up and down and in and out of the trough which was formed as a result of the first of these quakes. The second exposed fossils through which can be traced the evolution of plants and animals.

Dr. Walcott said: "Many millions of years ago the downward pressure of the rocks beneath the Pacific ocean forced the lighter rocks of the western Americas to fold, crumple, break and often slide in great masses over one another. A great feature was the formation of a trough from 100 to 200 miles in width, extending from the Pacific margin of the Continent.

"In this trough the waters of the Arctic and Pacific passed freely and the animal life of both oceans migrated north and south and often mingled. The rivers entering the great 'Cordilleran Trough', as it is called, brought pebbles, sand, clay and mineral matter in solution and the tidal currents and waves spread the sediments along the shores and far outover the bottom of the inland sea. This went on for countless ages, until 60,000 feet or more in thickness of sediments gathered in the deeper sections of the trough. All through the ages the marine life gradually changed as its evolution went slowly forward in the waters of the great Pacific area. Large groups of life came in, flourished for a few centuries, and disappeared, to be replaced by other and later faunas. Occasionally other forms came in from the Arotic, the interior continental seas and rarely the Atlantic Province. Great continental seas sometimes crossed the eastern barriers of the trough and swept over the area, bringing new sedimentary conditons and new life. The transgressing seas often wore away the rocks of previous ages and left a graphic story of their advance.

"After the close of the many-million-year old Palaeozoic epoch the pressure came again from the Pacific and the sandstones, shales and limestone formations of the Cordilleran Trough, were folded, broken and often pushed up into mountain ridges to form the western shore line of continental marine and fresh water seas, in which the records of the development of the vegetable and animal life from the trees ferns to the giant sequoia and the cold blooded fishes and lowly reptiles, to the warm blooded mammal and finally man."

EARTHS MAKES OWN CLIMATE SAYS METEOROLOGIST

The sun has nothing to do with determining the climate of the earth as all the changes were produced essentially by the earth itself and no matter how constant the output of solar energy certain alterations of topography and other terrestrial conditons determine climatic changes, Dr. W. J. Humphreys of the U. S. Weather Bureau told the American Association for the Advancement of Science at its recent meeting.

It is further believedthat during the warmer periods of prehistoric times the land areas were relatively restricted and of small elevation with the oceanic circulation free and open to high latitudes.

The colder periods, including the ice ages, were, presumably at times when land was extensive, mountains abnormally high, and oceanic currents restricted. At such times the mountain peaks would carry many glaciers of greater or less magnitude. At a time like this, when the climate was in critical conditon, a few violent volcanic eruptions, would be disastrous. Every thick veil of volcanic dust appreciably lowers the temperature. This would lead to a greatly extended snow period during every season of the year. This cooling would be intensified by thinning the blanket of water vapor around the earth.

"In short," said Dr. Humphreys in conclusion, "the earth has produced its own climatic changes, through potent natural factors."
