

at 10<sup>h</sup>, this fixes the time of formation of the spot to within 2½ hours. On the spectroheliogram the feature was very small. On February 6 there is evidence of very rapid growth; preceding and following spots are clearly shown, and the group extended over about 10° of solar longitude. February 7 still further expansion was shown, with an extent of flocculus of about 15° longitude. Any other observations of this spot group on February 5 during the hours 10<sup>h</sup> to 12<sup>h</sup> 30<sup>m</sup> would be welcome as affording information of the details of development.

C. P. BUTLER.

Solar Physics Observatory,  
University of Cambridge.  
Feb. 16.

### Plasticity of Rock Salt Crystals

THE plasticity of rock salt crystals when immersed in water has been the subject of much attention recently<sup>1</sup>. The fact that the effect takes place more easily in hot water suggests that the rate of solution of the surface is a factor. I have therefore tried bending small plates of rock salt under running cold water from a large tap, and have found that the plasticity is surprising. Under these conditions it is quite easy to make a right angle bend in a plate of rock salt more than a millimetre thick in a matter of seconds.

E. N. DA C. ANDRADE.

Physics Laboratory,  
University College, London.

<sup>1</sup> See E. G. Joffe, "Physics of Crystals", and *Proceedings International Congress of Physics, London, 1934* (in the press).

### Points from Foregoing Letters

HIGH-FREQUENCY radio waves such as are used in television (3–20 m. in length), can increase the temperature of certain solutions and of living tissues, and have been used in medical practice (diathermic treatment). Dr. Franz Nagelschmidt describes a method of directing and localising the heating effect by interposing dielectric substances (wax, ebonite) between the electrodes and object, and gives suggestions for practical applications.

Automatic recorders of water-level in deep wells register earthquake shocks. Prof. Perry Byerly and Mr. Francis B. Blanchard describe a water-level recording instrument, and compare its record of an earthquake with that obtained by the usual type of seismograph. They point out that both the primary tremors (*P*) due to compressional waves travelling through the earth's interior and the later undulations (*L*) due to compressional waves travelling along the earth's surface were recorded by the water instrument. The intermediate vibrations (*S*) travelling through the earth's interior and the Love waves were not recorded. This confirms the view that both these latter are shear waves and do not produce changes in volume, which alone affect the water-level.

By means of an improved Svedberg ultra-centrifuge rotating 120,000 times per minute and giving a force of 525,000 times that of gravity, Dr. Kai O. Pedersen has succeeded in bringing about changes in the concentration of solutions of substances of low molecular weight. From these concentration changes, deduced from the changes in optical refraction, the molecular weights have been calculated; they agree fairly well with the known values.

Prof. A. Szent-Györgyi in a succinct note states that in the main respiratory process of the muscle, the oxidation of foodstuffs (or their loss of hydrogen) is brought about by oxidised products of succinic acid; these carry away the hydrogen in the presence of certain enzymes (dehydrogenases).

Mr. Clarence Cottam agrees with Dr. Kathleen Blackburn that the narrow-leaved form of the eel grass is not a hybrid but a different form of *Zostera marina*. From observations on the Atlantic coast from Maine to North Carolina, he concludes that the variation cannot be accounted for simply as due to the depth at which the plant grows, but that other factors such as the age of the plant, temperature,

salinity, water currents and conditions of soil or rock bottom may affect the width of the leaves.

The conditions under which the spores of the onion mildew germinate are insufficiently known. Mr. R. McKay has kept the spores under observation for several years, and finds that at the end of three years about one per cent of the spores have their cell-wall sufficiently thinned for them to germinate in water in a warm room; the others are still good for another five years' resting stage.

Dr. Muriel E. Adair and Mr. G. L. Taylor have succeeded in obtaining for the first time microscopic crystals of the albumin from human serum (from dropsical patients).

Mr. M. Barak and Dr. D. W. G. Style have obtained diacetyl and its derivatives by means of chemical reactions which suggest that the acetyl radical, CH<sub>3</sub>CO— is much more stable than usually assumed. They believe that this radical may possibly be an intermediate product in the photo-decomposition of acetaldehyde and acetone at room temperature, and in other important chemical reactions.

Prof. Tito Franzini points out that the hydrogen atoms which penetrate metals have lost their electrons and consist of positively charged nuclei (protons). Dr. Smithells and Mr. Ransley have indicated that the deviation in the rate of hydrogen from the square root law ( $D = K\sqrt{P}$ ) may be due to surface adsorption. Experiments on the adsorption and rate of diffusion through palladium of ordinary and heavy hydrogen lead Prof. Franzini to assume an adsorption threshold on one side and an evaporation pressure on the other side of the metal.

S. W. Cram, not being able to confirm the observations of Prof. J. K. Robertson that cadmium vapour emits a band of ultra-violet light (wave-lengths around 2212 Å.), when excited by an electrodeless discharge, has suggested that Robertson's observations may have been due to an impurity. Prof. Robertson repeated the experiment and obtained only traces of the band in certain spectrograms. He still believes, however, that cadmium emits such a band of light of wave-length 2212 Å., and he submits spectrograms to show that it occurs in the arc spectrum of cadmium. Cadmium vapour absorbs light of this wave-length and it is probable therefore that it also emits it.