Some of the deformed single crystals (10, 12 and 16 per cent extension) have again become single crystals after recrystallisation at temperatures coinciding with those of Karnopp and Sachs[1], but with an orientation absolutely different from that of the deformed crystal (see Fig. 1, *c* and *d*).

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[1]R. Karnopp and J. Sachs, *Z. Phys.*, **42**, 283; 1927.

α-β Transformation of Muscle Protein *in situ*

IN a recent letter[1] we described the prediction and discovery by X-rays of an α-β intramolecular transformation on stretching myosin, and pointed out the close analogy in molecular configuration and elastic properties between myosin and the labile ('supercontracting') form of hair keratin. We are now able to report that we have at last succeeded in bringing about the transformation by stretching muscle itself. Details will be given elsewhere: at the moment, the change has been demonstrated both in frog's sartorius muscle and in the retractor muscle of the foot of *Mytilus edulis*.

Shortly after writing our previous letter, we became acquainted with an almost simultaneous paper by H. H. Weber[2], describing independent optical and elastic experiments on myosin threads. It is interesting to note that Weber's results also indicate, as is shown directly and unambiguously by X-ray analysis, that the myosin molecule is normally in a folded configuration endowed with inherent long-range elasticity.

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April 11.

[1] NATURE, **135**, 95, Jan. 19, 1935.
[2] *Pflüg. Arch. Physiol.*, **235**, 205; 1934.

Points from Foregoing Letters

THE green flash at sunset is a common occurrence when overlooking the sea from a certain height, according to Prof. F. P. Worley, of Auckland, New Zealand. In one instance fringes of violet and of blue preceded a final blue-green. From this and from the fact that on one occasion the full moon shortly after sunset appeared green, Prof. Worley concludes that while atmospheric dispersion may be the primary cause of the coloured flash, the contrast between the coloured edges and the non-luminous remainder of the setting sun may modify considerably the subjective colour effects.

The structure of the softer parts of fossil animals is relatively seldom maintained. Prof. A. Petrunkevitch submits a photograph of the transversely striated muscle of a fungus-gnat (probably *Sciara*) which had been embalmed some thirty million years ago in a piece of amber, now in the British Museum.

From the change in the structure of the light scattered by carbon tetrachloride when the temperature of the liquid is raised, Sir C. V. Raman and Mr. B. V. Raghavendra Rao infer that, as the temperature increases, the thermal energy of liquids becomes less like that of ordered wave-trains of sound.

Prof. J. W. Munro appeals for stricter control of the practice of fumigation and for support of research to make fumigation safer and more efficient, so that it may also be applied in the case of insects infesting foodstuffs and other consumable stores.

Dr. K. A. C. Elliott finds that cancer tissue of the rat, while respiring at a rate equal to that of many other tissues, cannot oxidise succinic or malic acids. He therefore disagrees with Prof. Szent-Gyorgyi's generalisation that respiration consists mainly in the reversible oxidation of those acids and believes that Prof. Szent-Györgyi's findings apply mainly to minced tissues.

Living cells derive their energy largely from the oxidation or break-up of sugar-like substances. In the absence of oxygen, lactic acid is formed (fermentation). If oxygen is present the sugar is completely oxidised to carbon dioxide, and the lactic acid disappears (Pasteur effect). Dr. F. Dickens finds that in the presence of traces of the dye-stuff phenosafranine, the respiration of brain tissue produces both carbon dioxide and lactic acid, so that the Pasteur effect is apparently inhibited.

At temperatures near the absolute zero, the amount of heat necessary to produce an appreciable change in temperature is very much smaller than at ordinary temperature. Taking advantage of this fact, Dr. F. Simon has constructed a low-temperature calorimeter which registers 10^{-8} cal./sec. He discusses the means for increasing the sensitivity a thousand-fold so as to be able to measure by means of the heat emitted the absolute energy connected with many radioactive transformations.

Prof. H. S. Allen and Mr. A. K. Longair point out that the simple formulæ which, in a diatomic molecule, connect the vibration and the internuclear distance (magnitudes deduced from the band spectra of the light emitted by such molecules) do not hold accurately. They propose to introduce another factor, the 'reduced mass' (equal to the product of the masses of the atoms divided by their sum). This makes the formula fit better and renders the 'constant' for each period approximately proportional to the number of completed electronic shells in the molecule.

The spectra of the light scattered by certain compounds of carbon, chlorine and heavy hydrogen ($C_2D_2Cl_2 : C_2D_2Cl_4$) have been compared by Prof. B. Trumpy with those of the corresponding compounds containing ordinary hydrogen (di- and tetrachlorethane). From changes in the wave-length of some of the spectrum lines, he deduces how the hydrogen atom participates in certain intra-molecular oscillations.

Messrs. N. Seljakow and E. Sows submit photographs showing the changes taking place in the shape and intensity of the spots of X-ray defraction patterns, when single crystals of aluminium are deformed by extension and then allowed to recover. They consider the changes to be due to the removal of stresses and straightening of the elastically bent separate parts of the deformed single crystal.