

iron culture. It will be seen by a reference to plate 5 that the latter part of the period following the copper culture and represented by the "mixed" strata includes the time during which history tells us that the "Scyths" overran the Persian Empire, and it may not be unduly stretching the imagination to see in this racial movement an armed migration set in motion by the increasing desiccation over the great Transcaspian plains.

It would seem that the city of Anau was founded by a new people. They made a different pottery and they used the system of irrigation that has continued down to the present time. Artificial irrigation was necessary to counteract arid climatic conditions. Our shafts at Ghiaur Kala show that artificial irrigation was used at about the same time on the oasis of Merv under the Sassanian rule.

#### CHRONOLOGY.

The greatest interest centers naturally in the problem of the age of these different cultures, and in their relation to the origin of Western civilization, if any such relations may be shown to exist. The wide geographical separation between Anau and the fields of western cultures, and the paucity of objects found by us that recall in a definite manner similarities to objects of external civilizations, surround the subject with the greatest obstacles.

A working hypothesis based on a different line of reasoning gradually formed itself in my mind and is developed in the following pages. To begin with I assume:

1st. That distinctive pottery, peculiar to a culture throughout our successively superimposed earth layers, is evidence of corresponding continuity of that culture.

2d. That since it is a fact that throughout the lives of our sites at Anau the towns were built only of air-dried bricks, without stone foundations, the secular rate of growth of culture-strata can be taken as proximately uniform.

3d. That two separate sites, whose cultures are characterized by entirely different and peculiar potteries, can not exist contemporaneously for centuries in close proximity to each other without such an interchange of pottery as would come to light during the excavation.

This is applying to archeology simple rules of geological reasoning. We know the thickness of the strata of each of the cultures of the three neighboring sites, and we know the aggregate existing thickness of the cultures of all the sites. If we take the duration of each culture to be proportionate to the thickness of its accumulated strata, the duration of the entire series will be represented by the aggregate existing thickness of all the strata plus any culture-gaps between different cultures, and minus any overlaps of the cultures of the neighboring sites. Having the standing thickness of the different cultures, two additional factors are needed to convert the stratigraphic record into a chronological one:

(a) The assignment of values to the observed four intervals that existed between the different cultures.

(b) The rate of accumulation of the culture-strata.