

A symmetrical system of rings, with some attention to simple elegance, would remove the offensive effect produced by the bent bars of mere blacksmith's work which now surround a single column.

But it is not specially to the state of the Chepstow Bridge that I wish to call the attention of the public. It is to the total want of practical knowledge as to the enduring power of metals, with which this bridge was built, and with which other such bridges must at present be built. We are totally without experiment on the danger of springing or buckling, and on the danger of bursting (now, I believe, for the first time brought forward). And we might perhaps consider such experiments as well falling within the province of those organised bodies whose union is based on the promotion of the most important determinations in civil engineering.

The Institution of Civil Engineers (with which body I have a much-valued honorary connection) has lately departed in some measure from the strict subject of engineering to which its attention had been successfully given for so many years. I venture to suggest that this body might well take up the conduct of experiments bearing on engineering. The examination of the effects of force in mere crushing of external surfaces has been admirably prosecuted by American engineers. But the examination of bending and bursting, as the effects of end-pressure, is still open to the engineers of Britain. The funds of the Institution appear to be amply sufficient for such purposes, and the undertaking of them would undoubtedly be considered as honourable to the body.

G. B. AIRY

The White House, Greenwich, November 17

### Physiology in Oxford

A PARAGRAPH appeared in the *Spectator* of Saturday, the 10th inst., on the Oxford memorial concerning the University Physiological Laboratory. That part of it which affects Magdalen College appears to me to rest upon erroneous information, and is certainly calculated to spread an entirely false and misleading impression of the attitude of this College in the matter, and of the University in general.

If you will allow me to quote the paragraph, and at the same time give you the actual facts, I think you will easily form an opinion on the real state of the case.

The paragraph states that the signatures were received "from members in Oxford and its suburbs, and the rest from a circle of about fifteen miles round."

The fact is that the signatures are not drawn exclusively from either the smaller or even the larger area, one of the so-called Magdalen signatures being that of a member of the Hereford Cathedral choir.

The paragraph goes on to say:—"We are told that Magdalen men have signed it more numerously than any other College but one, and, in proportion to the size of the College, more numerously than any. Now, as Prof. Burdon Sanderson is *ex officio* a Fellow of Magdalen, and as Magdalen has for years past had a physiological laboratory of its own, this popularity of the memorial among Magdalen men is highly significant."

On this I have to remark that the signatures are representative neither of the governing body of the College, nor of its resident members.

The governing body of the College consists of the President and twenty-four Fellows; of these twenty-five *three alone have signed the memorial*. The resident members, as shown by the list of congregation, number twenty-two; of these twenty-two *only six* have signed.

Finally, as regards the last paragraph, it is true that Magdalen College has for years past had a physiological laboratory of its own, and it is further true that the University teaching of physiology has been carried on there, previous to the advent of Dr. Burdon Sanderson, for years past under a Government licence with the full and express consent of the whole governing body of the College, a fact which is indeed significant, but hardly in the way in which the *Spectator* appears to have been informed.

EDWARD CHAPMAN

Magdalen College, Oxford, November 15

### Green Sunlight

MR. G. H. HOPKINS' observation that the parting ray at sunset is sometimes brilliant emerald-green brings to my memory a somewhat similar experience. On September 13, 1865, watching on the summit of the Rigi for sunrise, I caught the very first possible glimpse of the sun's disk as, on a very clear morning, he emerged from behind the sharply-defined outline of a distant mountain. The very first rays, although necessarily proceeding from the comparatively obscure limb of the sun, were dazzlingly brilliant, and of a superb emerald green colour. But almost instantly, as more of the sun appeared and his light grew sensibly more intense, the green passed away or was merged in the yellowish white of ordinary sunlight.

In my case I do not doubt the phenomenon was purely subjective, for before sunrise the sky was all lit up of a magnificent crimson hue. Every one must have noted how the moon when surrounded with bright crimson clouds looks more or less decidedly green.

A very striking effect of this sort, like the others an example of the well-known visual phenomenon of "accidental colour," may be artificially obtained, any time the moon shines, by burning an ordinary "blue" signal light. After my eye had been intensely excited by such a light close at hand, I have seen the moon, near or at its full, of a deep plum colour, by which I mean the colour of the bloom on a black plum or on a well coloured Hamburg grape. Or, in place of these, the *violet* of my friend Prof. Piazzi Smyth's exquisite chart of colours in his "Madeira Spectroscopic," or the *bleu violet* of Chevreul's chromatic circle. I recommend the experiment as easy of performance and exceedingly beautiful in its effects. Possibly a small blue light would suffice. But, on the occasion to which I have referred, certainly not less than thirty ounces of nitre, ten of sulphur, and five of black antimony sulphide were employed. These, mixed in fine powder, may be burned in a case about six inches high and four in diameter; of course in the open air, and where no mischief may accrue from an intensely hot and voluminous flame.

