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ALEXANDER, PORUS, AND
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ABSTRACT

ALEXANDER, PORUS, AND THE BATTLE OF THE HYDASPES

By

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Previous analyses of the Battle of the Hydaspes have concentrated on Alexander, and interpreted the actions of the Indian monarch, King Porus, as conventional responses to familiar combat situations. This paper addresses the basic differences between the Macedonian and Indian military systems, their roles in their respective societies, and the disparate expectations of the monarchs. The conduct and outcomes of the battle resulted from the clash of dissimilar systems, and created a battle unique to both traditions. This investigation offers a reconstruction based upon both Indian and Macedonian military systems, resulting in reinterpretations of the goals of the combatants, the battle's conduct, and its outcomes. These elements are viewed from both Macedonian and Indian cultural perspectives, as well as evaluated for their battlefield effectiveness.

To Sandra, with love.

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Sabrina, my daughter and advocate, has been a good editor as well, loving yet uncompromising. Unqualified support has come endlessly from my mother, Mrs. Evelyn Starnaman. My late father, Mr. S. R. Starnaman, never had the oppcrtunity to become a professional historian, but throughout my childhood he was a brilliant teacher of history. His love lives on in my passion for the past.

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INTRODUCTION

Alexander began his battles against Danubian tribesmen and Hellenic Greeks, when, as a youth, he fought in his father's army. Upon Alexander's succession to the throne, he fulfilled his father's plan to invade Asia Minor. Like Miltiades and Themistocles before him, Alexander triumphed over the Persian host. The young conquerer took Egypt, and godhood in passing, before he finished the conquest of Persia. Alexander delayed only to swell his army with Persian replacements and settle Macedonian control on his conquests before he continued East and North. To this point, Alexander had fought familiar foes, but beyond Persia the comfortable familiarity ended as his campaign entered unknown lands.

In Bactria and Sogdiana Alexander's veterans contended with strange peoples and new tactics, and Alexander won the Princess Roxanne. In Bactria Alexander also received an invitation to enter India, extended by a leading Indian King[1] hoping for a powerful ally in his struggle with a rival monarch. Alexander moved east into the upper Indus River valley, and

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[1]Though he is known as "Taxiles" in Western sources, the Indian king is remembered as King Ambhi in Indian history. Alexander conferred the title "Taxiles" upon Ambhi, signifying the Indian king's association with his regnal city, Taxila. For convenience and to minimize confusion, the title more familiar to western readers will be continued throughout this work. Malik, Arjun Dass; Alexander the Great: A Military Study; New Delhi, Light & Life Publishers, pp. 98-99.

there retained King Taxiles as his tributary monarch, and placed a Macedonian satrap over the territory.

Yet despite his peaceful entry into the Indian subcontinent, Alexander's acceptance of Taxiles' invitation led to additional conflict. Taxiles had acknowledged Alexander's suzerainty, but Taxiles' fears of his powerful neighbor, King Porus, drew Alexander into the violent cockpit of Indian politics. Alexander's alliance with Taxiles culminated in the Macedonian conquerer's most misunderstood conflict, the Battle of the Hydaspes, wherein European and Indian forms clashed in earnest for the first time. At the Hydaspes River, Alexander was obligated to winter his troops before he forced a crossing. On the far shore waited the massed Pauravas forces of King Porus, overlord of the Punjab. With both forces assembled and prepared in advance, the Battle of the Hydaspes provided a conflict of epic proportions in its own right, but also set up the first major contest of Indian and Mediterranean military styles, a test of one against the other.

Most modern scholars interpret the action of the Indian monarch and his army in contemporary Mediterranean terms, with misunderstandings and misinterpretations resulting from these assumptions. The Battle of the Hydaspes should rather be viewed as the collision of two diverse military traditions. The expectations, the nature, and the outcome of the battle were as unique as the contestants themselves. Alexander's Macedonian veterans presented a military force unlike anything seen in India before. King Porus's army featured war elephants,

which had appeared in small numbers as auxiliaries with the Persian army. In India, Alexander faced the animals for the first time on their home ground, integrated into a military system.

The contest on the Hydaspes, specifically because of its unique nature, has attracted military historians since Alexander's death. However, the interpretations of the ancient historians were based primarily upon Western military practices, and subsequent scholarship has followed the same overall course. In this reinterpretation, I have attempted to present the Indian forces in a manner consistent with their unique nature. Warfare in India was quite different from combat in the Mediterranean. It played a different social role, and logically the military technology stemmed from different needs and goals. Based on this wide gulf between the two styles, this reconstruction of the Battle of the Hydaspes indicates the conflict may have arisen in confusion, been fought out to crossed purposes, and ended in a bloody misunderstanding of the conditions of victory.

In the end, both Indian kings, Taxiles and Porus, kept their thrones as tributary rulers in Alexander's expanding empire. Traditional Indian power politics resulted from the maintenance of military supremacy over tributary rulers in a fluid yet stylized hierarchy. This process was dominated by the heroic ethos of the Vedic epics and the physical might of the Kshatriya warrior caste. The system existed as a state of constant dynamic discord. The militant relations between Taxiles and Porus were a barometer of political and

military tensions in Northwest India.

Alexander invaded a mosaic of kingdoms and city-states interlocked in political alliances and feuds superficially similar to those of the Greek city-states, yet inherently different in their social structure and military goals. Modern western scholarship has focused on the Macedonians and their king, but has hitherto assumed Alexander's foe, King Porus, acted from the same motivations and in response to the same military imperatives as did the invader. It is my hope this investigation will offer an alternative view, and balance both European and Indian elements.

CHAPTER 1

THE PRIMARY HISTORIOGRAPHY OF ALEXANDER'S INDUS VALLEY CAMPAIGN

A. Western Primary Source Documents

Alexander's primary extant biographer, Flavius Arrianus Xenophon, had been educated in Rome by Epictetus, Arrian, as he is known commonly, fought in Roman wars in Dacia and along the Rhine, then became governor of Cappadocia under Hadrian. There, he commanded two Roman legions, a rare honor for a Greco-Roman.[2] During his retirement in Athens, however, he achieved a more enduring fame as a writer and historian.

With few exceptions, Western scholars rely upon Arrian's account of Alexander's campaigns as their preferred primary source. His rational discrimination in using the sources available to him, his critical judgment, and his habit of informing his readers of the source of an account, make him the most reliable and useful of Alexander's Roman biographers.

Exceptional as Arrian's work may be, the author lived

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[2]Arrian, Anabasis Alexandri, tr. E. Iliff Robson (London, William Heinemann, 1929), v. I-II, p. x. Robson's Loeb Classical Library translation has been used throughout, except where specifically stated to the contrary.

Arrian, Campaigns of Alexander, tr. Aubrey de Selencourt (Harmondsworth, Penguin Books, 1958), "Introduction: Life of Arrian", pp. 15-16.

three and a half centuries after the fact. It must be remembered his account was not contemporary with the events in any manner. His synthesis was the more difficult, as a rich mythology had already grown around Alexander's life and deeds. Arrian, in the main, effectively sliced through the fiction to reconstruct the history of Alexander's campaigns in a sober, occasionally workman-life fashion. Overall, he followed his available sources well, and the result was a plausible account based upon the most potentially authoritative sources available to him. Unfortunately, his own sources have been lost to us, and modern researchers may only conjecture what information underlay Arrian's synthesis.

"Ptolemaeus, son of Lagus"[3] wrote perhaps the most valuable of the lost accounts of the Battle of the Hydaspes. Ptolemy had been "an officer of [Alexander's] bodyguard"[4] at the Hydaspes, and after Alexander's death founded the Egyptian dynasty bearing his name. Apparently Arrian extensively used Ptolemy's Memoirs, works mentioned but now lost, in his reconstruction. Robson believes he did so without sufficient caution, because Arrian naively believed that as a king Ptolemy would not falsify, nor that Ptolemy could have had anything to gain.[5] Arrian quotes Ptolemy directly on specifics, and he states his preference for Ptolemy's

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[3]Arr. V. 14.5.

[4]Arr. V. 13.1.

[5]Arr.; tr. Robson, "Arrian (Flavius Arrianus)", p. xi.

widely.[6]

Selencourt states unequivocally that Ptolemy provided the source to which Arrian turned in all military reconstructions.[7] Arrian must have considered Ptolemy's account a valuable resource precisely because of the author's position in Alexander's entourage, and his place at Alexander's side in battle. An experienced field officer, Ptolemy held a senior military position among Alexander's bodyguard, and fought with him at the Battle of the Hydaspes.[8] His account may have been biased to aggrandize his own contributions,[9] but his account of the Battle of the Hydaspes was based upon personal experience in combat at Alexander's side.

Aristobulus was used extensively by Arrian.[10] He also accompanied Alexander on the campaign, apparently as an engineer or architect. His non-military status, or some other shortfall, apparently limited his usefulness to Arrian. For the military analysis now at hand, his contributions would seem to have been less important than Ptolemy's in this purely military matter. Where the sources conflict, in the manner

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[6]Arr. V. 14.5.

[7]Arr., tr. Selencourt, p. 21.

[8]Both Arrian and Curtius place Ptolemy with Alexander during the battle, although in doing so both authors may have relied upon Ptolemy's account. Arr.; Ibid.; and Curtius, History of Alexaneder, vol. VII, tr. J. C. Rolfe (Cambridge, Loeb Classical Library, 1946), VIII. 14. 14.

[9]Arr.; tr. Robson, "Arrian (Flavius Arrianus)", p. xi.

