

extended watercourses, while strips of desert lay between. In the case of a sedentary agricultural population like that which is now coming to occupy the oasis on the other hand, especially where, as at Merv, the water-supply is strictly limited and all parts of the level plain are equally fertile, the invariable tendency is to utilize the land lying close below the center where the distribution of the water begins to take place. From there outward the land will be used in a nearly continuous body, although, of course, along the main canals detached tongues will stretch out into the untilled wastes beyond.

This is what is taking place at Merv—the people are moving into the upper portion of the delta of the Murg-ab, and the Imperial Estate at Bairam Ali, with its new dams and reservoirs, is hastening the process and at the same time making it possible for a greater number of people to be supported by the same amount of water. In the course of another generation it is probable that the change from semi-nomadism to agriculture will have been completed, a larger population will be supported by the oasis, and a larger number of acres of land will be under cultivation, but the outposts of civilization will have been drawn inward, and the size of the cultivated delta, as measured by a mere inspection of the map, will have decreased. It is conditions such as these, rather than those of the immediate transition period of to-day, which should be looked at in comparing the distribution and magnitude of the ancient population with that of the present; for the ancient times were days of intensive agriculture, when, as the ruins show, the people lived close together, and most of the land between the villages must have been cultivated.

Any attempt to compare the area of the land under cultivation at the time of the kurgans with that under cultivation to-day is liable to error because of the limited study that has been given to the question. The best that can be done is to indicate the general direction in which the truth seems to lie. For the sake of conservatism we will disregard the important differences between the transition state of to-day with its large remnants of semi-nomadism and the state of intensive agriculture of the past, and will compare the limits of irrigation in 1904 with those at the time of the kurgans. Such a comparison indicates that the amount of irrigated land has decidedly decreased since the kurgans were abandoned. This is roughly shown on the accompanying sketch-map, where the limit of the present irrigated area is drawn through the ends of the canals without regard to the very extensive unoccupied lacunæ that lie between. The lacunæ are so large that much of the region presents the aspect of a desert in which there are mere patches of cultivation. The limits of the formerly irrigated areas are drawn just beyond the outmost ruins, but it is hardly probable that the ancient inhabitants built large and important villages at the extreme limit of cultivation. Outside of these places there must have been a strip of cultivated land where the villages were so small that they have left no noticeable traces.

In view of all the facts we should probably be justified in diminishing the area represented as now under irrigation, and, perhaps, in extending that represented as under irrigation during the earlier period. Yet even as the map stands, it is