

aria cucullata) from South America, presented by Mr. W. E. Ayerst; four Florida Tortoises (*Testudo polyphemus*) from Florida, presented by Mr. Hugh Bellas; a Common Viper (*Vipera berus*) from Hampshire, presented by Mr. Gerald Waller, F.Z.S.; a Brown-throated Conure (*Conurus aruginosus*) from South America, a Roseate Cockatoo (*Cacathua roseicapilla*) from Australia, a Macaque Monkey *Macacus cynomolgus* from India, deposited; a Bandicoot Rat (*Mus bandicoota*), a Bronze-spotted Dove (*Chalcopelia chalcopilos*), bred in the Gardens.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1886 AUGUST 15-21

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on August 15

Sun rises, 4h. 47m.; souths, 12h. 4m. 16'6s.; sets, 19h. 21m.; decl. on meridian, 14° 1' N.: Sidereal Time at Sunset, 16h. 57m.

Moon (one day after Full) rises, 19h. 12m.*; souths, 0h. 13m.; sets, 5h. 19m.; decl. on meridian, 12° 13' S.

Planet	Rises h. m.	Souths h. m.	Sets h. m.	Decl. on meridian
Mercury ...	5 13	12 4	18 55	9 7 N.
Venus ...	2 10	10 11	18 12	21 9 N.
Mars ...	10 48	15 59	21 10	10 23 S.
Jupiter... ..	8 45	14 44	20 43	0 55 S.
Saturn... ..	1 34	9 40	17 46	21 59 N.

* Indicates that the rising is that of the preceding evening.

Occultations of Stars by the Moon (visible at Greenwich)

Aug.	Star	Mag.	Disap.	Reap.	Corresponding angles from vertex to right for inverted image
			h. m.	h. m.	
17 ...	4 Ceti ...	6	21 58	near approach	345 0
17 ...	5 Ceti ...	6	22 3	...	10 323
17 ...	B.A.C. 5	6	22 11	...	62 278
19 ...	v Piscium	4½	22 42	...	68 261

Aug. h. Mercury in inferior conjunction with the Sun.

Variable Stars

Star	R.A.	Decl.	Aug.	h. m.
	h. m.			
U Cephei ...	0 52'2	81 16 N.	17,	21 28 m
Algol ...	3 0'8	40 31 N.	17,	0 18 m
R Comæ ...	11 58'4	19 25 N.	17,	0 M
W Virginis ...	13 20'2	2 47 S.	17,	0 0 M
δ Libræ ...	14 54'9	8 4 S.	17,	20 4 m
U Coronæ ...	15 13'6	32 4 N.	15,	2 21 m
W Herculis ...	16 31'2	37 34 N.	18,	0 M
U Ophiuchi... ..	17 10'8	1 20 N.	17,	2 56 m
			17,	23 4 m
W Sagittarii ...	17 57'8	29 35 S.	17,	0 0 M
U Sagittarii... ..	18 25'2	19 12 S.	15,	0 0 M
β Lyræ... ..	18 45'9	33 14 N.	20,	21 0 m₂
S Vulpeculæ ...	19 43'7	27 0 N.	17,	0 M
R Sagittæ ...	20 8'9	16 23 N.	19,	0 m
δ Cephei ...	22 24'9	57 50 N.	20,	2 0 m

M signifies maximum; m minimum; m₂ secondary minimum.

TENTH ANNIVERSARY OF THE JOHNS HOPKINS UNIVERSITY

THE tenth anniversary of the Johns Hopkins University at Baltimore was celebrated on April 26 last. Of the addresses delivered on that occasion we reprint two, the second of which reviews the work of this distinguished institution since its foundation. The work of the University in every department of human knowledge is well-known and appreciated in this country, and it is unnecessary to add a word to the address of Dr. Thomas, beyond expressing a cordial hope that the future may, in the words of the very appropriate ode read on the occasion, be

"Smooth course and splendour of the sunset-smiles."

The following is the address delivered by Prof. Henry A. Rowland, Ph.D., who took for his subject "The Physical Laboratory in Modern Education."

"From the moment we are born into this world down to the day when we leave it, we are called upon every moment to exercise our judgment with respect to matters pertaining to our welfare. While nature has supplied us with instincts which take the place of reason in our infancy, and which form the basis of action in very many persons through life, yet, more and more as the world progresses and as we depart from the age of childhood we are forced to discriminate between right and wrong, between truth and falsehood. No longer can we shelter ourselves behind those in authority over us, but we must come to the front and each one decide for himself what to believe and how to act in the daily routine and the emergencies of life. This is not given to us as a duty which we can neglect if we please, but it is that which every man or woman, consciously or unconsciously, must go through with.

"Most persons cut this Gordian knot, which they cannot untangle, by accepting the opinions which have been taught them and which appear correct to their particular circle of friends and associates: others take the opposite extreme, and, with intellectual arrogance, seek to build up their opinions and beliefs from the very foundation, individually and alone, without help from others. Intermediate between these two extremes comes the man with full respect for the opinions of those around him, and yet with such discrimination that he sees a chance of error in all, and most of all in himself. He has a longing for the truth, and is willing to test himself, to test others, and to test nature until he finds it. He has the courage of his opinions when thus carefully formed, and is then, but not till then, willing to stand before the world and proclaim what he considers the truth. Like Galileo and Copernicus he inaugurates a new era in science, or, like Luther, in the religious belief of mankind. He neither shrinks within himself at the thought of having an opinion of his own, nor yet believes it to be the only one worth considering in the world; he is neither crushed with intellectual humility, nor yet exalted with intellectual pride; he sees that the problems of nature and society can be solved, and yet he knows that this can only come about by the combined intellect of the world acting through ages of time, and that he, though his intellect were that of Newton, can, at best, do very little toward it. Knowing this he seeks all the aids in his power to ascertain the truth, and if he, through either ambition or love of truth, wishes to impress his opinions on the world, he first takes care to have them correct. Above all, he is willing to abstain from having opinions on subjects of which he knows nothing.

"It is the province of modern education to form such a mind, while at the same time giving to it enough knowledge to have a broad outlook over the world of science, art, and letters. Time will not permit me to discuss the subject of education in general, and, indeed, I would be transgressing the principles above laid down if I should attempt it. I shall only call attention at this present time to the place of the laboratory in modern education. I have often had a great desire to know the state of mind of the more eminent of mankind before modern science changed the world to its present condition and exercised its influence on all departments of knowledge and speculation. But I have failed to picture to myself clearly such a mind, while, at the same time, the study of human nature, as it exists at present, shows me much that I suppose to be in common with it. As far as I can see, the unscientific mind differs from the scientific in this, that it is willing to accept and make statements of which it has no clear conception to begin with, and of whose truth it is not assured. It is an irresponsible state of mind without clearness of conception, where the connection between the thought and its object is of the vaguest description. It is the state of mind where opinions are given and accepted without ever being subjected to rigid tests, and it may have some connection with that state of mind where everything has a personal aspect and we are guided by feelings rather than reason.

"When, by education, we attempt to correct these faults, it is necessary that we have some standard of absolute truth: that we bring the mind in direct contact with it, and let it be convinced of its errors again and again. We may state, like the philosophers who lived before Galileo, that large bodies fall faster than small ones, but when we see them strike the ground together, we know that our previous opinion was false, and we learn that even the intellect of an Aristotle may be mistaken. Thus we are taught care in the formation of our