[10]Arr.; tr. Robson, p. xi.
Arr.; tr. Selencourt, p. 23.

of Arrian, I have followed Ptolemy over Aristobulus.[11]

Arrian's lesser contribution, his Indika, deals with the geography and peoples of Alexander's Indian conquests rather than the conquests themselves.[12] In this work, Arrian drew his information primarily from the now lost account of Nearchus, Alexander's trusted admiral.[13] Nearchus' account apparently covered his coastal voyage from the mouth of the Indus River to Susa, in support of Alexander's Gedrosian desert crossing, and provided Arrian with another primary source of Indian information. Because Nearchus was a seaman, not a soldier, his accounts and those of Arrian derived from his work, have not figured in this analysis of the Hydaspes directly, though the information contained in Arrian's Indika provides useful background on Indian society as well as Indian military technology.

For modern scholars, Arrian's Anabasis Alexandri has become the touchstone by which other Alexander biographers are judged.[14] Yet those other authors have value as well. Of the so-called vulgate authors, this analysis draws from the accounts of Diodorus of Sicily[15] and from Quintus Curtius

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[11]Arr.; V. 14.

[12]Arrian, Indika, Vol. II, tr. E. Iliff Robson (London, William Heinemann, 1929).

[13]Bosworth, A. B., Commentary on Arrian's History of Alexander, (Oxford, Clarendon Pr., 1980). p. 32.

[14]Hammond, N. G. L., Three Historians of Alexander the Great: The so-called Vulgate authors, Diodorus, Justin and Curtius (Cambridge, Cambridge U. Pr., 1983). p. 15.

[15]Diodorus Sicuius; Diodorus of Sicily, tr. C. Bradford Welles Cambridge (Loeb Classical Library, 1963).

Rufus' History of Alexander. Hammond argues forcefully against the "Cleitarchan Vulgate" tradition which states that both authors had based their accounts of Asian affairs almost exclusively on Cleitarchus' fanciful History of Alexander,[16] or that both used an intermediary author, identified as Timagenes.[17] Cleitarchus' lively account no doubt added spice to both, but Hammond cites numerous instances in which a host of secondary authors were used by both Curtius and Diodorus in preference to Cleitarchus' less believeable tale.[18]

Hamilton disagrees, upholding the position that both Curtius and Diodorus used Cleitarchus extensively. He considers Diodorus to have been the more reliant on Cleitarchus work, and likely the more literal in its use. However, Cleitarchus portrayed Alexander as a heroic figure, while Diodorus adapts this portrayal to his own ideal image of "the Hellenistic monarch, [exhibiting] magnanimity, kindness, and love for his subjects."[19] Unfortunately, the grand scope of Diodorus's history limited his coverage of the Hydaspes campaign to a more cursory treatment than the coverage devoted to it by Alexander's biographers or military historians, and this restricts Diodorus's usefulness.

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[16]Hammond, p. 160. Cleitarchus' History of Alexander constituted the most popular work in the Alexander Histories genre, though the author was among the few major early writers not to have accompanied Alexander.

[17]Hammond, Ibid.

[18]Hammond, passim.

[19]Hamilton, J. R., Alexander the Great (London, Hutchinson U. Library, 1973), p. 18.

Curtius, Hamilton points out, was less influenced by Cleitarchus, but also had a more negative view of Alexander as a monarch. While attributing much of Alexander's success to good fortune, Curtius lingers over Alexander's deterioration after the death of Darius. Curtius' characterization of the monarch might appear to have a harsh ring of truth, yet it may be a hostile response to the author's own Imperial Roman society.[20] For the purposes of this investigation, again unfortunately, Curtius' apparently meager experience in military affairs seriously impairs his account of the Battle of the Hydaspes.[21]

Plutarch, the fourth of the major sources on Alexander, "represents the culmination of an established tradition of biographical writing among the Greeks."[22] Plutarch probably wrote his major works, his Lives, in the Flavian era, and the reigns of Nerva and Trajan, according to Gossage.[23] His style, as Barrow points out, was idiosyncratic in that he viewed each subject of his biographies as an isolated subject, as an individual life,[24] while his overall schema paired like individuals, Greek with Roman. In this case, Plutarch paired Alexander with Julius Caesar.

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[20]Curtius' work is of uncertain date, though the reigns of Claudius or Vespasian have most frequently been postulated.

[21]Hamilton, p. 19.

[22]Gossage, A. J., "Plutarch", Latin Biography (London, Routledge & Keagan Paul, 1969), p. 45.

[23]Gossage, Ibid.

[24]Barrow, R. H., Plutarch and His Times (London, Chatto & Windus, 1967), p. 62.

Plutarch used Cleisthenes, as had Diodorus and Curtius, but he apparently had other sources to work from, perhaps even the papers of Alexander himself.[25] Because he wrote biography rather than traditional history, Plutarch opens his Life of Alexander with the statement, ". . . I do not tell of all the famous actions of these men, nor even speak exhaustively at all in each particular case, but in epitome for the most part. . . . For it is not Histories that I am writing, but Lives . . . "[26] His epitomized focus on Alexander the man was consciously at the expense of Alexander the general, and the military events with which he was connected.[27] Unfortunately, like that of Curtius, Plutarch's lack of military experience also undercuts his usefulness to the reconstruction of the Battle of the Hydaspes, though his perceptions of Alexander's character provide valuable insights into Alexander's motivations and methods.

Justin's epitome of Pompeius Trogus' earlier history is a shoddy piece of work. Its author's carelessness and repeated displays of poor editing judgment seriously reduce its usefulness to the modern historian. Its fanciful account of Alexander's meeting with Porus has not been dealt with in this analysis.[28]

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[25]Barrow points out Plutarch gleefully quotes from the papers thirty times in his Life of Alexander. Barrow, p. 161.

[26]Plutarch, Plutarch's Lives, Vol. VII, tr. Bernadotte Perrin (Cambridge, Loeb Classical Library, 1921), I. 1.

[27]Plutarch I. 2-3.

[28]Hammond, pp. 86, 105.

One valuable source remains, although it only tangentially deals with the problems of this investigation. Polybius' history of the rise of the Roman empire[29] is an excellent source, but the work deals more directly with Alexander's Hellenistic descendants. However, Polybius' work is valuable for its references to Alexander's exploits, but more important for this investigation, Polybius' description of the Macedonian phalanx. While the system had evolved during the intervening time between Polybius' age and the origins of the Macedonian phalanx with Philip II and Alexander, the detail changes in use to not markedly diminish the worth of Polybius description in interpreting the overall functioning of the formation. Polybius devotes five chapters of Book Eighteen to a precise and lucid account of the Macedonian military system, albeit in comparison with the Roman system.[30] His information and insights shed an ancient light on Arrian's reconstruction of the Macedonian forces under Alexander by setting forth not only the strengths of the system, but also its weaknesses.

Therefore, in the overall selection of primary works for this analysis of the Battle of the Hydaspes, very predictable and traditional standards have been maintained throughout. Arrian is used as the most credible primary source. Diodorus and Curtius provide supplementary materials in military matters, while Plutarch supplies background material for understanding

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[29]Polybius, The Rise of the Roman Empire, tr. Ian Scott-Kilvert. (Harmondsworth, Penguin, 1979).

[30]Polyb. XVIII. 28-32.

Alexander the man, the Polybius supplies background on the Macedonian army.

Alexander and the Macedonian military have been the center of sustained scholarly interest among modern military historians for centuries, and the findings of this author do not conflict with the vast majority of the contemporary experts on the details or composition of the Macedonian military. Among the many good modern analyses of Alexander and the Macedonian military, that of Arther Ferrill[31] has been found compatible with the conclusions of this investigation, and will be cited frequently. Ferrill's overall conception of the Macedonian military composition, and the army's actions at the Battle of the Hydaspes in particular, were found to be consistent with Indian tactics and with Alexander's apparent stratagem in response.

Donald Engels' detailed work on the logistics of the Macedonian army[32] has been invaluable in making general estimates of the physical capabilities of Alexander's force. Engels' quantification and mathematical models of the needs of the Macedonian army may be considerably wide of the mark in places, as the information is scanty and his models build upon one another. This potentially permits errors to compound into significant deviations, but the overall process of analysis justifies the effort. Evaluating the various logistics and transportation requirements, and the corresponding problems,

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[31]Ferrill, Arther, The Origins of War from the Stone Age to Alexander the Great (London, Thames & Hudson, 1985).

[32]Engels, Donald W., Alexander the Great and the Logistics of the Macedonian Army (Berkeley, U. of Cal. Pr., 1978).

underscores the difficulties Alexander faced, and the creative and flexible responses which were necessary to achieve his goals.

B. Indian Primary Source Documents

The history of India is difficult to construct. Indian culture did not develop a style of recording events comparable to that of the west. Certainly the past was important, but cultural memories were preserved in alternative forms, frequently in epics, art or song. History writing, the ordered and intentional recording of events for posterity, simply was not done. Documentation from the Indian side is almost nonexistent; the most useful items are not histories at all.

Hindu society arose as an amalgam of the cultures of the nomadic Indo-European chariot warriors and the sedentary, indigenous Dravidian society.[33] For this earlier formative period, the second and early first millenia B.C., historians are forced to turn to the epic poetic tradition of India, and in particular to the Vedic literature including the

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[33]Chandra denounces this explanation as a misinterpretation born of Occidental views, particularly the formative Vedic epic analysis by German acedemics in the nineteenth century. Contemporary European Pan-Germanism led them to integrate the heroic Vedic peoples into the evolving German racial tradition, according to this author. [Chandra, A. N., The Rig Vedic Culture and the Indus Civilzation (Calcutta, Ratna, Prakashan, 1980), Ch. 8.] The actual origin of the society depicted in India's epic literature is not the subject of this work, but rather the impact of that heroic tradition on Indian military development, whatever its origins. I have followed the traditional interpretations without commitment to them as the origins of Vedic Society.

national epic The Bhagavad Gita.[34] Through the Vedas one may see the basis of the resulting military synthesis, and the systems which confronted Alexander at the Hydaspes.

