It will be observed that the book differs greatly from most books on general botany in the great emphasis laid on the chemistry, physics and physiology of plants, less stress being put on the morphology and development. This is in accordance with what we should judge to be the taste of the author, who was long a pupil of Schwendener. In the general treatment of the subject-matter the author makes frequent use of and reference to the works of Naegeli, Sachs, Pfeffer, de Bary, Frank, Goebel and Warming, but more especially to those of Schwendener, Haberlandt and others of Schwendener's pupils. For this reason the book will be a welcome addition as a condensed reference book of the work of these investigators.

The author is a fervent disciple of the idealistic school of special creation, and accepts only those processes to be governed by natural law which have been revealed by scientific investigation as facts. Relationship and relative position of groups of plants is, in the mind of the author, only "a process of thought which the comparative study of the plant series creates in our minds; that such a series is genetic is an unverified postulate of the dogmatic teaching of descent, which allows fantasy to supplant that which empirical investigations leave unanswered." Hypnotized by the fathomless depth of life, he accepts the miraculous creation, under the influence of which the mind is closed to the philosophical consideration of fundamental relationships and modes of progress as suggested by phylogenetic evolution, and it does not appear to be realized that God working through natural law, and by processes of evolution through time, has developed the universe in accordance with the same plan which is wonderfully shown in the ontogeny of the present.

GEO. F. ATKINSON.

SCIENTIFIC JOURNALS.

AMERICAN JOURNAL OF SCIENCE.

THE July number opens with an article by Carl Barus, describing the lecture-room experiment with carbon dioxide, showing the passage of the liquid through the critical temperature. Suggestions are given in regard to the arrangement of the tube with respect to the sunlight used for illumination and the projecting lens, in order to give the best results. The experiments performed by the author seem to prove that there is no "real continuity between CO_2 gas and CO_2 liquid at the critical temperature. There is continuity between the liquid and *a gas which preserves the same molecule*, the same molecular structure as the liquid from which it issues. Doubtless at still higher temperature the gas with the liquid molecule will break up into the true gas with the gaseous molecule."

H. H. Clayton discusses in detail the question of a seven-day weather period. The investigation, the results of which are here detailed, was carried on under the auspices of the Elizabeth Thompson fund, and is a continuation of an earlier work by the same author, published in the *Journal* for March, 1894. In all, twenty-one stations were selected for the discussion; three in the Arctic regions, four in the United States, five in Europe, two in Asia, two in Oceanica near the Equator, three in middle South America, one in Mauritius, and one in Australia. The results of the investigation show that in general there are two maxima and two minima frequencies during the seven days, and at some stations there appear to be three. Charts are introduced showing the progression of these periods around the world. The author regards this department of investigation as a promising and important one in connection with weather forecasting, since "it is possible to say that in all parts of the world barometric minima will be from 10 to 20 per cent. more frequent on certain days than on certain other days, provided the interval taken is sufficiently long. It is also possible to say that certain days will average colder than other days."

S. L. Penfield describes a sulpharsenite of silver, Ag_9AsS_6 or $9Ag_2S$, As_2S_3, analogous to polybasite Ag_9SbS_6, to which the name pearceite is given. He calls attention to the fact that arsenical varieties of the species polybasite have long been recognized, but regards it as advisable that they should be grouped together as an independent species, in accordance with the general method of distinguishing between the antimonial and arsenical members of this series of minerals. The pearceite here described was

from a mine at Marysville, Montana, which has not only yielded material admitting of excellent analyses, conforming to the theoretical composition, but also beautiful crystals. These crystals are shown to belong to the monoclinic system, with an angle of inclination differing but little from 90°, and a rhombohedral symmetry in the distribution of the faces. In connection with this investigation the crystalline form of polybasite was also studied, particularly on specimens from Colorado; and it is shown that they also are monoclinic with the same habit as that which characterizes the pearceite. An interesting summary of a number of metallic species among the sulphides, which have a prismatic angle of nearly 60°, is given.

James L. Greenleaf describes in considerable detail the hydrology of the Mississippi. The special points considered are the volume, flow, the annual rainfall and its distribution, and the relation of flow or run-off to the rainfall, as depending upon the special conditions present in a particular case. The discussion is based upon a report by the writer upon certain water powers prepared for the tenth census. The data there given have been amplified to cover the flood and low water as well as the average discharge of the Mississippi and its tributaries, and have been brought up to date by a study of the subsequent gaugings conducted by the corps of engineers. A series of diagrams present the data graphically and give basis for further discussion. The first gives the average discharge for the different tributaries with their branch areas. Another diagram shows the average flow and rainfall, and still another connects the high average and low discharge and rainfall for the upper and lower Mississippi and for the principal branches.

C. R. Eastman describes the relations of certain body plates of the Dinichthyids. The subject of Tertiary floras of the Yellowstone National Park is enlarged upon by F. H. Knowlton. His paper belongs with that on *The Age of the Igneous Rocks of the Yellowstone* by Arnold Hague, published in the June number. The region is shown to be remarkably rich in species, and three distinct flora are distinguished. The first is referred to the Fort Union or Lower Eocene; a second is regarded as Miocene, but older than the auriferous gravels, and the third is regarded as Upper Miocene. The entire flora embraces 147 forms, distributed among 33 natural orders. The remarkable contrast between the richness and variety of the vegetation at that time with the comparative paucity at present, and the bearings of this upon the change in climate, are brought out. The whole subject will be developed in detail in a monograph to be published under the auspices of the United States Geological Survey. O. C. Marsh describes a remarkable specimen of a Belodont reptile found in the red sandstone of the New Haven region. His paper is accompanied by a plate showing the portion of the back of the reptile which is preserved. A. E. Verrill gives an article on a new cephalopod of the genus *Opisthoteuthis*, illustrated by a number of figures. Remarks are added on the general subject of molluscan morphology. The subject of separation or isolation in its bearings on geology and zoography is discussed by A. E. Ortmann. He finds in it an explanation of the distribution of animals as well as of the origin of species. T. L. Walker gives observations on percussion figures in mica, and shows that, contrary to what has been hitherto held, the angles between the lines developed are not 60°, but vary somewhat widely from this. I. K. Phelps describes an iodometric method for the determination of carbon dioxide.

PSYCHE, JULY.

R. A. Cooley describes and figures on a plate a new structural character in insects, consisting of a 'spiny area,' a small patch of short sharp spines on the under side of the fore wing near the base posteriorly, related to a corresponding patch on the thorax, at the point which the spines touch when the wings are in repose. He has demonstrated its presence in nearly five hundred moths, all of which fold their wings over the abdomen, and also in some insects of other orders. W. S. Blatchley continues his notes on the winter Coleoptera (sixty species) of Vigo Co., Ind., and A. P. Morse his notes the Tryxalinæ of New England, the new genus Clinocephalus being considered. Brief notes on butterflies are given by Miss Soule and Messrs. Folsom and Symthe.