

(b) In the case of Light, not much can be said as yet: but with regard to radiation and absorption of radiant heat, Tyndall has shown that the complex molecules of organic vapours are the best radiators, and that uncombined atoms can hardly be said to radiate or absorb at all. So we see that the simple, "metallic" vapours radiate but ill, whilst the more complex atoms do not reflect, but rather absorb light and heat rays. Indeed, we may suppose, that as in the case of complex vapours, the more highly evolved atoms, requiring a greater supply of force, turn these rays that fall on them to account; whilst the metals dispense with them by reflecting them.

(c) The chief relations of electricity have already been alluded to. The chemical affinity between elements increases as they differ in electric polarity; and the more highly evolved, the more chlorous or electro-negative are they.

Lastly, late researches have shown that the elements nitrogen and sulphur at a high temperature, give more complex spectra. This fact, if it be a fact, has thrown some doubt on their claim to be regarded as absolute elements.

In explaining the phenomenon, we should probably consider the sulphur particle to be composed of several groupings of the ultimate element, which, driven apart by the action of heat, are made to vibrate separately with various velocities. Thus the allotropic form of oxygen, ozone, has been represented by a simple formula  $\begin{matrix} O \\ \diagup \quad \diagdown \\ O \end{matrix}$ , being made up, as it is supposed, of two groupings of the element oxygen, that being the ultimate atom.

The above statements seem to me to agree in showing, that if the hypothesis of evolution is tenable at all, it can be extended to explain all or nearly all the relations between the elements at present existing on this globe.

C. T. BLANSHARD

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#### Ancient Balances

*Apropos* of Mr. Chisholm's interesting account of ancient weighing instruments, in your last number, I venture to call his attention to the representation of an equal-armed balance in an Egyptian papyrus of the nineteenth dynasty, about 1350 B.C. It is to be found in the celebrated "Ritual of the Dead," a hieroglyphical papyrus of Hunnefer, of the reign of Seti I. In the "Judgment Scene" the heart of the deceased is represented as being weighed in a balance in the Hall of Perfect Justice, and in the presence of Osiris. The balance is of the ordinary equal-beam construction, the final adjustment being attained by a sliding weight on one side of the beam, exactly like the "rider" on our exact balances. The papyrus may be seen in the British Museum.

G. F. RODWELL

#### Brilliant Meteors

ON Saturday evening (Oct. 18), about half-past 8 o'clock, I observed, from Boltsburn, Durham, a meteor of considerable brilliancy in the north-western part of the sky; it shot downward from an elevation of about 40°, and left a streak of very red light on its path. The streak continued visible for nine or ten seconds.

JOHN CURRY

Boltsburn, Oct. 20

LAST evening, October 26, when returning home I observed a brilliant meteor stream across the sky. It may be worth while to record it.

Not having my watch, I can only guess the time as about 8.20 P.M. The first appearance was like a flash of lightning intensely white, arresting attention at once. When observed it streamed from  $\xi$  Persei above Capella (in altitude) and disappeared in Lynx. For two-thirds of its course its light was very bright, and it left a brilliant train of sparks, but for the remaining third it merely showed its own single expiring light.

Later in the evening when observing with the telescope in Cepheus, two shooting stars crossed the field at different times, apparently from the same radiant.

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#### SIR HENRY HOLLAND

ALTHOUGH the late Sir Henry Holland, whose name has been familiar to the world during the greater part of the present century, cannot be regarded as a ma-

eminent in scientific research, still, as a Fellow of the Royal Society of nearly sixty years' standing, as President of the Royal Institution, as one who was ever ready to contribute towards the advancement of scientific research, and as the friend of all the most eminent men of science of his time, which was a long one, we deem him worthy of more than a passing notice.

As much as for anything else, Sir Henry was known as an indefatigable traveller; his fondness for travelling, indeed, having led to the illness which was the immediate cause of his death on October 27 last, his 86th birthday. He had very early in his career deliberately determined to set aside two months each year for the purpose of indulging his favourite recreation. This year, immediately after his return from a visit to Russia, he set off for Naples in September last, staying a short time at Rome and Paris on his way home. He arrived in London on October 25, suffering from a slight cold, which was sufficient, notwithstanding the wonderful robustness of his constitution, to cut him off in two days. He began his travelling career by a visit to Iceland in 1810, since which he has explored almost every corner of Europe, and been eight times in America. In his "Recollections of Past Life," published in 1872, he speaks thus of his travels:—

"The Danube I have followed with scarcely an interruption, from its assumed sources at Donau-Eschingen to the Black Sea—the Rhine, now become so familiar to common travel, from the infant stream in the Alps to the 'bifidos tractus et juncta paludibus ora' which Claudius with singular local accuracy describes as the end of Stilicho's river journey. The St. Lawrence I have pursued uninterruptedly for nearly 2,000 miles of its lake and river course. The waters of the Upper Mississippi I have recently navigated for some hundred miles below the Falls of St. Anthony. The Ohio, Susquehanna, Potomac, and Connecticut rivers I have followed far towards their sources; and the Ottawa, grand in its scenery of waterfalls, lakes, forests, and mountain gorges, for 300 miles above Montreal. There has been pleasure to me also in touching upon some single point of a river, and watching the flow of waters which come from unknown springs or find their issue in some remote ocean or sea. I have felt this on the Nile at its time of highest inundation, in crossing the Volga when scarcely wider than the Thames at Oxford, and still more when near the sources of the streams that feed the Euphrates, south of Trebizond."

It was mainly on account of the reputation which even then he had achieved as a traveller, that he was elected a Fellow of the Royal Society in 1815.

Sir Henry was elected President of the Royal Institution in 1865, and took the very warmest interest in its success, and in the promotion of scientific research, being seldom or never absent from his post, doing much to popularise science among the upper classes, among whom, as our readers know, he was always a welcome guest. For fifteen years Sir Henry contributed 40% annually to a fund specially set apart for the promotion of research, and was always ready to take by the hand promising young students who were diffident of their own abilities. Sir Henry himself never knew what it was to struggle, no man ever slid more easily into the highest professional and social position, and no man was ever probably less spoiled by his success. He counted from the very first among his patients, many of whom became his intimate friends, the highest in social and political rank both at home and abroad, and the most eminent in literature, science, and art, knew nearly everyone whose name during the last sixty years has been before the public, and was respected and loved by all with whom he came in contact. Sir Henry had naturally good abilities, great tact and knowledge of the world, a mind stored with knowledge gained from books, from travel, and from his intercourse with men, which, combined with his genial