The Vedic age, as represented by The Bhagavad Gita, boasted of heroic chariot warriors and their battles for consolidation of the Ganges plain.[35] The Indo-Europeans had entered the upper Indus valley and begun their conquest of the Dravidians, which was followed by the joining of the two cultures to form the Hindu synthesis. The records of this violent and creative period are colorful, exotic, and exciting, but like the epics of Homer,[36] they present difficult problems of interpretation for the historians.[37]

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[34]The Bhagavad Gita, tr. J. Mascaro (Harmondsworth, Penguin Books, 1962.

[35]While considerably dated, Hopkins' analysis of Vedic warrior society is cited frequently by modern authors, both Indian and Western. Hopkins, Edward W., The Social and Military Position of the Ruling Caste in Ancient India as represented by the Sanskrit Epic (1889; repr., Varanasi, Bharat-Bharati, 1972) Hopkins' work supports the text statement throughout, and extensive citations have not been included for brevity.

[36]Homer, The Iliad, tr. A.T. Murray, Vol. III (Cambridge, Loeb Classical Library, 1935), and Homer, The Odyssey, Vol. I-II, tr. A.T. Murray (Cambridge, Loeb Classical Library, 1930).

[37]Homer's epic has been chosen here as more than a convenient comparison, for both the Vedic Indian and Mycenaean Greek traditions had epic literature as their primary source documents. As their central figures, both epic traditions featured heroic, aristocratic chariot warriors leading loyal warbands, establishing a military aristocracy. Both societies placed great emphasis on warrior values, reflected in their cultures. Both Homeric and Vedic military organizations may have resulted from common limits and potentials inherent in similar technology, the chariot for example, rather than from common ethnic roots, but the societies the epic traditions portray are strikingly similar in many respects.

Singh also acknowledges the potential linkage between Homeric cultures, and he invokes several comparisons with Homer. Singh, Sarva Daman, Ancient Indian Warfare with Special

Alexander encountered an Indian system of combat evolved from that of the Vedic car warriors. Fortunately modern scholars have available a primary document from the approximate period of Alexander's invasion. Kautilya's Arthasastra,[38] a manual for Hindu kings, sheds unique light on the developments of both Indian military and political structures. It is generally believed to have been written in the late fourth century B.C., between the conquest by Alexander c. 326 B.C. and the turn of the century. The Arthasastra is such a pivotal document in Indian history that it has been extensively studied and academic conflicts rage over its origins,[39] and dating.[40] Traditionally its origin is linked to the rise of the Mauryan Empire, and this offers a date c. 321-296 B.C.

Kautilya is believed to have been the Prime Minister and guiding hand behind the rise of the Mauryan Empire, which very nearly united the subcontinent of India.[41] This process

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Reference to the Vedic Period (E. J. Brill, Leiden, 1965), pp. 10, 27, 126 ftn.

[38]Kautilya, Arthasastra of Kautilya, 4th ed., tr. R. Shamasastry (Mysore, Sri Raghuveer Pr., 1954) The Arthasastra is in a genre of Indian literature, specifically manuals for rulers, and Kautilya's work is the outstanding example of the type.

[39]A brief overview of the MSS origins may be found in Choudhary, Radhakrishna, Kautilya's Political Ideas and Institutions (Varanasi, Chowkhamba Sanskrit Series Office, 1971), pp. 15-17.

[40]The views of the majority of the Indian and Western scholarship on the origin, dating and interpretation of the Arthasastra have been the guide for this military analysis, though the reader should be cognizant that dissenting views are frequent at every turn.

[41]Kautilya, tr. R. Shamasastry, p. v & Introduction. Choudhary, pp. 27-45. Drekmeier, Charles, Kingship and Community in Early India (Stanford, Stanford U. Pr., 1962), pp. 166-

of consolidation was later completed under the Emperor Asoka (274-232 B.C.), grandson of Kautilya's monarch, Chandragupta. Asoka's conquests culminated in a powerful if short lived Mauryan dynasty credited with consciously following Alexander's imperial example.[42] The relationship between Alexander and the Mauryans is reflected in a traditional Indian account, supported by Plutarch, of Kautilya or Chandragupta, or both, meeting with Alexander.[43] Far from being dismissed as myth, the meeting is considered one of the chronologic benchmarks of Indian history, and solidifies the conceptual linkage between Macedonian imperialism and the foundation of India's first empire.

Politically, the Arthasastra was developed as a handbook for implementing an evolving indigenous Indian political system while integrating the changes introduced by Alexander, along with some developed by Kautilya himself. The work is a manual for a ruler, and though it is philosophical in nature, it is not philosophy in the abstract sense of Western

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167, 190-193. Mookerji, R., "An Introductory Essay on the Age and Authenticity of the Arthasastra of Kautilya", Studies in Ancient Hindu Polity, (ed.) Law, N. (Delhi, Indian Reprint Pub., 1975), Ch. 1 & p. xliii. Mukherjee, Bharati, Kautilya's Concept of Diplomacy (Calcutta, Minerva Assoc. Pub., 1976), p. vii. Rao, M. V. Krishna, Studies in Kautilya (New Delhi, Munshiram Pub., 1979), pp. 10-20. Usha Mehta and Usha Thakar, Kautilya and his Arthasastra (New Delhi, S. Chand & Co., 1980), pp. 1-7.

[42]Mukherjee; pp. 13, 49-53.

[43]Plutarch mentions Androkottos (or Androcottus or Sandrocottus, all identified as Chandragupta Maurya) as the Indian ruler replacing Alexander in the area, an identification consistent with Chandragupta's historic role. Plut; Life of Alexander; LXII. 4.

genre works. It is a compilation of earlier Indian practices, Hellenistic and Persian influences mixed with Kautilya's own innovations. Its detail is staggering, ranging from the number of mashas charged to ferry a bull across a river[44] to the optimum morphology for a fortified city.[45] In minute detail it covers all aspects of the age, supplying rich evidence for the reconstruction of second century B.C. Indian society.

Kautilya's Arthasastra is notorious for its instructions on devious diplomacy and methods of treachery which have become synonymous with its author, and which have earned Kautilya the nickname "the Machiavelli of India". His political contribution, however, is not primarily a catalog of convenient deceptions, but rather the codification of centralized authority in a land traditionally ruled by a vertically organized hierarchy. The nature of Kautilya's political changes created a need for new military forms. The Mauryan military required reorganization because it was the first Indian army created on an imperial scale and for imperial purposes. The resulting synthesis reflected the limitations, capabilities and forms associated with most imperial military establishments: large size; uniformity; centralized political and military command; and coordinated tactical doctrines.

This reconstruction of the forces King Porus fielded at the Hydaspes generally follows a consensus of P. C.

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[44]Kautilya; II. 127.

[45]Kautilya; II. 51-54.

Chakravarti,[46] E. W. Hopkins and S. D. Singh.[47] It is supported indirectly by many other secondary authors, but the specific subjects treated herein do not seem to have been widely investigated from the Indian end. The three authors cited above have provided the core of the following synthesis wherever the Arthasastra is not an appropriate source.

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[46]Chakravarti, P. C., The Art of War in Ancient India (Delhi, Oriental Publishers, 1972).

[47]Singh and Hopkins as previously cited.

CHAPTER 2

THE MACEDONIAN ARMY

A. Philip's Reorganization and Creation of a Combined Arms Force.

Before discussing the great clash at the Hydaspes, it is appropriate to deal with the composition of the invading Macedonian army, led by Alexander, and then with the Indian defenders, led by King Porus, so far as the extant information permits. The Macedonian army, being the better documented and more culturally familiar of the two, will be treated first in order to provide a basis for comparison with the Indian military forms.

The Macedonian army was the creation of Philip II, not of his son Alexander.[1] It was the culmination of a military revolution in the Ancient World, which departed from previous usages by successfully combining infantry, cavalry, and necessary support units into a cohesive force. Philip's brilliant synthesis of these elements resulted in a Greek-style phalanx combined with excellent native Macedonian and Thessalian cavalry.

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[1] Hammond, H.G.L., Alexander the Great: King, Commander, and Statesman (Park Ridge, N.J., Noyes Pr., 1980), pp. 24-34. Engles, p. 12.
Information on the early Macedonian military development is sketchy at best. Ferrill asserts most Macedonian innovations have been retroactively credited to Philip after their use by Alexander. Ferrill, p. 175.

To this he added a corps of skirmishers, missile troops and light infantry, many of them mercenaries, and the whole backed by sophisticated support units, such as an effective military intelligence network, a highly organized system of logistics, a medical corps, and a truly "World Class" siege train.[2]

National armies tend to reflect the native preferences and traditional forms of combat. Each people develop a unique military style appropriate to their native land and their traditional foes. Usually these specialized systems function well only in the areas for which they were designed, and against forces equally or less well adapted to the conditions of combat. Mounted archers, for example, excel on the open plains, but fight at a disadvantage in dense woods; there light infantry have the advantage. National armies of the ancient world suffered from tactical inflexibility when they fought outside their intended environment.

Diversity solved the problem of tactical inflexibility for most larger armies. The eclectic nature of the Persian empire presents the alternative to Greek specialization. Its army gained flexibility of forms by combining diverse national styles into a conglomerate which could call on this diversity.[3] Herodotus describes the aggregate army with which Xerxes invaded

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[2]Ferrill; pp. 175-185.

