

Boll avait évidemment entrevu toutes ces conséquences, et il eut été de bon goût, nous semble-t-il, de lui laisser le temps de les dérouler à l'aise. C'est donc sans droit que nous voyons déjà, dès à présent, la presse parler, à propos de ce fait, des "découvertes de MM. Boll et Kühne" et le nom de ce dernier associé à celui du *seul inventeur*.

"Deux gamins suivaient un trottoir; l'un d'eux sifflaient un air, dont il n'était qu'à la moitié, quand le second se mit à la continuer: 'Une autre fois,' lui dit le premier le regardant très mécontent, 'tu voudras bien commencer toi-même.'"

If I quote the above sentences it is to show that they are as much opposed to truth as they are to the interests of science, or as they are repugnant to good taste. When a scientific man has published a discovery it is to the interest of the scientific world that all who will or can should be at liberty to repeat the experiments or observations which led to it; if other great discoveries are made by the new labourers it is to the interest of science that they be published.

In the particular case in point it would appear that Prof. Boll re-discovered (and, what is more, *appreciated the full value of*) a fact which had really been observed by some others (Leydig in 1857, and Max Schultze in 1866), but which had certainly not become part and parcel of the common stock of scientific knowledge, viz., that the rods of the retina are red, he observed that under the circumstances of his own experiments the colour faded at death, and arrived at the false conclusion that the colour was a function of the vital condition of the retina. He, however, observed the remarkable action of light in modifying the colour. "During life," he announced in his paper, "the peculiar colour of the retina is continually being destroyed by the light which penetrates the eye. Diffuse daylight causes the purple tint of the retina to pale. The more prolonged, dazzling action of the direct rays of the sun entirely destroys the colour of the retina. In darkness the intense purple colour is again restored. This objective alteration of the peripheral structures of the retina brought about by the rays of light undoubtedly occurs in the act of vision." This was the great discovery which Boll made, and with which his name will ever remain honourably connected. Although, however, he had been in full possession of the facts in the month of June of last year, when he demonstrated them to Professors Du Bois-Reymond and Helmholtz, and only published his paper in November, he did not succeed in making the discoveries with which, justly, the name of Kühne is now associated. Kühne showed that if the retinal purple is usually destroyed at death, the result is attributable to the action of light, persistence of the colour being by no means necessarily connected with the living condition of the retina. In his beautiful and far-seeing discovery of the true function of the retinal epithelium cells as restorers of the vision purple, he was fortunate enough to make a discovery which it would be very bold for any one—even for Prof. Boll—to say he would have made, had time and opportunities been granted. In saying that Boll had discovered everything referring to the vision purple, M. Warlemont shows that he has not appreciated the fact that two great discoveries have been made, the second supplementing the first, and actually needed in order that the significance of the first should be appreciated.

But I trust that the readers of NATURE do not think that I wish to depreciate the researches of Prof. Boll whilst I act as the champion of one who needs no champion, seeing that he illustrates in himself the truth of the adage, "le grand mérite est toujours probe."

Prof. Boll must reflect that great discoveries are rarely completed by one man, and that it is no shame, and should be no cause of sorrow, to the true man of science, if the conception which he has tried to develop and which he has almost raised to the position of a truth by

his own work, receives its final development through the strivings of a fellow-worker.

Abandoning the polemical discussion upon which I felt myself almost compelled to enter, I would give an account of the most recent results obtained by Kühne on the "Vision Purple," and published by him in the *Centralblatt für die medicinischen Wissenschaften* for March 17 (No. 11).

The purple colour of the retina is now shown to depend upon the presence of a substance which can be dissolved and separated in the solid form. The only solvent of the vision-purple as yet known is bile, or a pure glyko-cholate. The filtered, clear solution of the vision-purple is of a beautiful carmine-red, which, when exposed to light, rapidly assumes a chamois colour, and then becomes colourless. As long as it is at all red the solution absorbs all the rays of the spectrum, from yellowish-green to violet, allowing but little of the violet, but all the yellow, orange, and red rays to pass. Accordingly, bloodless retinae spread out and placed in the spectrum, between green and violet appear grey or black.

