

Such a method was obviously the most convenient for keeping this important item of ancient ammunition, which could not be replaced locally. In any case its use for transport is proved by the remarkable discovery made on my third expedition, when, in the desert to the north-east of Lou-lan, I found a heap of bronze arrow-heads of Han type lying close together as they had dropped out from some load of a convoy moving along the ancient Chinese route.<sup>48</sup> Bronze arrow-heads were discovered in considerable numbers during my explorations along the actual line of the Limes, both within and near the ruined watch-posts.<sup>49</sup> The different types and sizes represented among them will be found fully described in the List below, and are illustrated by specimens in Plate LIII.<sup>50</sup> It appears very probable that there was some specific relation between the several sizes represented among our finds and the cross-bows of different strength previously mentioned.<sup>50a</sup>

Finds of cross-bow ammunition.

The entries on the labels indicate that the arrow-heads, as stored, no doubt, for reserve use, were in packages each containing a hundred or multiples of it.<sup>51</sup> The regular complement, on the other hand, of fully fitted arrows, as issued for each soldier, appears to have been made up of 150 arrows.<sup>52</sup> Quivers for carrying them figure repeatedly in the lists of equipment, etc.<sup>53</sup> It is curious to note the care taken to record on delivery or inspection how many of the arrows or arrow-heads were in good order, and how many in some way defective.<sup>54</sup> The large proportion of the latter in some cases suggests that repairs were not easy to effect *in loco*.

Records of arrow-heads stored or issued.

Of other offensive arms we find a sword only twice mentioned, but in each case with the date and certain details of its make which M. Chavannes has been able to illustrate by a reference to a relievo sculpture of Han times.<sup>55</sup> Among the defensive arms named there are shields, of which two are described as having been made in Government factories in 63 and 61 B.C. respectively,<sup>56</sup> and two others as being old and damaged.<sup>57</sup> Of the three references to armour, *chia* 甲, two show clearly that it was made of leather, and the third, by the way in which its repair is ordered, clearly proves that scale armour in leather was meant.<sup>58</sup> My finds at the Niya Site of detached leather scales and in the Mīrān fort of lacquered scales still laced up have furnished illustrations of what this leather scale armour of Han times may have been like.<sup>59</sup> Finally, we see from two references to banners that this favourite appurtenance of Chinese military display was to be found even on the desolate desert border.<sup>60</sup>

Swords, shields, armour listed.

<sup>48</sup> Cf. *Third Journey of Exploration, Geogr. Journal*, xlviii. pp. 127 sq.

<sup>49</sup> Cf. above, pp. 599, 604, 640, 681, 704, etc.

<sup>50</sup> See below, pp. 767, 781, 790. See Pl. LIII also for broken arrow-shafts of reed and the iron tangs attached to arrow-heads. Of the latter we have specimens both with and without barbs.

<sup>50a</sup> I regret that I have not been able from want of time to follow up this detail of munition archaeology. But I believe that by careful weighing of the specimens and experimental use of cross-bows made up to the different standards some useful guide might be obtained.

<sup>51</sup> Thus we find 100 each entered in Nos. 126, 266, 587, 693; 300 in No. 125; 50 in No. 267, perhaps also in No. 41.

<sup>52</sup> No. 253 shows 150 *méng* arrows issued to one soldier. In the inventory made out in No. 71 for four soldiers of the Yen-hu Company a total of 600 arrows is entered. According to No. 134 a certain soldier had 450 *méng* arrows provided; but this may have been meant for three men, for there are two unread characters after his name, *Liu*.

Probably 150 arrows represented the maximum quantity

of ammunition which could be conveniently carried by a fully equipped man; cf. the 120 rounds of small bore rifle ammunition carried by the British infantry soldier, increased to 200 rounds before action (*Infantry Training*, 1914, sec. 166).

<sup>53</sup> Cf. Nos. 41, 71, 187, 393, 591, 682.

<sup>54</sup> See Nos. 41, 71, 253, 682, 693, 703.

<sup>55</sup> Cf. *Doc.* Nos. 39, 40 with note. For the sword-point, T. vi. b. 001, see below, p. 769, and Pl. LIV.

<sup>56</sup> See *Doc.* Nos. 39, 40. The former records as the place of manufacture the town Nan-yang of Honan.

<sup>57</sup> See Nos. 75, 77; also the list of miscellaneous arms in No. 682.

<sup>58</sup> *Doc.* Nos. 393, 569 mention *ko chia*, 革甲 'leather armour'. In No. 187 an armour, saddle, and quiver are spoken of as torn, and immediate repairs enjoined by sewing and joining up.

<sup>59</sup> See above, pp. 246, 463 sqq., 477, 481 sqq.; also *Ancient Khotan*, i. pp. xvi, 411.

<sup>60</sup> Cf. Nos. 384, 393. The shafts are described as being of a particular sort of wood, probably specially strong and difficult to procure locally.