[3]The Assyrian army may arguably qualify as the first successful combined arms force, considerably predating Philip's development. Sargon II, for example, demonstrated an impressive range of capabilities in his campaign against Urartu (714 B.C.). Ferrill; pp. 77-79. The advent of iron weapons technology, however, is usually given as the explanation of Assyrian success, and their range of combat capability proportionately overlooked.

Greece, one which contained a wide diversity of types, but which suffered from a lack of cohesion and coordination. Prior to Philip's reorganization of the Macedonian military, large imperial forces in the ancient world usually represented a disparate collection of independent contingents rather than a single combined arms force trained and equipped to work together.

Basic Macedonian military forms evolved from a combination of techniques honed by the Greeks to the south and the horse peoples to the north and east. Ancient Macedonia was located geographically at the juncture of three warrior cultures: (1) the Hellenic city-states to the south; (2) the Celtic-Germanic tribes of west and central Europe; and (3) the pastoral nomads of Eurasia. Macedon lay along the edge of the Danube trade and invasion corridor and at the southwestern frontier of the great Eurasian plains. At the same time it provided the northern bulwark of Hellenic culture against both European and Eurasian tribes, and was influenced by all three. Macedon also lay on the overland route between Europe and Asia, and thereby became the recipient of elements from all quarters.

To the south, rocky Greece encouraged the development of infantry, which led to the dense and heavily armored phalanx. As examplified by Xenophon's march, the phalanx was the most effective military style of its age and area, capable of defeating all other methods of infantry warfare then practiced in the Mediterranean and Near East. The Greek style's major weakness lay in its sole reliance on heavy infantry for all battlefield tasks, with horsemen limited to the light cavalry

role.[4]

Quite different from the Greeks in many ways, the Macedonians were ideally suited to wed phalanx and cavalry. The fertile plains of Macedon and Thessaly were horse country, and the inhabitants had become excellent horsemen, displaying traits of both their European and Eurasian neighbors. The Macedonian lance and flat cavalry helmet resembled those of the Gallic horseman of western Europe much more than the cap and bow of the contemporary Scythian, yet Macedonian skill with horses may have evolved from common Indo-European nomad roots, stimulated by contact with the evolving Eurasian horse cultures north and east of the Black Sea.

The elements, therefore, existed in Macedonian society for Philip's purposes. Hellenic political and cultural links conferred the secret of the heavily armored infantry phalanx, and the northern nomadic cultures had already helped develop Macedon's superb heavy cavalry. For the two elements to be successful as a single force, the synthesis required an integrated tactical concept able to take advantage of the best characteristics of both components. Philip II had the good fortune to have been on hand during the development of a Theban tactic which could be adapted to precisely the needs and capabilities of the Macedonian military.

At Leuctra, Epaminondas and his Theban force handed the Spartans a humiliating defeat. A simple but unorthodox

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[4]Xenophon emphasizes the javelin as the horseman's primary weapon, predicated on the assumption that Greek light cavalry would never come into close contact with enemy infantry. Xenophon, Scripta Minor: On the Cavalry Commander, Cambridge, Loeb Classical Library, 1930), I. 6, I. 21, and ftn pp. 236-7.

tactic made this possible. Phalanx warfare had traditionally consisted of two thick lines of heavily armored infantry confronting one another. Epaminondas faced the even line of Spartan forces with an asymmetrical deployment, grouping more men on the left than on the right. His right hand forces had only to hold or fall back slowly while the overwhelming mass of men on the Theban left crashed through the thinner Spartan line and crushed the Peloponnesian center from the flank and rear. The tactic was decisive at Leuctra, and became a Theban specialty as their city's power grew.

Shortly after the astonishing Theban victory, youthful Philip II went to Thebas as a Macedonian Hostage. The Macedonians had apparently not adopted the phalanx at this time, and Philip had the opportunity to learn both the traditional Greek system of heavy hoplite infantry warfare, and also the newest hoplite battle tactic from its creators. It is possible that Philip's father sent him to Thebes specifically to gather military intelligence on the Theban method of employing Greek infantry. At the very least, Philip had the opportunity to gain a state-of-the-art military education, which he would bring back to Macedon at the end of his captivity.

Philip was extremely intelligent, and it didn't require a genius to see the value of the Theban tactic. It was repeatedly successful, the most telling argument in its favor. However, the impact it made on Philip was perhaps amplified by both its novelty and the impressionability of a young man. It became not only the basis for Philip's tactics, but central to the pattern on which he reorganized the entire Macedonian

military after he ascended the throne.[5]

In typically Greek fashion, Epaminondas had executed his entire battle plan using only heavy infantry, counting on a larger mass of men to break through the Spartan line. Philip conceived of the problem and its solution in Macedonian terms. First, he set about creating an effective infantry force, but this was only the beginning, for Macedonian cavalry was the aristrocratic arm, the arm of decision and swift victory.

The army's final form owed much to Epaminondas, but was far more than the mere addition of horsemen to the Theban hoplite formation. The core of the method remained, that of a powerful blow struck at one side of the enemy line while the majority of the attacking force held the enemy in place. Philip created the Macedonian phalanx with deeper ranks than the Greek formation. He equipped his infantry with longer spears or sarissas, so long that those of the fifth rank still projected beyond the formation's front.[6] Philip didn't expect the heavy infantry to win battles on its own, so it need not be as maneuverable as the Greek phalanx. The denser Macedonian formation was deliberately less mobile, which

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[5]Philip had to begin from scratch building a Macedonian infantry force. It may be argued that the Theban method constituted the only method he knew to employ hoplites, with no native methods for comparison or amplification. If so, his own developments of the hoplite system are doubly impressive.

[6]In Polybius' time the sarissa had been shortened from twenty-four feet in length to twenty-one. The length used by the Macedonian phalanx under Alexander or Philip is unknown, but the implication is that the weapon in use during this period was at least twenty-one feet in length. Polyb.; XVIII. 29.

which translated to stability in combat. The solid Macedonian phalanx formed an immovable anvil against which an emeny could be crushed.[7]

Like the blacksmith's anvil, the infantry phalanx remained an immovable bloc, holding the enemy static on the battlefield. While the enemy army has been thus immobilized, the decisive Macedonian strike fell upon them from another quarter. The hammer blow was executed by a deep wedge of heavy cavalry operating from the right flank of the battle line, capable of breaking through the enemy to fall upon their unprotected infantry from behind. Enemy forces had little hope once they had been trapped between the immovable Macedonian infantry phalanx and the irresistable onslaught of Philip's massed horsemen.

Macedonian heavy cavalry departed sharply from Greek traditions. The heavy cavalry sarissa, nine feet of cornel wood with steel points at both ends,[8] was not intended to be thrown like the Greek cavalry javelin, but was couched as a lance, combining the horse's speed and weight with the rider's strength and skill to increase the impact. In addition to

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[7]Adcock, The Greek and Macedonian Art of War (Berkeley, U. of Cal. Pr., 1962), p. 26. The relative immobility of the infantry phalanx is considered a detriment in Polybius' comparison with the more mobile Roman maniple system. The author does not seem aware of the role played by cavalry in the operation of Philip's Macedonian combined arms 'hammer-and-anvil' strategy, which exploited the very immobility of the phalanx in combination with mobile cavalry. Polyb; XVIII. 28-32.

[8]The cavalryman grasped his sarissa two thirds of the distance back from the broad metal head. This allowed full use of the weapon as a lance, couched for power and maximum reach in battle. If enemy infantry came to close quarters, however, the rider could stab downward with the smaller spike on the butt of his weapon.

his open Boeotian style helmet the Macedonian cavalryman wore a cuirass, either solid body armor or link mail, again unlike the Greek light cavalryman who fought seemingly nude by comparison. Philip's armored lancers or cuirassiers, would have been more familiar to Napoleon than Xenophon, in tactics, equipment and battlefield employment.[9]

These horsemen, the famed Companion Cavalry drawn from the aristocracy of Macedon, dominated the right flank. An intermediate unit of elite infantry, known alternately as Guards, Bodyguards or Foot Companions, connected the cavalry to the central phalanx. This specialist unit formed a fast moving hinge capable of staying with the left flank of the horsemen and/or solidly covering the right flank of the main phalanx.

The "weak" side of the phalanx, the left flank, was covered by a second, smaller formation of cavalry, usually composed of loyal Thessalians. They prevented enemy attackers from encircling the infantry from the far side. Depending on the level of threat, their mission frequently was entirely defensive, counting on the Companions to deliver the decisive blow.[10]

Therefore, the Macedonian deployment, at its simplest, consisted of a central dense line of heavy infantry forming the anvil. To the left of the phalanx was stationed a body of cavalry, often Thessalians, whose sole duty was to defend the infantry's flank. To the right of the phalanx

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[9]Ferrill; p. 176-7, quoting Manti, Peter; "The Cavalry Sarissa"; Ancient World; (8), 1983, p. 80.

[10]Cultural cousins, the slightly lighter armed Thessalians may have reflected a level of development similar to Macedonian cavalry prior to Philip's reforms.

stood the elite Guards infantry in a deeper and more powerful formation. Beyond the Guards, to the extreme right of the battle line, the Companion cavalry was drawn up in a deep wedge prepared to drive through the enemy line in column and deliver the decisive hammer blow from the rear.

Deploying the heavy cavalry in column rather than in an extended line allowed them quickly to exploit any breakthrough by pouring greater numbers through to expand and consolidate the breach. Once through, the cavalry column had the power and speed to wheel and fall upon the enemy line at any point, crushing the foe between the immovable phalanx and the irresistible cavalry charge from behind.