In a communication made to the Royal Society of Edinburgh in 1852 (*Trans.* vol. xx. pp. 445-471), I adduced evidence to prove that a continuous thin layer surrounds the sun's photosphere, of which upturned portions form the red protuberances seen at total solar eclipses; and I then showed that if the well known darkening of the sun's limb be due to absorption in his atmosphere, it can only be caused by such a *thin* envelope. The existence of this envelope, the sun's chromosphere, is now fully established. If, from the red colour of its upper portions, we may infer the resultant tint emitted by the whole to be red, then, by a well known law, the discolouration of the sun's limb due to its absorption should be of a greenish hue. But such an effect would necessarily be but slight, and could not explain the brilliant green witnessed on the Rigi. Nor do I recollect any instance where the first emerging rays of the photosphere at the end of a total eclipse have been observed to be green.

WILLIAM SWAN

Ardchapel, Dumbartonshire, November 8

A LETTER from Barinas, Venezuela, states that on September 2, from daylight until noon, and from 3 p.m. to sundown, the sun appeared like a globe of burnished silver. Between noon and three o'clock it was of a bluish-green colour. This appearance in the western hemisphere seems to dispose of the suggestion of the Java eruptions as the cause of green suns in India.

HYDE CLARKE

### Mangrove as a Destructive Agent

AS I have never seen the mangrove mentioned but as a conservative or productive agent as regards geological change, it may be interesting to readers of *NATURE* to hear of its acting in a contrary direction.

In several parts of eastern tropical Africa, where the shores are mostly of upraised coral limestone, I have noticed the effect of mangrove in eating away this rock, but nowhere have I seen it so well marked as in the Island of Aldabra, some two hundred miles to the north-west of Madagascar, and which I surveyed in 1878.

Aldabra is an upraised atoll about twenty-two miles long, and presents low cliffs of about fifteen to twenty feet of solid coral rock to the sea and also to the lagoon, which is, at low water, nearly dry

The mangrove has established itself on the edges of the lagoon, doubtless from seed transported by the currents, and, in all places where it has done so, tortuous creeks or little gorges run back into the coral, filled with mangrove trees (standing in deep mud of the adhesive and foetid nature so characteristic of mangrove swamps), which stretch out their roots to the coral walls around them, and, as it seemed indubitably to me, in some way decompose the softer parts and eat their way in. The island is riddled with these creeks, always filled with mangrove, and opening into the lagoon.

The outer face of the island is of course being slowly undermined by the sea at high water, presenting overhanging cliffs impossible to scale, and the island is wearing away from that cause also, but the destruction from the mangrove is much more important, and at no very distant period, as it seemed to me, the upraised island will be again reduced to its original level as an ordinary atoll.

It would be interesting to know how long the mangrove has been there, for as Aldabra is one of the two oceanic groups in which the giant tortoises still exist indigenous, it must have been in its present condition of upraised atoll, I imagine, for a long period. It could never have been much larger in diameter, from the soundings round it, but the mangrove may have greatly increased the size of the lagoon by steady working at the inner rim of the islands, the actual area of which is now but small, from their narrowness.

I may mention that the island is covered with low, tangled scrub, which has managed to find foothold and sustenance on the rock, for there is but little or no soil, and the top of the rock is everywhere cut up by sub-aërial action into the sharp, honeycombed, and jagged surface which upraised coral in the tropics, uncovered by grasses, soil, &c., always wears into, and which, by the way, makes it extremely difficult to walk over, a difficulty much increased in this instance by these mangrove channels, as well as the tough nature of the matted, thorny bushes. A walk in Aldabra is the most aggravating and slowest piece of locomotion I have ever engaged in: and nothing short of the patience, perseverance, and general disregard of time of the tortoise tribe can make it an agreeable residence. Some of my negro sailors were sent into the bush to hunt for tortoises, and after three days' search brought back one, which is now in the Gardens of the Zoological Society; but they returned nearly as guiltless of artificial clothing as their captive.