Kühne has exposed retinae in different parts of a spectrum (obtained by allowing the sun's rays between eleven and one o'clock to fall through a slit 0.3 mm. wide upon a flint glass prism) in which Fraunhofer's lines were shown in great number and with great distinctness, and he has ascertained that in the yellowish green and green regions the vision-purple is bleached most rapidly; the action is less in the bluish green, blue, indigo, and violet; it is still perceptible in the orange and yellow, but not in the red or ultra-violet regions.

March 24

ARTHUR GAMGEE

OUR ASTRONOMICAL COLUMN

THE CAPE ASTRONOMICAL RESULTS, 1871-1873.—Mr. Stone has just circulated the results of meridional observations of stars made at the Royal Observatory, Cape of Good Hope, in the years 1871-1873. His present object has been not so much to furnish extremely accurate places of principal southern stars as to supply reliable positions of stars down to the seventh magnitude within 15° of the South Pole, and it is considered that this volume contains all Lacaille's stars in this region of the sky, and very nearly all sevenths not observed by him. It is the "first published instalment of the materials collected for the projected Catalogue." The separate results for mean R. A. and N. P. D. are given, with catalogues of places for the commencement of each year, the whole number of stars observed being about 1,400. Bessel's reduction constants are appended. This form of publication is perhaps sufficiently ample in the present day, though Mr. Stone alludes to a desire expressed by some astronomers to see the Cape observations printed in detail in the same manner as the Greenwich observations, a plan hardly practicable with the limited staff at his disposal, and which would involve very slow progress of the work with the resources of the Cape press. We are inclined to think that Mr. Stone exercises a wise discretion in limiting his volume to its present form, and thus assuring its comparatively early distribution in the astronomical world. As it is the volume is not produced without a considerable expenditure of time in the routine work of the reductions by the director himself.

VARIABLE STARS.—Mr. J. E. Gore, of Umballa, writes with reference to several stars which may prove to be variable:—(1) Lalande 14088 (Canis Major); this star was observed by Lalande, March 2, 1798, but the magnitude was not registered. It is marked of the ninth magnitude only on Harding's Atlas, but at the beginning of February in the present year Mr. Gore found it a little brighter than the sixth magnitude Lalande 14105, closely south of it, and "decidedly reddish." Argelander observed this star on December 23, 1852, and rated it 6 m. He is

has not entered it. There appears a strong suspicion of variability in this case. The star's position for 1877 is in R.A. 7h. 8m. 11s., N.P.D., 112° 27' 8". (2) Harding has a star 6 m., a little south—preceding 40 Leonis Minoris, where in February last Mr. Gore found only a star of about 10 m. The position for 1800, reading off from the Atlas, was in about R.A. 157° 14', N.P.D., 63° 28'. There is no star here in Lalande or Bessel, nor in the *Durchmusterung*. (3) About 1° 20' south—following the 5 m. star 6 Canis Minoris, Harding has a 6 m. which on February 4 was only 7½ m., being less than Lalande 14720, but brighter than 14726; it was also less than the 7 m., about 30' north-preceding, which is underlined in the Atlas. This star appears to have been observed as an 8 m. by Bessel (Weisse, VII., 780), and is called 8.1 m. in the *Durchmusterung*; Harding's place, however, requires a small correction in R.A. if Bessel's star is the one entered on his map.

BIELA'S COMET IN 1805.—Of the six observed returns of this comet that of 1805 was by far the most favourable for observation, and it approached very near to the earth as it sank below the horizon in Europe. At the beginning of December it exhibited a well-defined planetary disc, according to Huth, surrounded by nebulosity 20' in diameter; on the 8th Olbers found it very distinct to the naked eye, and it remained visible without the telescope after the moon had risen, though at a south declination of 23°; the small well-defined nucleus which he had remarked in common with other observers he considered to be from twenty to thirty German miles in diameter. The comet was not observable in Europe after December 9, when it had reached 35½° S., but its after-course was a very favourable one for observation in the southern hemisphere, and, as Gauss remarked at the time, if observations from thence could have been obtained, it would have been practicable to determine at this appearance the true form of the comet's orbit, which, as is well known, greatly exercised the calculators of that day, and particularly Gauss and Bessel. The comet's apparent track in the southern heavens during the week subsequent to the cessation of observations in Europe was as follows, according to a computation from the definitive orbit in 1805, given by the late Prof. Hubbard:—

oh: G.M.T.	R.A.	N.P.D.	Distance from earth.
Dec. 9 ...	350 9	122 26	0.03681
10 ...	344 49	134 38	0.03698
11 ...	337 14	145 49	0.03893
12 ...	326 3	154 53	0.04245
14 ...	288 36	164 30	0.05276
16 ...	250 5	164 23	0.06570

While referring to Biela's comet, it may be noted that if the period of revolution had been so lengthened in 1872, as to delay the perihelion passage until December 27, and thus bring the comet, or what remains of it, into close proximity to the earth on the night of the great meteoric display a month previous, its return in 1879 will take place under nearly the same circumstances as in 1832, when this body was the object of so much interest.

