

if they are not true dicotyledons, will prove to be their immediate ancestors. But I certainly do not believe that any number of well developed dicotyledonous plants will ever be found in the Jurassic, nor that such plants flourished at a period so remote.

Aside from the Carboniferous and the Miocene scarcely any geological age is better known from the botanical side than the Jurassic. From the Rhetic to the Wealden, rich Jurassic floras have been made known in many countries of Europe, in the arctic regions, in Siberia, in China and Japan, in India, Australia, South Africa and South America, and only last year the discovery was made for, the first time, of a true Jurassic flora in the United States, viz., near Oroville, in California.* Yet of all the hundreds of Jurassic forms thus brought to light not one is dicotyledonous.

In view of all this it is clear that there is no room for controversy over the age of the clays of Block Island or any of their equivalents. When the vertebrate remains that Prof. Marsh has found in these beds shall have been described, it will simply be a question of the relative weight that each one may choose to give to the two classes of paleontological evidence before the world. Many of the plants have already been published with full drawings and descriptions, and a list of them, which has since been considerably increased, is given in my paper on the Potomac Formation. Dr. Newberry's work on the 'Flora of the Amboy Clays' will soon appear as a Monograph of the United States Geological Survey, and Dr. Hollick is now engaged on a similar monograph of the flora of the Island Series. Those who are capable of supposing that such a flora as this could have flourished in Jurassic time are certainly at liberty to do so, and the geological world will doubtless duly appreciate their courage.

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THE DATE OF PUBLICATION.

IN SCIENCE for November 6th Dr. J. A. Allen objects to the resolution adopted by the Zoological Section of the American Association

*See Prof. Fontaine's paper in the Am. Journ. Sci., for October, 1896, pp. 273-275.

for the Advancement of Science at the Springfield meeting (1895), which recommended that the date of printing be regarded as the date of publication. He regards the position taken in the resolution as expressing both 'absurdity and mischievousness,' and insists that sale, or distribution only, constitute publication. He thinks that his opinion to this effect is a corollary of the definition given by the Century Dictionary, namely, that publication consists of 'the act of offering a book, map, piece of music, or the like, to the public by sale or by gratuitous distribution.'

The resolution was presented to the Section by a committee after consultation with many of the members who are engaged in scientific publications, and who are perfectly familiar with the subject in all its aspects. It was felt that, while it would be very desirable if a rule of distribution could be formulated, such a course is simply impracticable. The difficulty of so doing is set forth in the whereases that precede the resolution. Dr. Allen has not met these difficulties, but he adduces some objections to the adoption of the date of printing as that of publication. On the general position taken by Dr. Allen I make the following comments:

First. The date of printing, or alleged printing, of the last printed part of a book, the title page, has always been regarded as the date of publication. Who has ever inquired into or determined the date of sale or distribution of any scientific book published during the past, up to within a very few years? We are accustomed to refer to the title page, or last page, to ascertain this date, for further than that we cannot go. In most instances it will be impossible to ascertain the date of sale or distribution of books published in past years, apart from the date of printing:

Second. The probabilities are so great that a book is 'offered to the public' at the date affixed to it, that it is not safe to assume that it is not, except in two contingencies. The first is the case of fraudulent antedating of a book. This is likely to be of extreme rarity among scientific men, and if attempted would be easily detected by reference to the records of the printing office. The second case is the one brought forward by Dr. Allen, that of government pub-

lications which are issued at a date later than that which they carry on their title pages. This objection is not well taken, as stated by Dr. Allen, for, although some of the reports issued by our government may bear dates much prior to the dates of issue, it does not follow that the date of printing bears any such relation to the date of issue. They are, in fact, often printed as near the date of issue as are other books, the delay being prior to or during the printing. Here again the date of printing can be easily ascertained from the printing office. But in case of the detention of a book by the government subsequent to the printing, the question of the coincidence of the date of printing and of 'offer to the public' will depend on whether copies of the book can be had on demand or not. If the book can be had, it is 'offered to the public.' If it cannot be had, it is not offered to the public.

Third. The test of publication is according to Dr. Allen that it be 'offered to the public.' I agree with this, but hold that the only determinable test of date of offering to the public is the date of printing. The presumption is, that as soon as a book is printed and bound, it is offered to the public. That is the object of printing books. If the public does not buy or take what is offered, the duty of the publisher is fulfilled, the book is published just as much as though the edition were sold out in a day. How many copies must be sold or accepted in order to constitute a distributive publication? A single copy would constitute distribution, yet the scientific public might not be a whit the wiser for it.

Fourth. There is no doubt that the rule that the date of printing be regarded as the date of publication involves the difficulty which Dr. Allen cites as regards certain government books withheld from circulation though printed. However, these are really subject to the inquiry whether they may not be had on demand privately. The difficulties involved in the determination of the date of distribution or sale are in many instances insuperable, and in many cases unprofitable, since the only result of the inquiry would be the discovery of the date of issue of so few copies, often of one only, as not to constitute publication in the sense of distribution

at all. Further, the assumption by Dr. Allen that in adopting this rule the Zoological Section of the American Association for the Advancement of Science were violating existing rules and customs is far from correct. It really formulated the "rule generally adopted by scientific bodies," as stated by Dr. Allen, "to the effect that the ostensible date, as that given on the title page of a book or pamphlet, or at the bottom of the signatures, shall be taken as the correct date, unless known to be erroneous." These dates are simply the dates of printing of the separate part or whole of a book on which they are placed, and are not the date of distribution, which cannot, of course, be printed with the book.

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GLACIERS IN THE MONTANA ROCKIES.

IN my paper published in SCIENCE of December 13, 1895, and giving an account of some explorations in the Rocky Mountains between the Great Northern Railway and the International Boundary, I mentioned the existence of several other glaciers than the one particularly described.* My attention has been since called to a paper presented by Mr. G. C. Culver; now of the State Normal School at Stevens Point, Wisconsin, to the Wisconsin Academy of Sciences, in which he describes his explorations in that region. Mr. Culver accompanied an exploring party commanded by Lieut. Ahern, U. S. A., and made many interesting observations. He did not personally visit any of the glaciers, but was in camp near one of the largest for two or more days. This is now located upon the military map of the state under the name of Culver glacier. In his paper on the subject Mr. Culver describes the glacier, but does not name it. The Culver glacier lies to the northwest of that described in my paper of December last and about fifteen or more miles distant. Mr. Culver locates upon his map several small glaciers in the general vicinity of that explored by myself. His route was such that at no point upon it could the glacier described by me be even seen. I am sure of this both from personal familiarity with the ground and from the testimony of friends who have penetrated the

*This glacier has since been referred to by Dr. Sperry and others as the Chaney glacier.