

of Hamadan and Merdescht (Persepolis). They were certainly used in Græco-Persian wars by the Persians as well as by the Greeks.

Because of this Persian find we may assume also that they penetrated still further eastward and were known also in Bactria. The find from Bokhara tends to confirm this assumption. To Siberia the three-edged arrow-points of bronze or copper certainly penetrated from the South Russian locality. This is proved by the numerous other points of contact between the Siberian stock of types and the forms which have become known from the South Russian kurgan graves (*cf.* Aspelin, *op. cit.*, p. 62, figs. 262 to 265; p. 110, figs. 438 to 440, the last from the necropolis of Ananino, on the left bank of the Kama, in the Government of Wjatka, showing what singular routes the distribution followed. Radlof, *op. cit.*, No. 15, plate XXI, figs. 20, 21, 25, 29, 33, 34).

Three-edged arrow-heads from the Græco-Ægean sphere have long been known. Kemble mentioned them as coming from Kalymnos, an island on the Karian coast (*Horæ feralis*, plate VI, figs. 3, 4). Many have been found in the Altis of Olympia (Furtwaengler, *Bronzen von Olympia*, plate LXIV, Nos. 1083-1092). Friederichs (*Kleinere Kunst u. Industrie im Altertum*) enumerates some from Attica (1116). Helbig represents a specimen from Megalopolis in Arcadia (*Das homerische Epos*, 2 Aufl., fig. 134). From the Ægean sphere they may also have spread to Egypt. Cairo is given as the source of several examples in the collection of Prince Hohenzollern in Sigmaringen (L. Lindenschmitt, *die vaterlaendischen Altertuemer*, plate XL, figs. 13 to 16). On the western route of distribution the three-edged arrow-heads of bronze made a halt in a district which has preserved for us rich necropoli of the younger Hallstatt period. These finds are therefore of importance for the chronology.

In a grave of Hallstatt itself there was found a three-winged specimen without shaft-socket (v. Sacken, *das Grabfeld von Hallstatt*, plate VII, fig. 10). The necropoli in Krain have yielded them also—from Waatsch (*Denksschriften der kais. Akad. d. Wissensch. zu Wien, Math.-Naturwiss. Cl., Bd. XLVII, plate XI, fig. 13*) and from St. Margarethen (M. Much, *Kunsthistor, Atlas*, pl. 56, fig. 15). Other isolated localities are: Villach, in Carinthia (v. Luschan, *Mitteilungen d. Wien. anthropol. Gesellschaft*, VIII, 1879, pp. 89 ff.); Velem St. Veit, in Western Hungary (v. Miske, *Archiv f. Anthropologie, N. F. II, 2, pp. 134 ff., figs. 48 to 50*); Horodnica, in Galicia (*Museum Dzieduszycki in Lemberg, from personal examination*). Further west they appear to be of only rare occurrence. The most western locality is Châlons-sur-Saône, in France (Bonstetten, *Antiquités de la Suisse*, plate II, fig. 9).

On the strength of these statistics of finds we may assign the three-edged arrow-heads of bronze at least to the younger Hallstatt period, *i. e.*, to the first half of the I millennium B. C. In the fifth century B. C. they must already have been generally distributed; they remained still in use during some centuries, for they connect with the Roman arrow-heads made of iron. In all probability, however, we must put back the time of their introduction into the beginning of the last millennium B. C., for these forms must have hovered before the eyes of