

have occurred are of such character that we are compelled to consider the later forms as descendants of older forms. No form of living being has remained the same through the ages. The evidence of past times is corroborated by the structural and developmental analogies observed in related forms, proofs of a gradual differentiation from common ancestral forms.

"The minute structure of all living matter is alike and shows that all organisms, from the lowest to the highest, must be considered as a unit.

"Man has succeeded in producing a variety of forms of domestic animals and cultivated plants which differ from their ancestors. Our success, accomplished in a very short period, indicates that in long periods nature will produce more fundamental changes.

"Man is part of the animal world. In all respects his anatomical structure conforms to that of the rest of the animal world. His prenatal life closely parallels that of the higher mammals. The same influences that control their development after birth control him and he responds in a like manner to the environment in which he is placed. Prehistoric archeology has shown that, in the course of the ages, man has undergone great changes in physical type and that ancient man differed from modern races, the more so the more ancient the remains.

"Local types of man have developed on every continent and their existence proves that changes in the heritable characteristics of racial groups are effected in the course of time.

"We must conclude that the bodily form of man as well as that of animals and plants has changed and is still changing, not in the course of centuries, but in long periods.

"The exact cause of changes in the form of organisms and the conditions under which they occur, as well as the causes making for stability, are still imperfectly known. The principle of change has been so well established that it should become the common property of mankind."

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#### WOULD GIRDLE THE GLOBE IN DAWN-TO-DUSK FLIGHT

Around the world in seventeen hours, the length of the daylight period on a long summer day, is the dream of Dr. Charles H. T. Townsend, of Itaquaquecetuba, Brazil, writing in the Scientific Monthly. To do this at the latitude of New York would require a constant speed of 815 miles per hour, nearly three times the highest speed yet attained by airplanes over even short distances.

Even at that, however, Dr. Townsend does not think his dream outside the limits of possibility. Man began flying only a short time ago, after studying the flight of birds for many centuries, and he has already far outdone the birds in speed, in altitude and in weights carried, though he has not yet proved himself the equal of the best of them in long-distance non-stop flights. To reach the terrific speed necessary for a dawn-to-dusk flight around the world, however, a different animal model will have to be studied, in the opinion of Dr. Townsend. He has made observa-

tions on the flight of a certain genus of large flies, known to scientists as *Cephenemyia*, which have flying speeds of about 400 yards a second, or over 800 miles an hour. This does not equal the velocity of a modern rifle bullet, but is faster than an old-fashioned musket ball and as fast as the projectiles of certain kinds of artillery. If such a velocity could be reached by a flying machine it would easily accomplish the feat dreamed of by Dr. Townsend. It is admitted that this would not be easy to accomplish by any flight mechanism known at present, but the fact remains that the flies do it. Their analogy to a long-flight aeroplane is the stronger, Dr. Townsend points out, in that the flies eat nothing whatever during their several weeks of adult life, living and flying entirely on energy stored up in the reserve food material laid up in their bodies during their prolonged feeding period as grubs. That is to say, they carry fuel and rations for all the flying that they ever do.

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TABLOID BOOK REVIEW

THE TENNESSEE EVOLUTION CASE. By Robert S. Keebler. Memphis, Tenn., printed privately. 1925. When the Tennessee anti-evolution bill was passed, the Tennessee legal profession in general apparently hoped, like the pious Governor Peay, that it would be ignored, shelved and forgotten. It was a sop to the mob; it need not be enforced. But there were two men in the state who saved the honor of their cloth by rising to do battle. The story of Judge John R. Neal, who first came to the aid of young Scopes, is already well known. There is also a member of the Memphis Bar, Robert S. Keebler, who addressed his fellow-lawyers in a spirited and searching attack upon the statute. The meeting ended in an uproar, and the president of the society reproved Mr. Keebler for "discussing a religious issue." His address is now being distributed in printed form by "friends of fair play and intellectual freedom"; it is a pertinent document in the present controversy.

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CORN AND CORN GROWING. By H. A. Wallace and E. N. Bressman. Des Moines; Wallace Publishing Company. 1925.

There have been hundreds of thousands of pages, possibly millions, published on the important subject of corn; to get the meat of this great mass of material extracted and boiled down into less than three hundred pages is a real feat. The authors of this book have kept their work intensely practical, so that it can fulfill a useful function as a farmer's handbook; yet they have not sacrificed the scientific side, for such subjects as the history and classification of corn, among the most difficult in all agricultural botany, are courageously attacked, and adequately treated. This is a book that should go into every library and school, indeed into every farmhouse, in the American corn belt.

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Concrete barrels, which are made without hoops, are being used on the Union Pacific Railroad.

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