The combination was devastating, especially when used against the traditional balanced battle lines. An old military aphorism warns that "No plan survives contact with the enemy," yet even when the enemy did not cooperate and present a traditional formation, the elements of the Macedonian force could be used to advantage by a creative and decisive commander, as Alexander proved at Arbela. The optimum situation, however, was the asymmetrical Macedonian deployment arrayed against an evenly distributed enemy front. This conferred an advantage which Alexander exploited at the Hydaspes, where King Porus disastrously chose a classicly balanced deployment.

Philip did not stop with the reconstruction of the core, but augmented his creation with other effective elements. Skirmishers had become more fashionable since the Peloponnesian war. Xenophon highlighted the value of these troops with a clearly drawn lesson, relating how he had been forced to con-

vert part of his hoplites to skirmishers to deal with fierce Colchian irregulars.[11]

In Macedonian battles, these lighter armed infantry were placed ahead of the advancing army to discharge volleys of arrows or javelins at the enemy, then melt back through the phalanx before the main lines collided. Lighter armored as well, these skirmishers could be employed where speed or maneuverability were more important than shock power, such as in rough terrain or in coordinated action with detached cavalry units. Additionally, these light troops provided a counter to enemy skirmishers who would otherwise be able to fire at the heavy phalanx warriors and withdraw conveniently ahead of any counterattack.

Light cavalry formed the mounted counterpart to the infantry skirmishers. This arm became increasingly composed of nomadic horse archers as Alexander moved east and warriors trained in this style could be easily recruited. They fulfilled the same roles in relation to the heavy cavalry as the infantry skirmishers did to the phalanx, allowing the cavalry arm also to employ missile weapons and faster, lighter troops where these were needed. Like the infantry skirmishers, they usually preceded the heavy cavalry into battle, and their volleys of arrows could be used to soften up the enemy before the shock of close combat. As the collision neared, the mounted archers would withdraw to the extreme right and left of the battle

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[11] Xenophon, Anabasis, Vol. III, tr. H.L. Jones (Cambridge, Loeb Classical Library, 1930), Bk, IV, viii, 9-20.

line. On the right flank this move cleared the way for the heavy cavalry attack, while on the left the mounted archers helped the weak side cavalry protect the flank of the phalanx.

Thus four basic combat types, light and heavy infantry and cavalry, made up the basic battlefield components of the Macedonian army. Unfortunately, not all adversaries were as willing as King Porus to face Philip or Alexander on the field of battle. When the enemy withdrew into a walled city and prepared to wait out the attack, the careful training of the phalanx and cavalry became useless. Philip added a sophisticated train of siege engineers and equipment to deal with these eventualities, another relatively new technology for mainland Greeks.

The basics of siegecraft were known in the ancient Near East as early as the Assyrian empire. By the latter stages of the Peloponnesian War, the Sicilian Greeks had demonstrated considerable skill in siegecraft, albeit primarily on the defensive, and the art had finally begun to spread to the Greek mainland. Philip capitalized on this trend and equipped his reformed military establishment with an exceptionally effective siege train. Alexander used this potent weapon to reduce the impregnable Phoenician stronghold of Tyre in a matter of months, incontrovertibly proving its worth and ability.

The conduct of a war rests not exclusively on men and technology, but also heavily on information. Knowledge is frequently the key to a bloodless conquest or the difference between a starving army and one able to live off the land.

Xenophon quoted a Greek maxim that "in attempting to discover what the enemy is about, it is well to employ spies."[12] Philip had harbored Persian exiles at his court, and doubtless he and Alexander had heard tales of military and political espionage practiced by true masters of the art.

The Macedonian army developed an intelligence corps dedicated to determining the conditions ahead, including environmental, economic, and political data as well as enemy troop strengths and dispositions. This establishment was a permanent fixture of the army,[13] and constituted a commander's planning asset far beyond the simple expedient of sending some brave soul into enemy territory dressed as a beggar or trader. A permanent intelligence corps provided the commander, either Philip or Alexander, with a continuous supply of data gathered and processed by individuals experienced at the task and familiar with the commander's information needs. It meant the difference between professionalism and reliance on the lucky observations of an amateur.

The one aspect of warfare which can least be left to luck is logistics. Food, water, animal fodder, weapons, clothing, fresh equipment and all the other necessities of an army in the field must be provided on a continuous basis, or the army ceases to exist as a unified force. An army represents such a large demographic unit that it cannot survive long on local resources alone, except in the most fertile

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[12] Xenophon; "The Cavalry Commander", IV. 16.

[13] Ferrill; p. 182.

farming areas. Alexander spent as much time as possible in fertile river valleys: first the Nile, then the Tigris-Euphrates, and finally the Indus, then back to the Tigris-Euphrates. The remainder of his campaigns of conquest required a sophisticated system to provide for the army on the march.

The army could not long remain in one place, for it would strip the land and starve along with the population. The Macedonian host had to keep moving after living on the surplus of a specific area for a short period of time. Intelligence aided this strategy, as did diplomacy. A capitulation by a kingdom ahead might be met with a demand for tribute in food rather than gold. When the army arrived, these rations would be assembled and waiting. When the enemy chose to fight, or when the army crossed areas where there was no agricultural harvest to commandeer, the situation changed markedly.

Philip had created a lean army capable of carrying its own food and moving rapidly without the encumbrance of an oxdrawn supply column.[14] This was practical only for relatively short marches, however, and for longer campaigns through barren or hostile territory, fleets plying rivers or seacoasts offered the preferred method of supply. Overland supply columns slowed the march to a maximum of ten miles per day, the speed of an ox drawing a laden cart over good roads.

All this activity required a constant effort by trained professionals. Only infrequently, such as when operating in

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[14]Engels; p. 23-4.

the mountains of Bactria, was Alexander forced to split up the army into smaller contingents in order to seek sustenance over a wider area. Alexander's ability to cross continental distances, with an army which daily required huge quantities of consumables,[15] is a tribute to the logistics theories and establishment created by Philip and taken to new heights by Alexander.

Philip also included a corps of physicians to care for the physical needs of the army. These doctors certainly must have treated their share of combat wounds, but their inclusion was important to treat routine medical problems as well. Most armies on extended campaign lose a considerable portion of their strength to illnesses and injuries not related to combat. The inclusion of physicians, however ineffective we might judge them by modern medical standards, showed both humanity and shrewd military planning.

After the conquest of Persia, when it became apparent the army would not be going home again in the near future, Alexander allowed his men to marry local women. Thereafter some wives and others may have joined the army as camp followers, who also provided necessary services for an army on extended campaign. Inevitably the nature of the army slowly changed as the mix of cultures and capabilities grew with each more exotic conquest. The relatively pure Greco-Macedonian force which marched forth from Pella bore little resemblance to the eclectic mix of soldiers and civilians who trailed Alexander

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[15]Engels offers a staggering estimate of 1,260,000 pounds of food, water and animal fodder needed by the Macedonian army each day. Engels; p. 20.

down the Indus valley.[16]

Still, throughout his conquests, the basis of Alexander's military power and tactics remained the Greco-Macedonian phalanx and Macedonian heavy cavalry first combined as a coherent unit by his father. On the banks of the Hydaspes, in his last major battle, the classic Macedonian combination worked for Alexander just as well as it had for Philip a dozen years before at the Battle of Chaeronea. In modern terms, Philip created a flexible force of infantry and cavalry capable of sustaining its own operations indefinitely on a continental scale. Few modern armies would dare make that claim. This rare achievement demonstrated the Macedonian dual heritage of the self-sustaining northern horseman with the sophisticated Greek Hoplite, both traits combined in an army which could (almost) range to the ends of Alexander's ambition and defeat any conceivable foe.

B. Alexander's Changes in the Macedonian Army

Alexander grew up as an active participant in the command structure of his father's army. According to Plutarch,[17] Alexander was present at Chaeronea. Other sources go farther and assert Alexander led the decisive cavalry force as a youth. These authors evidently believed Alexander had gained

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[16]Malik cites a combined army and civilian entourage totalling 1,200,000 following the new Asian monarch into India, and offers Tarn's figure of 30,000 combat effectives at that time for comparison. Malik, p. 92.

[17]Plutarch; Alex., IX. 2.

considerable prior education and experience.[18]

These skills were coupled with his obvious natural genius. As a youth Alexander was tutored by Aristotle in effective reasoning, and educated in military and diplomatic affairs by his father. Both teachers were unrivaled experts in their fields, and their pupil possessed exceptional ability. I believe it is safe to say that no other general in history could have commanded the Macedonian army as well as Alexander, for the general and the weapon were literally made for one another.

However, Philip had crafted the army and the young general for the job the king had in mind. Alexander's ambitions exceeded his father's and inevitably this difference led to changes in the nature and application of the army in Alexander's hands. While Philip concerned himself with the invasion of Asia Minor and perhaps Persia, Alexander envisioned campaigns on a different scale than had Philip.

It is impossible to reconstruct Philip's long term military ambitions with any accuracy, but he had made preparation for an invasion of Asia Minor. This presumes he would confront the army of the local Persian satrap, probably with troops and logistic support from the local Greek city-states. If his goal was the annexation of Asia Minor, his strategy probably depended upon a unified Greco-Macedonian front

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[18] Dupuy, R. E. and Dupuy T. N., The Encyclopedia of Military History (N.Y., Harper & Rowe, 1970), p. 44.
Adcock; p. 27.
Hammond; p. 16.
Malik, p. 6.
Tarn, W. W., Alexander the Great (Boston, Beacon Pr., 1948), p. 2.

withstanding a major retaliatory response from the Persian Great King. While there is no direct evidence to indicate Philip intended to reign in Persepolis as Alexander did, a major conflict with the Persians would have inevitably resulted from the invasion of Asia Minor.

