

China it can lay claim to no such foundation. The Taoists adopted the practice at a very early period to ward off and cure disease; but in later times charms, incantations, and magic seem to have taken its place. Dr. Dudgeon described the general principles of the art, including active, passive, and breathing movements, and the *rationale* of the Chinese system of medicine on which it is founded. The life of man depends upon the existence of air circulating throughout the system. The vital principle is supposed to reside at a point one inch below the navel; from here the two principles of nature emanate. Thence, according to Chinese notions, proceeds the breath in expiration, and thither it goes in inspiration. The great object of life and also of *Kung-fu* is to nourish this original air, and avoid disease by preventing the admission of depraved air. Dr. Dudgeon gave a description of the various movements prescribed for various diseases. Some of these are complicated, and many ridiculous, but the practice appears to hold its place still in Chinese medicine.

At a recent meeting of the French Société d'Encouragement, M. Grosfils, of Verviers, described a new method he had hit upon for preserving butter. The principle of it is, to hinder the crystallization of salicylic acid added to the butter, and so maintain its antiseptic power indefinitely. This he effects by means of lactic acid, which is a pretty strong solvent of salicylic acid. The composition he had arrived at consists of 98 parts of water, 2 parts of lactic acid, and $\frac{1}{10000}$ of salicylic acid. This will preserve good butter indefinitely, even at high temperatures and in hot countries. M. Grosfils estimates that the butter, supposing it retains 5 per cent. of its weight of liquid, will retain 1 part of salicylic acid to 100,000. Lactic acid beyond 2 per cent. gives a slightly acidulated taste which might affect the saleability of the butter: this may be removed by simple washing with water, or, better, with skim-milk containing a little bicarbonate of soda. The preparation of a kilogramme of butter by M. Grosfils' process does not cost more than one or two centimes.

It appears that, after some years' experiment, M. Jovis, Director of the Aéronautic Union of France, has found a satisfactory varnish for textile materials. It is of great flexibility, contains no oleaginous base, and, while adding little to weight, confers great impermeability. A piece of calico coated with it will retain hydrogen several days, and is not only not disaggregated by the matters applied, but even by use increases their dynamometric force; a matter of great importance for marine cordage, sails, tents, &c. The varnish is also suitable for paintings, wainscoting, &c., and it is exempt from mouldiness. It can be exposed to very varied temperatures without alteration. Lastly, the sub-products can be utilized for coating walls, railway-sleepers, &c. Such is the account presented to the Société d'Encouragement, to which the Aéronautic Union has applied for help to give this new industrial branch a worthy development.

WE have received the Transactions of the Norfolk and Norwich Naturalists' Society for 1886-87. This is the eighteenth annual volume issued by this flourishing Society. The papers are numerous and varied, beginning with the presidential address of Sir Peter Eade, which is devoted to the subject of germ life, more particularly as it affects human and animal life. Mr. Seebohm follows with two papers on the birds of the Lena Delta and of the extreme north of Alaska, and Mr. Harvie-Brown contributes a paper on the birds of Priest's Island. Sir Peter Eade gives an account of two land tortoises (*Testudo græca*) in confinement; and there are two papers on new or rare Norfolk plants. Mr. J. W. Gurney, Jun., has a paper "On the Periodic Movements of Gulls on the Norfolk Coast," and the Rev. H. A. Macpherson writes on "Hybrid Finches." Mr. Francis Day gives descriptions of some remark-

able forms of eels found in Saham Mere, Norfolk; and Mr. Southwell has a paper on the "Smelt Fishery in Norfolk," as well as his annual report on the herring fishery from the ports of Yarmouth and Lowestoft. Mr. A. W. Preston continues his meteorological notes. Two papers of more than local interest are contributed by Lieut.-Colonel Feilden and Mr. Herbert Geldart, the former on zoological, the latter on botanical, researches carried on during a voyage to Hudson's Bay on board the *Alert*, which, in the summer of 1886, visited and relieved the various meteorological stations in that locality. There are some interesting communications in the form of "Miscellaneous Notes and Observations"; and last, but by no means least, is Part II of the "Fauna and Flora of Norfolk," being Section II. of a list of the birds observed in the county by Messrs. Gurney and Southwell.

THE journal *Caucase* states that the Imperial Society of the "friends of natural science, ethnography, and anthropology" are devoting particular attention to the zoology of the Caucasus. In 1885 the Society sent a mission to study the fauna of Erivan and of the coast of the Black Sea, and this year it has sent out two expeditions, one to study the fauna of the coast of the Caspian, the other that of the environs of Tiflis and the Lakes Gotchka, Paleoston, and others.

THE death is announced of Dr. Johann Krejci, Professor of Geology at the University of Prague and a member of the Bohemian Parliament.

THE Imperial Leopold-Caroline Academy of Naturalists, at Halle, celebrated its two-hundredth anniversary on August 7.

