

lxxvii., p. 188), while the following additional observations have been made.

**Distribution.**—I found musical sand at intervals along the shore for more than ten miles north of Barmouth, at Whitesands Bay, Pembrokeshire, and at the North and South Sands, Tenby. This suggests that it is much more widely distributed along the shores of the British Isles than has hitherto been supposed.

**Conditions affecting Pitch of Note.**—I obtained the note by plunging a flattish pestle into an evaporating basin containing some of the sand, and there appears to be a definite relation between the curvature of the vessel and the pitch of the note produced. The following typical numbers were obtained with vessels of different material, which were approximately hemispherical in shape, the same pestle being used in each case:—

Vessels	A	B	C	D	E
Radius of curvature in cm....	5'4	5'1	4'7	4'4	4'2
Frequency of note (about) ...	1280	1440	1700	2180	2300
Inverse ratios of squares of radii ... ..	1'12	1'32	1'18	1'25	1'06
Ratios of frequencies ... ..	1'13	1'33	1'18	1'35	1'10
Vessels ... ..	A & B	A & C	B & C	C & E	D & E

When round-bottomed glass flasks are plunged into a milk-bowl containing sand, the pitch appears to depend on the curvature of the flask; e.g. flask

$$R = 3.5 \text{ cm gives note } n = 2050$$

$$R' = 4.2 \text{ cm gives note } n' = 1370$$

$$\frac{R^2}{R'^2} = 1.44 \quad \frac{n}{n'} = 1.49$$

Within certain limits, a change in the temperature, the quantity of sand moved, or the gas present between the sand particles, appears to have no appreciable effect upon the pitch.

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### The Protective Value of the Sticky Hairs on Young Leaves and Shoots.

It is often difficult to imagine, and still more so to discover, the particular foes against which the hairs of young plants are a defence. In the course of the last two days I have noticed two instances in which the same foes have been successfully vanquished by a similar device on two widely different plants. The first instance was afforded by plants of *Salvia patens*, which had been removed from a cool frame to the shelter of a wall prior to being planted out in the borders; the second by the young leaves and shoots of several species of Rhododendron growing in my garden. The hairs of both these plants were abundantly laden with dead and dying hymenopterous gall-flies of several different species (? of the genus *Andricus*). I examined several individuals, and found them invariably to be females. They were caught by the legs, wings, or indeed almost any portion of the body. I failed to discover any insects other than the gall-flies captured by these hairs; and yet there were a few dipterous flies walking unconcernedly over the leaves, and in no way inconvenienced by the sticky hairs. The evidence would seem to point to these hairs being a special protection against gall-causing insects at a stage when the tender leaves and shoots would otherwise be very vulnerable by these tiny creatures.

OSWALD H. LATTER.

Charterhouse, Godalming, May 21.

### The Teaching of Science in Secondary Schools.

THE report of the Board of Education on the above subject (see NATURE, May 4) contains many expressions of opinion with which I heartily agree. But I must beg respectfully to differ from the authors as regards the

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limitations they propose to put upon the use of everyday phenomena in science teaching. The report says:—"They should, of course, be introduced as illustrations, that is to say, when, and only when, they may happen to be wanted to give point to the teaching." This dogmatic statement ignores the fact that many well-known teachers strongly prefer the opposite mode of procedure. Upon their view a practical problem should be made the starting point, so that the development of the scientific method should follow instead of precede; e.g. from a study of the crane the class should discover the triangle of forces. The main argument for this procedure is that the boys actually want to know how a crane works, whereas interest in abstract principles does not, as a rule, outcrop until the age of sixteen or seventeen years. My own experience is distinctly in favour of the appeal to the utilitarian rather than to the scientific motive, except in the case of exceptional boys or of those above the age of seventeen.

G. F. DANIELL.

Oakleigh Park, N.

### June Meteors.

THOUGH the long days and twilight nights prevent much attention being given to observations of shooting stars in June, still, important meteoric events are liable to occur in this month. The following are computed details of the four most important meteor showers that take place during the period June 9-30 in the present year:—

Epoch June 8, 17h. (G.M.T.), twenty-sixth order of magnitude. Principal maximum June 9, 9h.; secondary maximum June 9, 19h. 40m.

Epoch June 9, 6h., twenty-second order of magnitude. Principal maximum June 10, 9h. 35m.; secondary maximum June 10, 19h. 40m.

Epoch June 13, 12h. 20m., seventh order of magnitude. Principal maxima June 12, 5h., and June 12, 12h. 15m.; secondary maxima June 10, 23h. 10m., and June 12, 18h. 35m.

Epoch June 14, 4h., eighth order of magnitude. Principal maxima June 12, 23h. 20m., and June 13, 0h. 5m.

June 5.

JOHN R. HENRY.

### Daylight and Darkness.

I AGREE with Mr. W. T. Lynn that the article in NATURE of May 11 (p. 349) leaves "little to be said with regard to the so-called Daylight Saving Bill"; but there is one remark in it to which exception may be taken. This is the statement (p. 350) that it is "easy" to alter one's watch when travelling into a zone where different time is kept, if by "easy" is meant "not inconvenient." All travellers must have found the inconvenience of the change of time, even when reduced to a minimum through the change being an exact hour. Some inconvenience is unavoidable in travelling, but it is, of course, absurd to cause this inconvenience unnecessarily as the "Daylight Saving Bill" proposes. The inconvenience is such that in a journey to India I found it best never to alter my watch at all, it being simplest to keep to Greenwich time, and mentally make the allowance for local time.

T. W. BACKHOUSE.

West Hendon House, Sunderland, June 1.

### HEREDITY AND DESTITUTION.

DURING the past week a conference has been sitting to consider possible means for the prevention of destitution. A general inaugural meeting took place on May 30, at the Albert Hall, and sectional meetings were held on several days at Caxton Hall.

Mr. A. J. Balfour, who delivered the opening address at the general meeting, struck a note of which echoes were heard throughout the congress. He devoted much attention to the bearing of heredity on destitution, and to the influence of the present selective fall in the birth-rate on the average economic efficiency of the nation.

Although Mr. Balfour held that some supposed