Olmstead implies Philip merely appeared to have limited his goals to Asia Minor. The author cites agitation by Isocrates and others for Macedonian conquest of the wider barbarian empire, including Egypt. This may have been in Philip's plans as well, for Olmstead argues Philip "was too shrewd to preach the crusade before closer unity at home had been achieved."[19] Therefore, the immediate issue was control of the wealth of Asia Minor, but conquest of the eastern Mediterranean may also have been a long range goal which Philip had set aside for an appropriate time. However, Philip died before that time came, and Alexander ascended the Macedonian throne to achieve the goal himself.

Alexander's conquest of Persia did not necessitate significant changes in the composition of the army or the tactics it employed. He changed the balance of some elements to adapt to different foes, specific battlefield conditions, and military resources available, but the basic Macedonian mixture of forces and tactics attributed to Philip defeated the might of Persia in Alexander's hands. Alexander did not alter this military combination until he had already conquered the Persian Empire, and his ambition then led him

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[19]Olmstead, A. T., History of the Persian Empire (Chicago, U. of Chicago Pr., 1948), pp. 433-4.

against more exotic enemies like the horsemen of Sogdiana or the Indian army of King Porus, contingencies far beyond Philip's vision, if not beyond the adaptable military force he had designed.

The changes began after the fall of Darius, when Alexander incorporated Persian forces into his army. First, he could not expect perpetually to make up his losses from Macedonian levies[20] and Greek mercenaries.[21] Persian heavy infantry, while not as effective as the Macedonian and Greek phalanx warriors, still constituted a body of useful replacements. Second, the incorporation of Persian infantry and cavalry into the army demonstrated a consistent policy of Greco-Persian integration in all areas. Above all the Persians were available, and Alexander needed troops.

More important to his subsequent operations and to the more basic transformation of the Macedonian military combination, Alexander added units of highly effective Eurasian nomad light cavalry recruited during his campaigns in northern Persia, Bactria and Sogdiana.[22] The mounted Eurasian archers constituted a powerful addition to the Macedonian mix, which had previously relied on light cavalry armed with javelins in the Greek style. Archers increased the light cavalry's effective missile range, its rate of fire, and the

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[20]Arr. III. 16; 10-11.

[21]Arr. III. 24. 5.

[22]Arr. V. 12. 2; IV. 17. 3-4; IV. 22. 3.
Curt. IV. 5. 10.
Engles; pp. 106, 148.

number of missiles carried by each horseman. This addition in turn increased the army's tactical flexibility and fire-power. Warfare to the northeast and east of the Persian empire, in Sogdiana, Bactria, and India, relied more heavily on bow than on the sword or spear, and Alexander needed mounted archers of his own to counter mobile archers on horses and elephants or grouped in chariots.

The Greco-Macedonian warrior culture traditionally accorded the bow only passing attention. Greek archery appears to have been restricted to hunting until after the Peloponnesian War. This preference appears at least as far back at the Homeric age, for Odysseus left his mighty bow at home when he went off to war with Troy. The Greeks in particular did not develop mounted archers. Because they played no role in Greek battles, there was no perceived need for them and likely none available when Philip reorganized his army. As the scene of combat shifted east it became increasingly necessary to fill this gap in the Macedonian balance of forces. Alexander did not hesitate to incorporate horse archers as their need and availability increased in his eastward campaigns.

Alexander encountered a third new element in the east. Elephants, a subject treated in more detail as an Indian military development, constituted a surprisingly minor alteration to the Macedonian military establishment. They joined the Macedonian army in some numbers after the Hydaspes victory, but they played no military role in the

subsequent Indus valley campaign.[23] Alexander accepted them as tribute from conquered rulers, and his entourage included enough of the animals to show his status in Indian terms, but he carefully chose not to incorporate them into his combat forces.[24]

Philip's proven formation of phalanx and heavy cavalry could be augmented with horse archers fitted neatly into an expanded cavalry role. Elephants, however, were far too alien and unpredictable for experimental use near the valuable Macedonian phalanx. Worse than their overt danger to the infantry, their incorporation would have radically altered the nature of Macedonian warfare. During the transition period, military effectiveness would have been seriously jeopardized until a new tactical doctrine had been developed and a major reorganization completed to integrate the huge animals.

Alexander likely saw no reason for such a change in the middle of an already successful campaign.[25] The Macedonian

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[23] Scullard, H. H.; The Elephant in the Greek and Roman World (Ithaca, Cornell U. Pr., 1974), p. 66.

[24] Elephants would have become indispensable to a Macedonian siege engineer, for their strength, pulling power, lifting ability and proven ability to supply the vast amounts of heavy timbers used in siege engines. In this way they may have made a contribution to the army's combat effectiveness without engaging in battle.

[25] Scullard's description of the vehicle constructed to carry Alexander's body includes illustrations of Macedonians aboard elephants. This may indicate Alexander had begun to integrate the animals into his establishment after his return to Babylon, undertaking the reorganization during peacetime. Scullard; p. 76.

system had proven capable of destroying armies equipped with elephants. The advantage, likewise, seemed slight in comparison with the risks involved. Therefore, Alexander wisely chose to exclude elephants from his combat forces, though his military successors employed them for centuries.

While elephants became the superweapon of later Hellenistic armies, the Macedonian and Roman armies relied on infantry composed of voters who chose their respective kings and consuls. The foot soldiers probably harbored a deep mistrust of the animals, for their destructive potential could turn against friend as well as foe. These citizen-soldiers may well have been instrumental in the exclusion of the animals from these armies. In the Successor armies there may have been less concern by the generals over the effects of a runaway elephant amid an infantry formation. The Hellenistic soldier did not vote for his ruler and usually was not of the same culture as his Greek monarch, and this remoteness probably reduced the monarch's level of concern to some degree. Also, unlike Alexander in his operations in distant India, the Seleucid or Ptolemaic kings had replacement troops more readily at hand.

Perhaps the most telling reason for the Successors' commitment to elephants was their opportunity to adapt to the beasts. The inevitable reorganizations following the dismemberment of Alexander's army produced the Hellenistic military style. The creation of new national armies provided necessary periods of reintegration during which the

doctrines, training and tactics could be developed to include elephants. The Successors reorganized their militaries to create a new mixed Oriental-Greco-Macedonian form, a Hellenistic style markedly different from Philip's original conception, and the natural result of Alexander's diverse conquests. Alexander had not the benefit of this luxury, the time to adapt them to his army, had he wanted to include elephants.

The Macedonian military system as Philip had established it worked well, and Alexander made only necessary changes. When he moved beyond the world for which it had been created, he adapted it by the inclusion of only necessary new elements such as the horse archer, rejecting others, like the elephant, which would have been incompatible with the original Macedonian mode of war. Alexander had been reared from childhood to command the classic Macedonian establishment, a task at which he excelled. He understood which changes were required for success and possessed the wit to see which innovations would lead to a radical change in the army and its doctrine, such as happened after his death.

CHAPTER 3

THE INDIAN ARMY

A. Cultural and Military Origins.

Despite the historiographic deficiencies inherent in the surviving Indian and Mediterranean accounts, a certain amount of information can be amassed on general condition and military methods in India at the time of Alexander's invasion. Moreover, the social, political, and military trends which characterized the Indian style of warfare were not particularly affected by defeats at Alexander's hands. As a result, the Indian developmental continuum remained relatively uninterrupted through two millenia, and though the data are sparse, the length and slow rate of change created a perceptible development trajectory. Placing King Porus temporally and geographically on that trajectory allows some general determinations to be made about his forces. Using this approach to analyze the surviving Indian evidence, it is possible to reconstruct to some degree the forces which clashed at the Hydaspes.

Indian military organization reflected the social and political structure of the society. India's vertical organization featured individuals with specific loyalties to

other individuals. These personal loyalties, arranged in a hierarchy, formed separate vertical chains of obligation and duty, exclusive of the loyalties of the others around them. The individual's loyalty extended one level up, to his protector, and downward one level to leaders of the next lower hierarchal level of autonomous groups. These linkages of vertical loyalty formed chains, pyramids actually, of relationships exclusive of those in the adjacent chain. Two tributary kinds, both loyal to King Porus, might have been in conflict with one another, while similar situations existed in their own ranks, wherein several of their own followers contended for power on their own hierarchal level. Each group fought both as a part of the aggregate force, but also as an individual unit, for its own advantage and honor. The army, therefore, consisted of a delicate web of vertical power links. The foot soldier's loyalty was to his knight or noble, who was in turn loyal to his prince. The prince followed a tributary king, not King Porus. Destruction of any one of these levels effectively detached the subsequent linked units from the whole. That is, if a prince were killed, the nobles loyal to him personally no longer had anyone above them capable of issuing a legitimate command. Leaderless, they might leave the field, their duty honorably performed.

These chains of vertical organization differed sharply from the Macedonian system of horizontal organization. At least theoretically, all soldiers in Alexander's army gave

their loyalty to the organization as a whole, and in doing so accepted the unity of the whole and its overall direction by Alexander and the officers he placed in the command structure. The Macedonian noble in the command structure held his power by virtue of his position as designated commander of a specific unit, rather than by personal loyalty of his men, at least in theory, although personal loyalty plays a role in all combat leadership. The Indian vertical organization differed in that it relied almost entirely on personal loyalty for the right to command, and this loyalty extended to different levels only in relationship to the existing hierarchy of personal alliances. The differences in these organizational structures echoed through both the command and the practical application of the two forces in combat, and shaped the overall possibilities at the Hydaspes.

