Creek (North Carolina), which are evidently nothing but cast-iron, and a third, labelled Tarapaca Hemalga (Chili), which is probably of similar material. We could find' on the specimens of this class in the Harvard collection no distinct evidences of crystallisation ; but also we could find no features incompatible with that unity of structure which it has been the chief object of this paper to illustrate."

MR. HORATIO HALE has issued in pamphlet form his address "On the Origin of Languages and the Antiquity of Speaking Man," delivered before the Anthropological Section of the American Association for the Advancement of Science at Buffalo last August. The author's views were much discussed at the time, and those interested in the subject will be thankful to have them presented in this convenient form. Rejecting all the theories hitherto advanced by Lyell, Frederick Müller, and others, he endeavours to account for the vast number of *specifically distinct* languages spoken by races *not specifically distinct* by assuming that they originated from children's prattle in independent centres after the spread of speechless man over the globe. The cases are mentioned of the Boston twins born in 1860 and of some other "Geschwister," who appear to have evolved and practised for some time infantile jargons understood only amongst themselves, which it is argued might, under favourable conditions of isolation and so forth, develop into regular forms of speech consistently worked out with their own vocabularies and grammatical structure. In this way linguistic families differing absolutely one from the other need not be of any great antiquity, and in fact may have been developed from slight germs in many places and at different times since the dispersion of the "*homo alallus*" from some given centre. This *homo alallus* himself is admitted to be the lineal descendant of the men of the Stone Age, who are assumed to have been speechless, so that all forms of speech now current may be of comparatively recent date, say, not more than 8000 or 10,000 years, notwithstanding their great number and profound differences. This theory, which refers human speech in the first instance to " the language-making instinct of very young children," is presented with considerable force and plausibility, but will scarcely be taken seriously either by philologists or anthropologists. The latter especially will find it difficult to accept the conclusion that man properly so called, the *homo sapiens*, as distinguished from his precursor of the Neolithic Age, does not date further back than "somewhere between 6000 and 10,000 years ago." The theory also requires us to regard this first speaking man as already fully developed, possessing "intellectual faculties of the highest order, such as none of his descendants has surpassed," thus reversing the conclusions of modern anthropology.

IT is reported from Vienna that a great ice cavern has been discovered on the southern slope of the Dachstein, or Schneeberg, the very conspicuous lofty mountain in Lower Austria, which is visible from the ramparts of the capital. The general direction of the cavern runs from south to north, and it has been explored for a distance of 600 metres, a sharp precipice seemingly 14 metres deep having stopped for the time further progress. The cavern is from 5 to 6 metres broad, and very lofty, giving the impression that the ice is enormously thick. The explorers are of opinion that a subterranean lake will be found in the cavern.

THE additions to the Zoological Society's Gardens during the past week include a Bonnet Monkey (*Macacus sinicus* ♀) from India, presented by Miss Edith Prowse ; four Common Hedgehogs (*Erinaceus europæus*), British, presented by Mr. W. Walkinshaw ; a —— Buzzard (*Buteo* ——) from Mogador, North Africa, presented by Mr. P. L. Forwood ; a Ring-necked Parrakeet (*Palæornis torquatus* ♀) from India, presented by Mr. W. S. Bradshaw ; an Aldrovandi's Skink (*Plestiodon auratus*) from North Africa, deposited ; a Rusty-spotted Cat (*Felis rubiginosa*) from Ceylon, two Diuca Finches (*Diuca grisea*) from Chili, two Wood Larks (*Alauda arborea*), British, purchased ; eight Long-fronted Gerbilles (*Gerbillus longifrons*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

THE BINARY STAR γ CORONÆ AUSTRALIS.—Mr. H. C. Wilson, of Cincinnati Observatory, has published elements of the orbit of this interesting southern double star in the *Sidereal Messenger* for October. These elements, which do not differ much from a set recently computed by Mr. Gore (*Monthly Notices*, vol. xlvi. p. 104), are as follows :—

P = 78·80 years	λ = 139°·0
T = 1887·40	☋ = 41°·0
e = 0·324	a = 1″·85
γ = 50°·5	

Comparing observations made 1834·47 to 1883·62 with this orbit, Mr. Wilson finds that the position-angles are well represented, with the exception of those observed by Powell from 1859 to 1864, which seem to be affected by systematic error, and thinks we may conclude the period is not far from eighty years. It is to be hoped that numerous observations of this star will be obtained during the next ten years, while the distance is small and the angular motion rapid.

OPPOLZER'S ASTRONOMICAL REFRACTIONS.—Herr Oppolzer has recently published, in the *Transactions* of the Mathematical and Natural Science Section of the Imperial Academy of Sciences of Vienna, vol. liii., a paper containing a theoretical discussion of the problem of astronomical refraction, followed by numerical tables intended to facilitate the practical application of the results at which he arrives. The relation between the temperature (t) and density (ρ) of the atmosphere which Herr Oppolzer adopts is

$$\frac{\delta t}{\delta \rho} = \epsilon + \Sigma k \rho^{\sigma - 1},$$

where k and σ are quantities depending on the state of the atmosphere and on the place of observation. Whatever may be thought of the legitimacy of a relation of this form from a theoretical point of view, it at all events has the advantage, in Herr Oppolzer's skilful hands, of leading to a comparatively simple expression for the amount of refraction, deduced from a modification of the ordinary differential equation. And that it is capable, when the approximations are carried far enough, of giving results of great accuracy for large zenith distances, is shown by a comparison made between the computed values of the refraction and the well-known observations of Argelander, which form the basis of Bessel's supplementary table given in the "Tabulæ Regiomontanæ," with the following results :—

Z.D.	Observed—Computed	Z.D.	Observed—Computed
85 0	... − 1″·1	88 0	... − 2″·5
86 0	... + 1·2	89 0	... + 2·3
87 0	... − 1·3	89 30	... + 1·8

COMETS FINLAY AND BARNARD.—The following ephemerides for Berlin midnight are from the *Astronomische Nachrichten*, No. 2752 :—

Comet Finlay (1886 *e*)

1886	R.A.	Decl.	Log *r*	Log △
	h. m. s.	° ′		
Nov. 8	19 25 22	24 56·8 S.	0·0751	0·0970
10	33 49	24 36·5		
12	42 24	24 14·1	0·0718	0·0932
14	51 5	23 49·5		
16	19 59 51	23 22·7 S.	0·0697	0·0899

Comet Barnard (1886 *f*)

1886	R.A.	Decl.	Log *r*	Log △
	h. m. s.	° ′		
Nov. 7	12 7 8	8 18·5 N.	0·0735	0·2031
9	15 5	9 0·3		
11	23 31	9 44·3	0·0551	0·1772
13	32 29	10 30·7		
15	12 42 1	11 19·2 N.	0·0366	0·1507