the wire, a steep gradient where the flame approaches, and a slow gradient behind the flame. According to modern statistical theory,[1] the Thomson potential is produced by a temperature gradient, not by a temperature difference; thus, although in this circuit the temperature differences may balance out, there is a greater gradient on one side than the other, and on the balance a potential difference remains.

The phenomenon is very much more convenient for demonstration in a lecture than is the more usual method, where the heat absorbed by passing a current along a steep temperature gradient is detected. In fact, the whole thing is so simple that I doubt very much whether it has not been noticed before, even though there seems nothing about it in the literature of the subject.

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[1] Sommerfeld and Frank, "Reviews of Modern Physics", Jan. 1931.

Plankton Changes on the Coast of Ecuador.

MR. G. SHEPHERD directs attention in NATURE of April 25 to the masses of yellowish brown plankton matter seen off the coast of Ecuador. Some years ago the Chilian coast experienced a similar visitation, with much resulting trouble to locomotive boilers and condensing plant. I had some of the water with the brown contents sent home and forwarded for examination to the Marine Biological Laboratory at Plymouth, where it was investigated and the results were kindly communicated to me.

A diatom *Grammatophora* (probably *Maina*) was superabundant and was the chief cause of the trouble. Other diatoms, *Lyomphora* (sp.) and *Thalassiosira* (sp.), were also common. *Infusorians*, *Ceratium*, *Peridinium*, and *Pyzophacus* were frequent.

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