A second major factor also shaped the battle. When Alexander invaded, a long term change was already under way in Indian military theory, based on the integration of elephants as a combat element, a change which would last for a millennium, until the Islamic invasions which began c. A.D. 1000. This aspect is treated in detail below, but briefly, the Battle of the Hydaspes is one of the earliest Indian accounts of a king going into battle atop one of the animals. The new tactical doctrines associated with elephants as the mounts of the highest nobles would change Indian warfare dramatically. The clash at the Hydaspes was therefore the clash of two new developments in warfare,

Macedonian and Indian, and equally it was a clash of two diverse styles and philosophies of warfare in the larger sense.

These innovations became more visible as a part of Indian warfare's long span of development. In the early Vedic and Epic periods of India's history, perhaps reaching as far back as two thousand B.C., north and northwestern India were invaded by migrations of Aryan Indo-European chariot warriors at the beginning of the development trajectory. Subsequent conquests by these periodic waves of invaders established a military hierarchy and introduced a second major cultural element to the existing civilizations of the Indus and Ganges valleys. The invaders intermarried with the darker-skinned indigenous Dravidians. This racial and cultural mix resulted in the birth of the Hindu culture, firmly consolidated politically and socially as a patchwork of vertically organized holdings in the rich valleys of the Ganges and Indus Rivers by the time Alexander invaded in 326 B.C.

In the early Vedic and Epic Ages, as in contemporary Homeric Greece, heroes fought one another from chariots, while masses of anonymous foot soldiers died around them. Unlike the Greeks, the Indians retained their heroes and chariots throughout their ancient and medieval history.[1] Understanding the Indian forces on heroes is important to

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[1]Chakravarti, pp. 1-2.

properly conceptualizing the differences between Indian and Mediterranean methods of warfare. In the western manner, we would interpret a battlefield movement of chariots and cavalry as two separate weapons systems being relocated in accordance with an evolving battle plan. In India, where the individual hero was paramount, a movement of similar forces meant several chariot-borne heroes had gone in search of worthy foes, with their bands of mounted retainers ranged around them. Like the Mycenaean chariot warriors who besieged troy,[2] traditions of personal combat between noble heroes became highly developed in India,[3] and these cultural traditions shaped Indian conceptions of combat, the nature of war, and its place in society.

I believe it is permissible, admittedly only in the broadest sense, to project the Battle of the Hydaspes as a conflict between the traditional Indo-European aristrocratic heroes as exemplified by Indian warfare, against the divergent developments of warriors trained by the more organized and democratized Mediterranean states. In the later fourth century B.C. India, King Porus's army represented a predictable linear stage in the ongoing evolution of this

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[2]Homer; The Iliad and Homer; The Odyssey.

[3]Chapekar emphasizes the cultural links between the "Hellenic peoples" and the Indo-Iranians and Indo-Aryans, all of which stemmed from a common Aryan root stock. While her work deals primarily with cultural interchange, her arguments for cultural exchange and similarity of values are equally valid for military issues. Chapekar, Nalinee M., Ancient India and Greece: A Study of their Cultural Contacts (Delhi, Ajanta Publications, 1977), pp. 1-3.

aristocratic military tradition of Indo-Homeric heroes. It was pitted against Philip's organized, disciplined and technically advanced Macedonian army, a product of the Mediterranean war zone where organization and unit discipline had become the keys to military victory.

Porus's forces were organized in traditional Indian fashion, and Indian military technology had developed consistent with the beliefs, values and priorities of the society from which the army was drawn. Therefore, the Indian hierarchy largely shaped the possibilities on the battlefield. The caste and rank of the individual determined the sophistication of his weapons, and the quality of his mount and armor, if any. His caste and rank directly determined his effectiveness in combat as a natural manifestation of the social hierarchy, consistent with the cultural expectations of each participant's role on the battlefield.

Warfare also played a very different role in Macedonian and Indian society. Combat between Mediterranean city-states frequently determined the survival of the defender's entire population. War threatened everyone, not only the males of military age and status. Assyrians used total destruction of entire cities as a calculated form of psychological warfare. Mycenaean Greeks obliterated Troy. Alexander leveled Thebes and butchered or enslaved its entire population. Rome left nothing of Carthage. The realities of war at the survival level encouraged a ruthless and brutally effective style of warfare, with the total

destruction of the enemy society as a potential outcome.

In India, at this early stage in caste development, the castes represented the basic social functions of priesthood, warriors, merchants and farmers. Those who fought, from the king on his elephant to the anonymous shieldbearers, were Kshatriya caste members. In this sense, Indian wars did not involve the common man in the same manner as did most contemporary Mediterranean or later feudal European warfare. In the West, it remained customary to conscript entire male populations for short campaigns scheduled around planting and harvest. The Kshatriya caste provided the army, and its internal hierarchy provided the army's organization.

In India, members of the Kshatriya warrior caste oversaw a careful mixture of warfare and politics. Above them in the hierarchy, the Brahmin priests exercised overall social control of the very religious Brahminical society. Below the Kshatriya warriors, the Vaishya merchants went on about their business without significant involvement in war.

Indian warfare fluctuated in style and emphasis, and the above assertions represent the commonest conditions, but the actual conditions for any specific time and place would have varied as much in India as they did in the West. In India, in the majority of cases, armed conflict remained limited to the Kshatriya warrior caste. This limitation restricted the direct human cost of war to one caste, which protected the society as a whole and the economy as a functioning asset of the kingdom.

Warfare served to decide political relationships. Combat created a method of Kshatriya kings or nobles to determine their tributary relationship to one another. Certainly a lost war and vassalage to another monarch required the loser send tribute rather than receive it, which had an effect on the economy and standard of living, but a lost war did not end in the extermination of the loser's city-state. War in India served a specific social function, and only those born to the Kshatriya caste, participated in this sophisticated political struggle for dominance.

Caste limitations and political necessities determined general organization of the military force. The political landscape consisted of large kingdoms, principalities, noble holdings, and a patchwork of small political entities. Kshatriya soldiers followed their nobles, and lesser nobles followed the great lords. Like Homeric heroes, each noble arrived at the battlefield with his own contingent, and the army consisted of the sum total of these highly independent units.

The Indian general chose the formation in which the army would face the enemy, but as soon as the formations clashed, a melee began. Nobles and their retinues prowled the battlefield seeking their equals for single combat. E. W. Hopkins describes the role of the Indian noble in graphic terms:

> "The knight's adversaries are generally of his own class. If he becomes apratirathah, or has no foeman

> worthy of his steel, he rushes about the field until he meets one. Incidentally, as it were, he may shoot a few hundred common soldiers. He never makes a premeditated attack upon the foot soldiers alone, but when their chief is killed, of whom they are, like the horses, an appendage, they ought to be dispersed; and if they do not, they are shot as nuisances, not as antagonists."[4]

The signal of victory of defeat for the army, however, had nothing to do with the individual survival of either the knight or the common soldiers, for only the king had importance. The complex web of vertical loyalties and obligations dictated the nature of the outcome. As in chess, when the king fell, his army usually considered themselves defeated and the battle over. At that point battlefield etiquette advised a hasty retreat of all the fallen king's forces, hurried along by a few of the victor's light cavalry. However, within this vertically organized system, the same rules of engagement often applied in miniature when a noble fell, even if his king remained in the fray. The fallen noble's retainers left the field, their service honorably completed, justified in leaving their embattled king to his own destiny. This resulted from the individual's relationship with his own lord, a loyalty which usually also precluded any relationship between the individual infantryman and the monarch.[5] The retinue of the noble fought with him

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[4] Hopkins, E.W., J.A.O.S., XIII, 261-2, from Chakravarti, p. 23.

[5] The exception here would be those household troops of the monarch loyal to him personally. These troops would likely have comprised the smaller portion of the army when compared with the total numbers fielded by allied nobles.

as long as he lived. When he died or left the field, they left with him, a custom which had far reaching implications for the conduct and outcome of any battle so organized.

The consequences of these differences between Indian and Macedonian warfare shaped the Battle of the Hydaspes, and must be considered in its analysis. The Macedonians fought a Mediterranean style war, directed at the enemy army, with body counts already a part of the historical reports. Their goal was the destruction of enemy troops, which left the enemy king no option but to capitulate. The Indian rank-and-file faced their enemies as long as their noble leader remained on the field, and the king bravely fought on even as his army melted away around him, still hoping for victory by toppling the enemy king. These different definitions of victory would lead to bloody results when the two military systems clashed.

B. Indian Strategic Developments.

During or just following Alexander's invasion of Northwest India, a major political and military transformation took place further east in the Ganges valley, as the Maurya dynasty rose to dominance with the aid of the wily Kautilya and his Arthasastra. Indian political patterns began to change during this period, from the traditional localized kingdoms to geographic imperial entities. Alexander's invasion may have triggered this change, or at very least

accelerated it, with the introduction of the concept of empire and centralized control.

Militarily the Arthasastra is a manual for establishing a large, centralized Indian army, necessary to seize control of all of northern (Hindu) India, the Mauryan primary goal. Mauryan forces had to be capable of defeating both Indian and Seleucid adversaries,[6] which necessitated the unprecedented level of organization and control advocated by Kautilya's Arthasastra for an imperial army. The brief period of Greco-Macedonian invasion (c. 326 B.C.) coincided with a new stage in Indian military theory, the creation and centralized control of a large consolidated force. Numerical superiority made possible by organization and prior conquests aided the Mauryans against Indian and Hellenistic foes, in the same manner that these elements had aided Alexander.

Thus Alexander's example caused Kautilya to change the Indian style away from that practiced by King Porus at the Hydaspes. Because Alexander's effects are recorded as a part of the overall Kautilyan schema, the Arthasastra less directly reflects Porus's earlier army. However, Kautilya's work was not the product of a single radical departure, but rather the culmination of many long term processes already

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[6]Indian tradition presents Chandragupta as victorious over Seleucus in battle. In the Western version Seleucus traded his Indian lands for war elephants. For whatever reasons, the Seleucids withdrew from the India; the reasons were probably more complex than either tradition portrays.

under way in Indian military thought, before the whole was shaped to imperial political ends. Some aspects of the Arthasastra reflect ongoing processes, while other elements serve to highlight the differences between Porus's kingdom and the empire of the Mauryas.

