

1877, gave publicity to a communication from Dr. Charles C. Abbott, setting forth the data from which he had been led to assume that man existed on the American continent during the formation of the great glacial deposit which extends from Labrador as far south as Virginia. The scene of his successful research is in the valley of the Delaware, near Trenton, New Jersey. There, in the river-gravel, deposited by the Delaware River in the process of excavating the valley through which its course now lies, Dr. Abbott's diligent search has been rewarded by finding numerous specimens of rudely chipped implements of a peculiar type, to which he has given the name of "turtle-back celts." They are fashioned of a highly indurated argillite, with a conchoidal fracture, and have been recovered at depths varying from five to upwards of twenty feet below the overlying soil, in the undisturbed gravel of the bluff facing the Delaware river, as well as in railway cuttings and other excavations.

Here, to all appearance, intelligent research had at length been rewarded by the discovery of undoubted traces of the American palæolithic man; and Dr. Abbott, not unnaturally, gave free scope to his fancy, as he realized to himself the pre-occupation of the river valley with "the village sites of pre-glacial man." There is a fascination in such disclosures which, especially in the case of the original discoverer, tempts to extreme views; and both in France and England, at the present time, the more eager among the geologists and archaeologists devoted to this enquiry are reluctantly restrained from assuming as a scientific fact the existence of man in southern England and in France under more genial climatic influences, prior to the great ice age which wrought such enormous changes there. The theory which Dr. Abbott formed on the basis of the evidence first presented to him by the disclosures of the Trenton gravel may be thus stated: Towards the close of the great ice age, the locality which has rewarded his search for specimens of palæolithic art marked the termination of the glacier on the Atlantic coast. Here, at the foot of the glacier, a primitive people, in a condition closely analogous to that of the Eskimos of the present day, made their home, and wandered over the open sea in the vicinity, during the accumulation of the deposit from the melting glacier. But this drift gravel was modified by subsequent action. According to Dr. Abbott's conclusions, it was deposited in open water, on the bed of a shallow sea. But the position of the large boulders, and the absence of true clay in the mass, suggest that it has undergone great changes since its original deposition as glacial debris; and if this is to be accounted for by subsequent action of water, the unpolished surfaces of the chipped implements are inconsistent with such a theory of their origin. Huge boulders, of the same character as those which abound in the underlying gravel, occur on the surface; and their presence there was referred to by Dr. Abbott as throwing light upon "the occurrence of rude implements identical with those found in the underlying gravels, inasmuch as the same ice-raft that bore the one, with its accompanying sand and gravel, might well gather up also stray relics of this primitive people, and re-deposit them where they are now found." Accordingly, seeking in fancy to recall this ancient past, he says in his first report: "In times preceding the formation of this gravel bed, now in part facing the Delaware River, there were doubtless localities, once the village sites of pre-glacial man, where these rude stone implements would necessarily be abundant," and he accordingly asks "may not the ice in its onward march, gathering in bulk every loose fragment of rock and particle of soil, have held them loosely together, and, hundreds of miles from their original site, left them in some one