THOUGH articles of scientific interest only occasionally appear in British monthly periodicals read by the general public, they are more frequent in the American magazines published here. The *Monthly Guide to Periodical Literature*, the first number of which has just been issued by the Advertising Agency of London, is therefore not without value from the scientific side; for it shows the titles and writers of articles in the chief magazines and reviews which reach us from the United States, and also in similar periodicals having their origin on this side of the Atlantic. Assuming that the editors of the various popular magazines know the pabulum best appreciated by their readers, an examination of the list of articles shows that science is given but scant attention by the reading public. A few editors with scientific knowledge as well as literary capacity might do much to increase interest in natural knowledge, and raise their readers' minds above the dead level of indifferent fiction and sensational science.

THE *Zeitschrift für physikalische Chemie* contains a very ingenious application by J. J. van Laar of thermodynamics to the results of Ramsay and Shields upon the association of liquids. Assuming that θ simple molecules of water are associated to form a compound molecule, Dr. van Laar applies the thermodynamical conditions of equilibrium to the rate of change of the constant of association with temperature, and applies the resulting formula to the experimental figures of Ramsay and Shields. The value of q, the heat of dissociation of the molecule $[H_2O]^\theta$ thus determined, should be constant if the right value of θ is assumed, and this is the case for water at temperatures between 0° C. and 60° C. if $\theta=2$. The results are not so good if θ be taken as 3 or 4, and hence the author concludes that the association is correctly expressed by

$$(H_2O)_2 \rightleftarrows 2H_2O$$

with an absorption of 1930 calories per 18 grams of water. Ethyl alcohol also appears to be bimolecular, but for methyl alcohol and acetic acid $\theta=3$ at least. The contraction ensuing when alcohol and water are mixed and the phenomenon of the maximum density of water are also considered from this point of view, with the striking result that the assumption of the partial association of liquid molecules explains, not only the contraction on mixing with alcohol, but also the irregular expansion of water.

THE additions to the Zoological Society's Gardens during the past week include a White-throated Capuchin (*Cebus hypoleucus*) from Central America, presented by Mrs. Vernon; a Blue and Yellow Macaw (*Ara ararauna*) from South America, presented by Mr. H. W. Stride; two Java Sparrows (*Padda oryzivora*) from Java, presented by Mr. Walter Buchanan; an Indian Dial-Bird (*Copsychus saularis*) from India, presented by Mr. W. H. St. Quintin; a Delalande's Gecko (*Tarentola delalandii*) from West Africa, presented by Mr. May; two Spotted Salamanders (*Salamandra maculosa*), European, presented by Mrs. Brett; a Hocheur Monkey (*Cercopithecus nictitans*) from West Africa, a Vulpine Phalanger (*Trichosaurus vulpecula*) from Australia, ten Nose-crested Iguanas (*Iguana tuberculata rhinolophus*) from Nicaragua, two Whooper Swans (*Cignus musicus*), European; a Starred Tortoise (*Testudo elegans*) from India, deposited.

OUR ASTRONOMICAL COLUMN.

NEW MINOR PLANET (1899 E.Y.).—Herr Otto Knopf, of the Jena Observatory, gives the elements and ephemeris of this planet in *Astronomische Nachrichten*, Bd. 151, No. 3612, from which the following abridgment is obtained:—

Elements for Epoch 1900 *January* 0·0 *Berlin Mean Time.*

$M = 345^\circ\ 32'\ 15''\cdot3$
$\omega = 3\ 32\ 19\cdot9$ } 1900.
$\Omega = 89\ 46\ 43\cdot3$ } 1900.
$i = 15\ 22\ 20\cdot0$ } 1900.
$\varphi = 5\ 13\ 16\cdot4$
$\mu = 651''\cdot293$
$\log a = 0\cdot490821$

Ephemeris for 12*h. Berlin Mean Time.*

1899.		R.A.		Decl.
		h. m. s.		° ′
Jan. 18	...	4 9 34	...	+17 32·5
22	...	9 22	...	17 54·2
26	...	9 36	...	18 16·4
30	...	10 15	...	18 38·9
Feb. 3	...	11 19	...	19 1·9
7	...	4 12 46	...	+19 25·0

SCIENCE TEACHERS IN CONFERENCE.

THE Committee responsible for the arrangements in connection with the English Education Exhibition, which is now being held at the Imperial Institute, very wisely decided that a series of conferences, lectures and demonstration lessons arranged by the chief educational bodies throughout the country would form a valuable adjunct to their exhibition. The invitations which the Committee sent out met with a very cordial reception, and the programme of meetings for the discussion of educational questions includes nearly every grade and phase of English school life.

One of the most interesting of these events was a conference of science teachers from all parts of the country, arranged by the Technical Education Board of the London County Council. The success which attended similar gatherings during January 1899 convinced the promoters that nothing but good resulted from the discussion of methods of teaching different branches of science, and the meetings on January 10 and 11 were arranged in much the same way as those of the first conference last year. But whereas the subjects considered in 1899 were various branches of physics and chemistry, the greatest prominence was this year given to plans of instruction in natural history and manual training.

THE TEACHING OF BOTANY.

At the first meeting held on the morning of January 10 at the Imperial Institute, when the methods of teaching botany was the subject dealt with, the chair was taken by Sir John Lubbock. Papers were read by Prof. Miall, F.R.S., of the Yorkshire College, Leeds, and Miss von Wyss, of the North London Collegiate School for Girls.

Prof. Miall gave it as his opinion that the teaching of botany in schools is not spreading, though there is hardly any scientific inquiry which is at once so practicable and inviting. A special reason for encouraging the study of botany is that a knowledge of the great facts of plant-life is essential to scientific agriculture. Those who live by agriculture, which is still our greatest industry, are already beginning to demand that, in our rural schools at least, the scientific basis of agriculture shall somehow enter into the course of instruction. A school course may conveniently be divided into three stages according as the pupils are children (age 8–12), boys and girls (13–16), or young men and women (17–19). The science lessons given in the first stage should take the form of object lessons. In the second stage systematic science may be begun, and here chemistry and physics will be the common choice, but natural history should be kept alive by school natural history clubs and rambles. In the third stage, students who will follow some pursuit in which natural history plays a part, should take up natural history again and study it methodically in the light of their chemistry and physics.

In the first stage the following maxims were recommended by Prof. Miall. (1) No technical terms in Latin and Greek. (2) No lectures or information lessons. (3) No books in class. (4) Let all lessons be interrogations of actual objects, and largely of live plants. (5) Try to make the class active and