	Wolf's Relative Numbers (Zürich). 1886	1887	Variation in Magnetic Declination (Milan). 1886	1887
January	28·4 ...	13·1 ..	4·07 ...	3·71
February	23·6 ...	15·7 ...	4·91 ...	3·69
March	61·8 ...	2·7 ...	8·61 ...	6·99
April	45·9 ...	7·5 ...	9·89 ...	9·33
May	29·0 ...	17·2 ...	9·06 ..	9·30
June	25·7 ...	16·3 ...	8·37 ...	9·55
July	32·9 ...	26·2 ...	9·58 ...	10·25
August	19·0 ...	21·1 ...	8·17 ..	9·07
September... ...	17·1 ...	6·9 ...	7·61 ...	6·08
October	9·5 ...	5·4 ...	6·33 ...	6·03
November... ...	0·0 ...	4·5 ...	2·48 ...	3·07
December	15·1 ...	20·5 ...	1·61 ...	2·23
Mean	25·7 ...	13·1 ..	6·72 ...	6·61

The fluctuations in the numbers and dimensions of the prominences have not been so great as for the spots, but the prominences likewise showed a maximum in July and a decline afterwards. The highest prominence observed by Prof. Tacchini during the year was on July 2, 2½′ in height. Both faculæ and prominences failed to show a depression similar to that so conspicuous in November in the numbers of the spots, or the revival these displayed in December, the faculæ thus according in their behaviour rather with the prominences than with the spots. The following figures, given by the Rev. S. J. Perry in the *Observatory* for February 1888, show the general decline in prominence activity during 1887, as compared with 1886 :—

	Mean Height of Chromosphere.	Mean Height of Prominences.	Mean Extent of Prominence Arc.
	″	″	°
1886	8·05 ...	24·78 ...	13·26
1887	8·13 ...	23·86 ...	9·29

A New Comet.—A comet was discovered by Sawerthal on February 18. It was observed at Cape Town, February 18, 14h. 32·5m., in R.A. 19h. 11m. 32·5s., and N.P.D. 146° 3′ 44″. Daily motion, R.A. + 7m. ; N.P.D. − 1° 15′. Its physical appearance was as follows :—It was about the seventh magnitude, had a well-defined nucleus, and a tail a degree in length. It was visible to the naked eye.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1888 *MARCH* 4–10.

(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 March 4

Sun rises, 6h. 40m. ; souths, 12h. 11m. 46·0s. ; sets, 17h. 44m. : right asc. on meridian, 23h. 2·5m. ; decl. 6° 9′ S. Sidereal Time at Sunset, 4h. 36m.

Moon (Last Quarter on March 5, 3h.) rises, 0h. 26m. ; souths, 5h. 14m. ; sets, 9h. 54m. : right asc. on meridian, 16h. 3·8m. ; decl. 15° 53′ S.

Planet.	Rises. h. m.	Souths. h. m.	Sets. h. m.	Right asc. and declination on meridian. h. m.	° ′
Mercury..	6 14 ...	12 1 ...	17 48 ...	22 51·6 ...	3 21 S.
Venus.....	5 35 ...	10 5 ...	14 35 ...	20 55·6 ...	17 37 S.
Mars.....	21 49*...	3 7 ...	8 25 ...	13 56·3 ...	9 2 S.
Jupiter....	1 14 ...	5 27 ...	9 40 ...	16 16·5 ...	20 22 S.
Saturn....	13 20 ...	21 18 ...	5 16*...	8 10·1 ...	20 40 N.
Uranus ...	20 39*...	2 13 ...	7 47 ...	13 1·8 ...	5 51 S.
Neptune..	9 11 ...	16 51 ..	0 31*...	3 42·4 ...	17 59 N.

* Indicates that the rising is that of the preceding evening and the setting that of the following morning.

Occultations of Stars by the Moon (visible at Greenwich).

March.	Star.	Mag.	Disap. h. m.	Reap. h. m.	Corresponding angles from vertex to right for inverted image. ° °
4 ...	49 Libræ	5½ ...	0 0 ...	0 30 ...	334 274
6 ...	B.A.C. 6098 ...	6 ...	2 28 ...	3 25 ...	72 200

March.	h.	
4 ...	11 ...	Jupiter in conjunction with and 3° 47′ south of the Moon.
4 ...	14 ...	Mars stationary.
9 ...	22 ...	Venus in conjunction with and 0° 17′ north of the Moon.