W. J. L. WHARTON

H.M.S. *Sylvia*, Monte Video, October 10

#### The "Cloud-Glow" of November 9

THE beautiful after-glow of Friday, the 9th instant, was most striking as seen from the west side of Hampstead Hill, where its first development was made more effective by a frame of dark cumulus, with a fringe of dusky green tint, carried up from the sunset quarter by a westerly breeze, rather rolled up like a curtain, exhibiting the richly-coloured scene behind as it was withdrawn. I estimated the altitude of the upper edge of the glow at about  $30^\circ$ ; but at Freshwater, Isle of Wight, it has been described as extending nearly to the zenith. There would be no difficulty in calculating approximately the height of the cirrus—as desired by Mr. Russell—if it could be assumed that the reflection was from the same matter in both cases, which is improbable.

J. J. WALKER

#### Waking Impressions

A CURIOUS case I have just read in a recent number of NATURE recalls a somewhat similar experience of my own, rather earlier in date. I awoke in the middle of a story told by an internal voice—a voice felt, not heard. I listened with curiosity and interest, as totally unprepared for what was coming as if the narrator had been Gladstone or Ruskin. I believe when I awoke I had a dim recollection of what had gone before, but I strove afterwards in vain to recall it. All I know of the history of the mysterious lady is the following fragment: "She had many admirers, but she gave the preference to Tom, because he promised to marry her in the West Indian fashion. He drew her three times through a hoop, once standing, once sitting, once lying, which signified that he would never desert her in youth, maturity, or old age."

I have not the least idea who "she" was. I know no one I call Tom except an old schoolfellow long married, and, to

the best of my belief, I never heard of such a custom in the West Indies or elsewhere. Once since I have waked in the middle of a dream which went on, but it was a dream of a very commonplace character.

WILLIAM RADFORD

Sidmouth

#### Barytes from Chirbury

I AM indebted to Mr. Yelland of Wotherton for sending me some fine examples of the crystals described by Mr. Miers in NATURE, vol. xxix. p. 29, and am collecting several particulars respecting their occurrence. Some time ago I commenced a determination of the faces, but my work has been interrupted.

The characteristic plane E is mentioned by Carl Urba (Groth, *Zeitschrift für Crystallographie*, v. 433, 1881) as occurring on barytes crystals from Swoszawice in Galizien. In a measurement I made last year to determine this plane on one of the Wotherton specimens I obtained E E' as  $39^\circ 59'$ , and, using Miller's distance for *bd* leads to the symbol 412, and by calculation the distance *a* E as  $26^\circ 2'$ . Carl Urba gives its calculated distance as  $26^\circ 4'$ , and measured distance as  $25^\circ 58'$ .

C. J. WOODWARD

Birmingham and Midland Institute, Birmingham, Nov. 10

#### "Salt Rain and Dew"

LOOKING over the "School Geography" of Dr. Clyde (Edinburgh, 1870), I find, on page 32, in the paragraph headed "Russian Lakes," the following remarkable statement:—"In the south-east region, not only the lakes, but the very rain and dew likewise are salt, a phenomenon common to all the shores of the Caspian and Sea of Aral" (the italics are mine). Will some one of your readers kindly refer me to the traveller's tale in which this myth originated.

HARRY N. DRAPER

Esterel, Temple Road, Dublin, November 17

#### AN INDIAN WEATHER FORECAST

THE period of drought in Upper India, which happily came to an end in the latter part of August, was not entirely unforeseen, as will be shown by the following extracts from the *Government Gazette*; and the facts will probably be not without interest to meteorologists in Europe and elsewhere.

Extract from the "*Gazette of India*" of June 2, 1883

"That the unusually dry weather now prevailing over the North-Western Himalaya, and that which, though less abnormal, characterises the whole of North-Western India at the present time, is an effect of the unusual accumulation of snow, is a conclusion justified by the experience of the last few years; and were it not that the snow is rapidly decreasing under the unobstructed radiation of the sun, there might be some reason, judging from the present limited experience, to anticipate some retardation of the rains of the Upper Provinces, and possibly even in Western India generally. But, on the other hand, the fact that, during the months of April and May, the atmospheric pressure over the greater part of the country has been below the normal average of the season, is one which, arguing from the same experience, portends favourably for the timely influx of the monsoon. In Bengal it may be said that the present prospects are wholly favourable.

(Signed) "HENRY F. BLANFORD,  
Meteorological Reporter to the  
Government of India

"Simla, May 18, 1883"

"Since the above was written, there has been heavy rain for many days on the outer hills, and more or less on the plains of the Punjab, and apparently a very heavy fall of snow on the higher ranges. At the present time, as seen from Simla, the latter are white with snow, down to a level of about 11,000 or 12,000 feet. And some 500 feet of the top of the Chor (11,982 feet) is also covered with a snow-cap. If, therefore, the mountains of Lalwul, Spiti, and