A VOLCANIC eruption lately occurred in the Island of Galita, on the Algerian coast. The streams of lava were numerous, and the light of the fire was visible for forty miles around.

ON July 26 a severe shock of earthquake was felt at Oberzell, Wesscheidt Messnerschlag, in Lower Bavaria.

A SEVERE earthquake was noticed in Ecuador on August 2, at 6.29 p.m. Great damage was done in many cities, but Cuenca suffered most, many of the houses falling in, and others being seriously damaged. Shocks of earthquake were also felt in several places in Indiana, Kentucky, Tennessee, and on the eastern banks of the Missouri.

THE additions to the Zoological Society's Gardens during the past week include a Red and Blue Macaw (*Ara macao*) from Central America, presented by Dr. and Mrs. T. W. Allright; a Carrion Crow (*Corvus corone*), European, presented by Mr. George Nicholson; a Fieldfare (*Turdus pilaris*), presented by Colonel Verner; a Hive of Bees, presented by Mr. T. Bates Blow; four Geckos, four Frogs from Italy; two Lineated Chalcids (*Chalcides lineatus*) from the South of France; two Dark-green Snakes (*Zamenis atrovirens*), two Natterjack Toads (*Bufo calamita*) from Germany, purchased; a Bennett's Wallaby (*Halmaturus bennetti*), two Viscachas (*Logostomus trichodactylus*), three Wood Hares (*Lepus sylvaticus*), born in the Gardens; a Bronze-spotted Dove (*Chalcospelia chalcospilos*), two Hybrid Spotted Zenaida Doves (between *Zenaida maculata* ♂ and *Z. auriculata* ♀), bred in the Gardens.

OUR ASTRONOMICAL COLUMN

NEW VARIABLE OF THE ALGOL TYPE.—Mr. E. Sawyer announces in No. 159 of *Gould's Astronomical Journal* his discovery that the star 155 (*Uran. Argent.*) Canis Majoris is a variable of the Algol type. A diminution in the light of the star was first observed on March 26; the star was then observed again on March 29 and 30, and April 6, 7, 9, and 10, and appeared on each occasion to be of about its normal brightness. On April 11 at 8h. 15m. it was again found to be faint, but had recovered brightness by 9h. On April 19 another minimum was

observed and the recovery of light successfully watched. The next night seemed to show the commencement of another minimum, but the star was low at the time of observation. The epoch would appear therefore to be some aliquot part of eight days; if the observation of April 20 is accepted, it will be about 1d. 3h. It is uncertain, as yet, whether the star has been observed at actual minimum; but the diminution of light remarked has amounted to about half a magnitude. As the star is the first certainly variable star in the constellation, it will probably be called R Canis Majoris. The place of the variable for 1875 is R.A. 7h. 13m. 49s., Decl. 16° 9' 7 S.

Mr. Sawyer gives in the same number of the *Astronomical Journal* some observations of Y Cygni, the new Algol-type variable discovered by Mr. Chandler last December. They give a general confirmation of the period, viz. 2d. 23h. 56m., deduced by Mr. Chandler from his own observations.

ASTRONOMICAL PHENOMENA FOR THE WEEK 1887 AUGUST 21-27.

(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 21

Sun rises, 4h. 56m.; souths, 12h. 3m. 1' S.; sets, 19h. 10m.; decl. on meridian, 12° 9' N.; Sidereal Time at Sunset, 17h. 9m.

Moon (at First Quarter August 25, 20h.) rises, 7h. 37m.; sets, 14h. 10m.; sets, 20h. 30m.; decl. on meridian, 2° 55' N.

Planet.	Rises.	Souths.	Sets.	Decl. on meridian.
	h. m.	h. m.	h. m.	
Mercury ...	3 15	10 54	18 33	17 49 N.
Venus ...	8 39	14 10	19 41	6 18 S.
Mars ...	1 51	9 56	18 1	21 49 N.
Jupiter... ..	10 49	15 57	21 5	10 46 S.
Saturn... ..	2 18	10 13	18 8	20 16 N.

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

August.	Star.	Mag.	Disap.	Reap.	Corresponding angles from vertex to right for inverted image.
			h. m.	h. m.	
22 ...	65 Virginis	6	20 34	21 26	92 307
27 ...	B.A.C. 6081	6	17 59	19 14	51 277
August.	h.				
21 ...	14	Venus in conjunction with and 9° 13' south of the Moon.			
22 ...	0	Venus at greatest distance from the Sun.			
23 ...	13	Jupiter in conjunction with and 4° 12' south of the Moon.			
25 ...	2	Mercury at least distance from the Sun.			

Variable Stars.