Saturn, March 4.—Outer major axis of outer ring = 44″·8 ; outer minor axis of outer ring = 16″·0 ; southern surface visible.

Variable Stars.

Star.	R.A. h. m.	Decl. ° ′		h. m.	
T Arietis	2 42·1 ...	17 3 N. ...	Mar. 8,		*M*
Algol	3 0·9 ...	40 31 N. ...	,, 4,	0 1	*m*
			,, 6,	20 50	*m*
R Persei	3 22·9 ...	35 17 N. ...	,, 5,		*M*
λ Tauri...	3 54·5 ...	12 10 N. ...	,, 7,	0 20	*m*
			,, 10,	23 12	*m*
ζ Geminorum ...	6 57·5 ...	20 44 N. ...	,, 4,	22 0	*M*
			,, 10,	2 0	*m*
R Canis Majoris...	7 14·5 ...	16 12 S. ...	,, 9,	21 25	*m*
S Cancri	8 37·5 ...	19 26 N. ...	,, 6,	20 59	*m*
δ Libræ	14 55·0 ...	8 4 S. ...	,, 7,	1 6	*m*
U Coronæ	15 13·6 ...	32 3 N. ...	,, 10,	4 7	*m*
U Ophiuchi... ...	17 10·9 ...	1 20 N. ...	,, 5,	1 28	*m*
X Sagittarii	17 40·5 ..	27 47 S. ...	,, 4,	3 0	*M*
β Lyræ...	18 46·0 ...	33 14 N. ...	,, 7,	22 0	*M*
U Aquilæ	19 23·3 ...	7 16 S. ...	,, 10,	5 0	*m*
η Aquilæ	19 46·8 ...	0 43 N. ...	,, 9,	5 0	*m*
Y Cygni	20 47·6 ...	34 14 N. ...	,, 4,	19 11	*m*
			,, 7,	19 5	*m*
W Cygni	21 31·8 ...	44 53 N. ...	,, 5,		*m*
δ Cephei	22 25·0 ...	57 51 N. ...	,, 10,	22 0	*m*

M signifies maximum ; *m* minimum.

Meteor-Showers.

	R.A. °	Decl. °	
From Coma Berenices...	190 ...	26 N. ...	March 8.
Near η Libræ	234 ...	17 S. ...	Swift. March 7.
,, γ Herculis	244 ...	16 N. ...	Very swift. Mar. 7.

THE RELATIONS BETWEEN GEOLOGY AND THE BIOLOGICAL SCIENCES.[1]

II.

IN the remarks which I have hitherto made, I have confined myself to the purely biological aspects of palæontology. As astronomy exhibits to us the orderly working of physical and chemical laws in other and far distant orbs, so palæontology presents us with the biological phenomena of many and widely-separated periods.

But besides the biological, there are two other aspects in which fossils may be viewed ; and in these aspects their relations are almost entirely with zoological science. It is the recognition of this fact which prevents the geologist from acquiescing with the claims of biologists to treat palæontology as nothing more than a branch of their own science.

The assemblage of fossils found in a particular deposit furnishes us with the most valuable evidence concerning the conditions—such as salinity of water, depth, temperature, pressure, &c.,—under which the deposit must have been formed. And, again, in the changes which the materials of fossils can be shown to have undergone we have very accurate data for determining the succession of processes to which the materials of the deposit must have been subjected since their original accumulation.

It is true that this evidence of fossils concerning the conditions under which deposits have been formed, is of a kind which has been sadly misread in the past. Until the study of deposits which are being formed at the present day was taken up in a systematic manner, it was almost hopeless to avoid numerous sources of error ; but at the present day the advantages accruing to geology from the results of deep-sea researches, are at least as great as those which by the same means have been conferred upon biology.

It is almost needless to call attention to the fact that there are vast masses of rock, including most of the calcareous and carbonaceous, and many of the siliceous and ferruginous types, of which the materials have been accumulated entirely by the agency of living organisms ; it is impossible to study the petrology of such deposits without an acquaintance with the nature and functions

[1] Address to the Geological Society by the President, Prof. John W. Judd, F.R.S., at the Anniversary Meeting, on February 17. Continued from p. 404.