portions of some others; nor was I alone in making such requested contributions. Finally, the late Cleveland Abbe put much labor on the proof. In short, everything practicable was done, with the material in hand, to save the bureau's face. Nevertheless, a number of errors still remain in this book, including the insufficient explanation of the cold of mountain peaks.

The longer quotation from "The New Air World" does not help matters and would not even if so rewritten as to be precise. From the fact that the lower atmosphere is a better absorber, in general, of solar and terrestrial radiations than is the upper, one might *jump* to the conclusion that therefore the temperature of the air must rapidly decrease with increase of elevation. But, then, the lower atmosphere is, in general, a much better radiator than is the upper air, and so one might with equal reason *suppose* that the temperature of the air must rapidly increase with increase of elevation. If confronted with the fact that the lower atmosphere is both a better absorber and a better radiator than is the upper he might *guess* that there would be but little change of temperature with change of elevation. In each of these cases the argument is inconclusive. The complete explanation, though it could be elaborated into a chapter, is outlined in the sentence which Professor Moore says he is unable to follow—a summation appropriate to a scientific journal and entirely clear, as I know from actual tests, to those who understand the phenomenon under discussion.

As to the time of day at which the minimum temperature occurs, on the average, at an altitude (author does not state whether above surface or sea-level) of one and a half miles, let me say that Dines, in his paper "The characteristics of the free atmosphere," Meteorological Office, London, 1919, reviews all the contributions, about half a dozen, that up to that time had been published on the daily temperature range in the free air and concludes that this range decreases rapidly with height and that above two kilometers the range is so small that it is uncertain when either the maximum or minimum occurs. Beginning with 1916, however, the Weather Bureau has collected a large amount of information on this subject which shows that at a mile and a half above the surface at the station (Drexel) where this information was obtained the diurnal temperature range is small and that the minimum and maximum temperatures, respectively, occur, on the average (seasonal and annual), at about the same times at this level as at the surface, as perhaps one would expect to be the case, except at the times and places of strong vertical convection.

Professor Moore's excuses for the above two errors do not, as he implies, prove that he was right in saying that at the altitude of 100 miles the temperature is absolute zero; that there could be no atmosphere if the temperature were below —346° F.; that without dust there could be no light; that ozone is highly electrified oxygen, etc., etc.

Finally, let me say that an accurate elementary book merits the highest praise, for it does great good; while a grossly inaccurate one deserves severe condemnation, because of the harm it works through misinformation to children and other unsuspecting victims.

W. J. HUMPHREYS

QUOTATIONS

MR. BRYAN, THE CHURCH AND EVOLUTION

THOUGH Mr. William J. Bryan regards the defeat of his resolution against Darwinism in the Presbyterian General Assembly as a personal humiliation and is said in the press reports to have "sunk into his seat so pale as to appear almost ill" yesterday when the vote against the resolution was declared, it is hard to see how even a conservative believer can be displeased by the resolution on the subject which was adopted by the Assembly. This resolution declares

> that Synods and Presbyteries within whose bounds Presbyterian supported academies, colleges and training schools are located are hereby instructed to exercise careful oversight over the instruction given in such institutions, and that Synods and Presbyteries withhold their official approval from such academies, colleges and training schools where any teaching or instruction is given which seeks to establish a materialistic evolutionary philosophy of life which disregards or attempts to discredit the Christian faith.

The bases of belief would appear to be en-

tirely safe, in Presbyterian or other schools, under such an instruction as that. But Mr. Bryan wished to go further. He proposed to consign a man named Darwin, who never had anything to do with the doctrine or practice of the church, who was a man of science and who merely went through life trying to find out what was true, to ignominy. The resolution which he offered and eloquently advocated declared

> that no part of the Educational Fund of the Presbyterian Church of the United States of America shall be paid to any school, college, university or theological seminary that teaches, or permits to be taught as a proven fact, either Darwinism or any other evolutionary hypothesis that links men in blood relationship with any other form of life.

The difference between the two resolutions is significant and fundamental and the decision of the Presbyterian General Assembly is highly important, because by implication it recognizes the fact that perhaps teachers who are as much devoted to the Christian faith as any other may not exclude consideration of the evolutionary philosophy from their teaching; in other words, that an evolutionary philosophy need not by them be regarded as altogether materialistic in its bearings. The Bryan resolution approaches, with a bludgeon merely, a subject which may well engage the attention and summon up the wisdom of the most devout. Manifestly the Presbyterian Church is not prepared to take that attitude.

The Presbyterian Church, in short, avoids the imputation of assuming infallibility. It rests upon the Christian doctrine and proposes to continue to rest upon it, but does not bind the conscience of believers with bands of theological steel. But this is precisely what it would have done if it had adopted the remarkable resolution offered by the Rev. Edward H. Pence of Portland, Oregon, which made this declaration:

> That man was evolved with all his mental, moral, spiritual content to his consciousness of self and God by the operation of laws inherently within a form from which he came, and the acknowledgment of possibilities, or even probabilities, that a physical organism may have been evolved by forces and processes implanted by God, sacred, because so chosen and used by Him, and that his organism did not and could not have become human until, by creative fiat of God, he breathed into it the inherent parts which constituted man as the potential son of God.

The defeat of this resolution and Mr. Bryan's, taken together with the temperate declaration which was actually adopted, indicates that the day is past when the right of ecumenical conclusiveness is likely to be assumed by American Protestant bodies.—*The Boston Evening Transcript.*

SCIENTIFIC BOOKS

The Meaning of Relativity. By ALBERT EINSTEIN. (Princeton lectures translated into English by E. P. Adams.) Princeton University Press. 1922.

The present state of the remarkable theory of relativity of Albert Einstein, the degree of maturity which the investigation has reached, the extensive and varied development of the subject which has been set forth in so large a literature, the doubts and difficulties which the theory has encountered, the enthusiasms which it has engendered, the antagonisms which it has aroused, the difficult form which much of the exposition of it has taken, its intimate relations with the deepest realities accessible to investigation—all these render imperative such an exposition of the subject as will make it accessible to a large body of persons interested in the more profound consequences of physical theory. The preliminary announcement of the publication of "The meaning of relativity" by Albert Einstein raised the hope that this book would serve just that purpose.

In a small volume of 123 pages we have here four lectures by Einstein: the first is on "Space and time in pre-relativity physics"; the second is on "the theory of special relativity"; both the third and the fourth bear the title "The general theory of relativity." The lectures open with a brief investigation of the origin of our ideas of space and time and a discussion of the object of science as a means of coordinating our experiences and of bringing them into a logical system. Subjective time is not measurable; we can assign numerical measures to time only by means of some objective phenomena which are recurrent. Simul-