Star.	R.A.	Decl.	Aug.	h. m.
	h. m.			
U Cephei ...	0 52.3	81 16 N.	Aug. 21, 20	8 m
Algol ...	3 0.8	40 31 N.	" 22, 20	37 m
δ Libræ ...	14 54.9	8 4 S.	" 24, 21	25 m
U Coronæ ...	15 13.6	32 4 N.	" 26, 21	6 m
U Ophiuchi... ..	17 10.8	1 20 N.	" 22, 22	36 m
		and at intervals of 20 8		
X Sagittarii... ..	17 40.5	27 47 S.	Aug. 24, 22	0 m
W Sagittarii ...	17 57.8	29 35 S.	" 24, 20	8 m
U Sagittarii... ..	18 25.2	19 12 S.	" 21, 0	0 M
β Lyræ... ..	18 45.9	33 14 N.	" 23, 21	0 M
δ Cephei ...	22 25.0	57 50 N.	" 27, 2	0 M
			" 27, 0	0 M

M signifies maximum; m minimum.

Meteor-Showers.

	R.A.	Decl.	
From Pisces ...	60	11 N.	Swift.
Near α Cygni ...	291	60 N.	Slow, brilliant trained meteors.

GEOGRAPHICAL NOTES.

THE *Bollettino della Società Geografica Italiana* for June contains a valuable contribution to the study of the ethnical relations in the Ogoway and Lower Congo basins, by the Cavaliere A. Pecile, who was associated for three years with Count Giacomo di Brazzà in his exploration of the new French protectorate in the equatorial region north of the Congo. All the multifarious tribes of this extensive region, which stretches from the coast inland to the Ubangi affluent of the Congo, are divided into two essentially distinct groups, that is to say (1) the original settled populations, either aborigines in the strict sense of the term, or such as have occupied their present homes from prehistoric times; and (2) those that have made their appearance in comparatively recent times on the Ogoway and Lower Congo continually pressing forward from the interior towards the coast. To the former group belong the Batekes, Adumas, Avumbos, Mbocos, Ondumbos, Mboshi, and many others; to the latter the Bakales, Pauens (Fans), Okandas, and Obambas of the Ogoway, and the Apfurus, Bayanzi, and others of the Congo and its northern affluents. One of the most important results of the author's researches is the light that he throws on this mysterious forward movement of the inland tribes, which is not confined to the equatorial regions, but extends almost uninterruptedly northwards to Upper Guinea and Senegambia. Here the chief aggressive populations are the Toucouleurs (mixed Berbers), Fulahs, and Mandingans, all now Mohammedans; in the Ogoway and Congo basins the Bakales, Fans, and Bayanzi, all still pagans, and mostly cannibals. These have already reached the coast at many points, pressing forward from a vast and almost impenetrable forest zone, which stretches from the seaboard eastward probably to the Niam-Niam country in the heart of the continent. But the author believes that he has discovered the very cradle of the fierce Bakale and Fan peoples about the head waters of the Ivindo (2° 30' N.), where the old settlements still exist whence the first waves of migration flowed westwards. This general westward movement is described as taking place unconsciously, or through a sort of vague instinct attracting the over-crowded inland populations towards the centres of trade on the coast. Their interests naturally impel them in the direction whence come the European commodities so much coveted by all the inland populations. The Bakales appear to have preceded the Fans by many years, their migrations being chiefly directed towards the lagoons of the Lower Ogoway, where they are now settled between the local Galoa and Inenga tribes. The Bayanzi, who have acquired the ascendancy along the right bank of the Lower Congo, seem to have come originally from the same regions as the Fans, whom they resemble in physical appearance, character, language, and usages. But while the latter are "land-lubbers," displaying absolute horror of the water, the Bayanzi have always been great fluvial navigators, so that their original home may have been the Upper Ubangi, slowly advancing down this great artery to its junction with the Congo. In general the settled aborigines are of blacker complexion and more decided Negro type; the intruders much fairer, taller, with more regular features, less woolly hair, more animated and intelligent expression. At the same time they are also more ferocious and very decided cannibals. This point, about which some doubts had been expressed, was confirmed in a startling way by the fate of three Aduma boatmen belonging to the Expedition, who happened to be left behind near a Fan village on the banks of the Ogoway, and whose skeletons were afterwards found carefully picked (*diligentemente scarnati*) by the villagers. The Fans are continually on the look-out for captives to supply their cannibal feasts, whereas the somewhat more pacific Batekes are anthropophagists rather through the necessity of procuring a flesh diet in their present territory, which is nearly destitute of large game. A chief source of their supplies are the unfortunate slaves, or the humbler members of the tribe, who are denounced by the medicine-men as the cause of any calamity, such as the sickness or death of a chief, and who are always sacrificed and eaten to propitiate the evil spirits, and at the same time to satisfy the craving for human flesh.

THE BRITISH ASSOCIATION.

THE Manchester meeting of the British Association promises to be brilliantly successful. It will probably be attended by a larger number of persons than have been present at any