NOTES

WE understand that the Fullerian Professorship of Chemistry in the Royal Institution is likely soon to be vacant by the resignation of Dr. Gladstone.

THE Council of the Yorkshire College of Science, Leeds, have arranged to purchase for 13,000*l.*, the Beech Grove Hall Estate, comprising about three and a half acres, and situated a mile from the railway stations, and close to the Grammar School. The total donations to the College have now reached 42,456*l.*

It has been decided that of the statues of the two Humboldts which are to be erected in Berlin, that of Alexander will be given to Reinhold Begen to execute, and that of Wilhelm to M. P. Otto.

EVERY Thursday evening M. Leverrier (receives at the Paris Observatory the provincial mayors who happen to be in Paris and explains to them the principles used by the International service for telegraphing its warnings all over France.

THE dreaded *Hemilea vastatrix* which has hitherto been confined to the coffee plantations of Ceylon and Southern India has at last made its appearance in Sumatra, and in all probability will find its way before long to the neighbouring islands where coffee is grown.

THE Settle Cave Exploration Committee have issued a circular asking further contributions to enable them to carry on their important work. The valuable contributions already made, both to the historical and prehistoric ethnology of Britain are already well known, but there is good reason to believe discoveries even more interesting than any yet described remain to be made. The Committee are now working in beds of still earlier age than those hitherto explored, and hope by perseverance to throw some light upon the condition of Britain and its inhabitants during some of the most obscure ages of its geological history, the interest and value of the explorations increasing as the work is carried down into lower and earlier beds. Except at the entrance, the rocky floor of the cavern has not yet been found, and it is impossible to say what treasures to science and aids to the unwritten history of man still lie beneath the feet of the explorers. Though liberally assisted by a grant from the British Association, the Committee find themselves obliged to appeal to the public for further funds, without which this interesting work will speedily come to a premature end. We are sure that the wants of the Committee only require to be made known in order to be supplied. The sum required is, after all, very moderate, and we hope that many who read this will send what they can afford to the Hon. Treasurer, Mr. John Birkbeck, jun., Craven Bank, Settle, Yorkshire.

THE present French University will probably be divided into seven or eight local universities—Paris, Nancy, Lyons, Bordeaux, Lille, Marseilles, Montpellier or Toulouse. The competition between the two last has been so sharp that it has been suggested to divide between them the boon sought for. None of the existing Faculties in a large number of provincial towns will be suppressed, but will become affiliated to the nearest university. Each university will be governed by a special Senate or Council, and the Minister of Public Instruction will have authority over all of them. Fellowships will be created by the government, and will be distributed according to merit, after due examination.

ALL who have read Mr. Smiles's "Scottish Naturalist" must remember the crowning incident of Mr. Edward's exhibition of his collection in Aberdeen, when, in his despair at the total unsuccess of his venture, he rushed to drown his misery in the Dee. Mr. Edward was the chief actor in a very different scene in the same city on Wednesday week, when the proverbially hard-headed and close-fisted citizens of Bon Accord tried to make amends for their former almost fatal neglect, by presenting him publicly, through their Lord Provost, with an olive-wood casket containing 333 sovereigns. Mr. Edward, who seems to be taking his sudden eminence very quietly, thanked the subscribers in a short speech spoken in broad Doric and characterised by perfect naturalness and much humour—Scotch, perhaps, but not Highland, as some of the papers characterise it, for Aberdeen and Banff are as much "Highland" as Berwick and Newcastle. Mr. Edward made no allusion to his former treatment by the certainly not obtuse Aberdonians, who, after all, can't be blamed for not making it their business to discover and succour genius, though the gift of the "bit boxie," as Edward called it, looks very like as if meant to be a peace-offering.

THE papers read at the Iron and Steel Institute last week were all of a purely technical nature. The Bessemer Medal was