It will be seen that the r^2 term, which determines the frequency ν_0 of the oscillations of the two lattices with respect to each other, arises wholly from Van der Waals repulsion, the electrostatic forces contributing nothing to it, and that it is independent of the direction of the oscillations. Equating its coefficient to $2\pi^2\mu\nu_0^2$, where $1/\mu = 1/m_1 + 1/m_2$ and m_1 and m_2 are the masses of sodium and chloride ions respectively, one obtains $\nu_0 = 4\cdot8 \times 10^{12}$, which is of the right magnitude.

The coefficient of r^4, which we shall denote by f, determines the anharmonicity of the oscillation. It will be seen that both the electrostatic and the Van der Waals interactions contribute to f, and further, that f varies with the direction of the oscillation, and is a maximum, equal to $b + c$—positive and large—when the oscillation is along any of the cubic axes, and is a minimum, equal to $b + c/3$—negative and numerically small—when the oscillation is along any of the octahedral directions [111].

The energy of the oscillator is given by[1]

$$W = (n+\tfrac{1}{2})\, h\nu_0 + \frac{3}{64\pi^4}(2n^2+2n+1)\,\frac{h^2 f}{\mu^2\nu_0^2}. \qquad (4)$$

When the oscillation is along [100], the anharmonicity will correspond to the frequency of the octave being 1·1 per cent greater than twice that of the fundamental.

The anharmonicities of other modes of oscillation of this crystal, and of the oscillations of the other alkali halides, may be calculated in the same manner.

The specific heat of the crystal at constant volume at high temperatures due to any such *linear* oscillation will be given by[2]

$$c_v = k\left(1 - \frac{3fkT}{8\pi^4\mu^2\nu_0^4}\right) \qquad (5)$$

For Na versus Cl oscillation along [100], expression (5) corresponds to a fall in the value of c_v of about 1 per cent per 50° C., and for oscillation along [111] to practically no temperature variation. Some rough estimates of c_v of sodium chloride crystal made by Eucken and Dannohl[3] on the basis of extrapolated values for the compressibility at high temperatures do point to a fall in c_v, and of this order of magnitude, which suggests that any observed fall in c_v at high temperatures may be attributed to the anharmonicity of the thermal oscillations.

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[1] See, for example, Pauling and Wilson, "Introduction to Quantum Mechanics", 161 (McGraw-Hill, 1935).
[2] See Born and Mayer, "Handbuch der Physik", 24/2, 676 (Julius Springer, 1933).
[3] *Z. Elektrochem.*, 40, 814 (1934).

Modification of a Fingerprint by a Skin Graft

IT would appear that the case reported by Sir Francis Galton[1] is unique and, therefore, the present similar case has interest.

Galton's subject, a solicitor aged twenty-five, sliced off a portion of his left thumb when cutting some cardboard; the soft part of the digit, when pressed upon a ruler to steady the cardboard, had bulged into the path of the knife. He picked up the severed portion and applied it to his thumb, which was then tightly bandaged. The graft was successful; but, as the rolled impression, taken thirty years later, shows, it had been applied at right angles to its original position. In consequence, there remained a corresponding deviation of the skin ridges.

The present subject, when aged thirty-two in 1912, was slicing some fruit in a machine, which operated a circular knife. By mischance she sliced off a portion of the outer side of the tip of her left forefinger. She promptly recovered the piece from the blade of the machine and carefully replaced it, "matching the finger grain" on her finger. A bandage moistened with 'Friar's Balsam' was applied and retained in position for some weeks, during which time she kept it moist with the tincture. It is a source of distinct satisfaction to her that, despite a medical practitioner's gloomy prognosis, the graft was successful. Some months elapsed before full sensation returned to the area, but to-day it is normal. Unlike Galton's subject, she had indeed matched the grain of her finger; but, in spite of her care, there remains evidence of local distortion of the pattern of the finger-skin, due to healing of the graft. This is shown in the present rolled impression, prepared in January 1950, thirty-seven years after her accident. It is unlikely that even skilled surgery would leave less trace than this.

Since the subject lives at a distance, the print was obtained by the method used by Looms and Campbell[2]. She was supplied with an ordinary office ink pad, some sheets of paper and instructions in their use. The present impression was one of several which she herself made at her own home, without any prior experience.

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[1] *Nature*, 53, 295 (1896).
[2] "The Murder of June Anne Devaney", p. 48 (Central Police Office, Blackburn, 1949).

'Weber's Glands' and Respiration in Woodlice

THE view has long been held that certain tegumental glands in woodlice, known as 'Weber's glands', play an important part in respiration, and have been evolved in adaptation to terrestrial life. This conception appears to be wholly mistaken. It seems to have originated in a misreading of the literature, and although widely accepted there is little evidence of any real attempt to confirm it by direct observation.