The technology available to Porus was only a slightly earlier or more provincial version of that advocated by Kautilya. Indian trends developed slowly, and as a part of a long developmental trajectory, King Porus's techniques and equipment may be cautiously reconstructed. Methods of training elephants or the nature of the Indian bow were probably not radically altered by Kautilya's political and military centralization.

The level of military unity called for by Kautilya probably didn't exist at the Hydaspes, however. The composition of King Porus's forces reflected the fragmented political landscape later transformed by the Mauryas into India's first empire. Porus could not have exercised the central authority, either military or political, for which Chandragupta Maurya later became famous.

C. Ancient Indian Military Divisions and Technology.

If the purposes of warfare, even the definitions of victory, differed remarkably between Macedonian invaders and Indian defenders, it is not surprising that their methods of making war had developed along equally divergent lines. The

Macedonian army represented the epitome of European military doctrine and technology. Equally, the forces King Porus fielded were also at the forefront of an evolutionary change slowly transforming Indian military technology.

From the time of the Indo-European invasions, the Vedic army had consisted of three divisions: (1) noble heroes in chariots; (2) lesser nobles on horseback; (3) infantry. Tradition had begun changing some time before Alexander invaded, and by the Battle of the Hydaspes, another division joined the military establishment: (4) war elephants.

The change to elephants as the hero's mount of choice had apparently been taking place for some time, but the western accounts of King Porus at the Hydaspes rank among the very earliest records of Indian elephants in battle. Post-Vedic literature mentions elephants as a part of the army, but not as a primary weapon. Porus, however, fielded a large number of trained war elephants and himself led the elephant corps. He appears to have been among the kings actively developing the elephant as the new weapon of battlefield supremacy.

The great nobles now went into battle atop elephants, while lesser and younger nobles manned the traditional chariots. Household men-at-arms and mercenaries constituted the attached cavalry. The household infantry, guild levies and mercenaries provided the common soldiers, mostly archers and their shieldbearers.

The evolving military style changed priorities and

doctrines, creating new tactical problems, but the nature of Indian society shaped the solutions as much as the battle-field conditions. The huge pachyderms required foot soldiers about them to prevent enemy infantry from attacking the elephant's belly, legs and trunk, but likewise, the infantry provided a necessary social entourage for the noble warrior aboard the elephant. Individual lesser nobles riding the chariots, war cars as they are called, maintained their attached horsemen to provide a mobile escort.

Indian military technology had produced four major weapons systems or divisions, yet the participants in each division oriented themselves vertically by personal loyalty rather than horizontally by weapons type as would be done in the west. The military relationships were derivations of social and political relationships rather than distribution by weapon type.

For example, each higher noble arrived at a battle aboard his elephant, accompanied by a couple of chariots manned by sons and vassals. The family retainers would have been divided up by weapons types, with the infantry attending their lord, the mounted retainers following the chariots. Though the chariots and elephants may have gone into battle separately by virtue of the king's battle formation, King Porus's deployment at the Hydaspes supports the conclusion that infantry remained with their high lord to protect his animal, while the household cavalry attended his sons and vassals to form the more mobile contingent.

Before the effects of these relationships may be analyzed in context at the Battle of the Hydaspes, it is necessary to look more closely at the actual weapons and the roles of the four divisions. Elephants had no equivalent in the west, but neither can we assume the other three branches shared the Mediterranean or Near Eastern norms for chariots, cavalry and infantry.

1. Infantry:

Archeological excavations at Bharhut and Sanchi, dated from the second and first centuries B.C. respectively, have uncovered bas reliefs which depict Indian infantry of some sophistication.[7] The sculptures show only light infantry which also supports the Epic image of the armored knight seeking his foe amid a sea of ineffectual common soldiers, although this traditional military ideal was as much social statement as military evaluation.[8] Allowing for local variation, the bas reliefs confirm Arrian's description of the Indian infantry as composed primarily of archers carrying very long bows, while only a few soldiers bear javelins. Some or all foot soldiers carry swords with broad blades, and many carry shields the height of a man.[9]

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[7]Chakravarti, pp. 19-20.

[8]Singh, pp. 13, 17, 18.

[9]Arr. Indika, XVI. 12. 6-10.

Linen clothing probably doubled as light armor,[10] for no metallic body armor or helmets appear among the infantry in the bas reliefs.[11] Mediterranean armies had also found layered linen to be effective protection for light troops, but understandably outclassed by Macedonian plate or chain mail in close combat. Arrian comments that the Indian infantry avoided hand-to-hand combat if possible, even among themselves. Their resolute stand bespeaks considerable courage when they closed with Alexander's Macedonian infantry armored in breastplates, greaves, helmets and shields, marching behind a wall of leveled pike blades.[12]

However lightly the nobles dismissed the common soldier, and however ill equipped he may have been to confront Macedonian heavy infantry in close combat, the Indian infantryman still wielded a formidable weapon. Arrian states that nothing, not even a heavy shield or breastplate could stop an arrow from the Indian bow.[13] The length of the Indian bow allowed the lower end to be braced against the archer's left foot as he drew the arrow back fully. Arrian asserts Indian arrows reached almost three cubits in length, and this combination probably shared, to a great extent, the range and devastating penetration

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[10]Arr. Indika, XVI. 12. 1; Chakravarti; pp. 19-20.

[11]Chakravarti, Ibid.

[12]Arr. Indika, XVI. 12. 9.

[13]Arr. Indika, XVI. 12. 7.

characteristic of the later English longbow and clothyard arrow.[14]

It appears nobles did wear some form of body armor, probably to increase their odds of surviving a glancing strike from the powerful arrows. King Porus's body armor drew favorable comment from Arrian, who indicates it withstood Macedonian weapons.[15] The less effective linen body coverings of the Sanchi and Bharhut infantrymen may have realistically acted as minimal armor only in the distasteful event of close sword combat. At longer ranges the Indian bow could kill or main through layered linen as if it didn't exist.

As with the English archers of Crecy, or the Cretan archers of ancient Mediterranean fame, skill with the bow took extensive practice. The nature of the Kshatriya caste would have made archery skill widely attainable. The caste operated as a professional military force, and its members would have had the time, social pressure and financial support to hone their skills. Logically the members of a warrior caste should stay proficient with the national weapon, and so provide a pool of trained light infantry. The cultural expectations of their role in battle would have encouraged their efforts in archery, but would have argued against the development of heavy infantry in the Macedonian

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[14]Arr. Indika, XVI. 12. 6-8; Chakravarti; p. 18.

[15]Arr. Anab., V. 18.5.

mold.

At the Hydaspes, Alexander could not use his cavalry in close contact with Porus's unfamiliar elephants. There the phalanx gained their victory without direct cavalry support, in the face of the might of Punjab mobility. The import of the Greco-Macedonian technique of heavily armored infantry, as an arm capable of unassisted victory over nobles aboard elephants, could not have been lost on the Indian survivors.

Yet rather than adopt the heavy infantry method, the Indians appear to have ignored it entirely. During Alexander's campaigns, the Indians had sufficient time to observe it in action. Later India possessed long term economic and political contacts with the Achmaenid, Seleucid, and Roman West which could provide the necessary information if Indian monarchs or their subjects had any intention of adopting heavy infantry.

It is unclear, naturally, whether the Kshatriya nobility or the rank-and-file made the decision not to emulate the invaders, but from the cost of the armor, and the time, expense and support necessary for such an extensive military reorganization, success would have required the exiting power elite's assistance in their own potential demise. The introduction of European style heavy infantry might have reshaped the Kshatriya caste, as the nobles would have become more vulnerable to the enemy infantry and the battlefield a more dangerous place for all. Even more

strongly than Alexander dismissed the elephant, the Kshatriya seem to have rejected the phalanx formation as an impressive but dangerously alien weapon.

2. Cavalry.

Indian cavalry traditionally followed the hero's chariot. When combined in a larger force, they became a collection of independent horsemen rather than a cohesive cavalry formation in the western sense. Their role was riding here and there throughout the battle, following and protecting the car of their leader. Thus they were not trained to act as a component of a larger group, except as a member of a loose warband operating in and around the melee.

In India, the horseman never achieved the elite status of the Macedonian Companion Cavalry. In Porus's day they were still not a cohesive unit, although cavalry slowly gained in stature and effectiveness, and were to gain yet more in the later Gupta Period (A.D. 320-c. 430). Despite the Macedonian example, however, the Indians did not emphasize either heavy armored cavalry or large unit maneuver in the Alexandrian style.

Even after the Battle of the Hydaspes, Indian horsemen remained limited to the light cavalry role. According to Kautilya, speaking as military theorist,

> "Running against; running around; running beyond; running back; disturbing the enemy's halt; gathering

> the troops; curving; circling; miscellaneous operations; removal of the rear; protection of the broken army; and falling upon the broken army--these are the forms of waging war with horses."[16]

Kautilya's list indicates that Indian horsemen remained relegated to lighter duties than the shock tactics of Alexander's Companions.

Indian cavalry had much more in common with Roman or Greek cavalry employed in the light reconnaissance role, in mounted javelin attacks, and for harrassing the enemy. Arrian's description of the Indian cavalryman's equipment would be appropriate to the role. "Their horsemen have two javelins, and a small shield smaller than the infantry. The horses have no saddles . . ."[17]

Like the phalanx technique, Macedonian heavy cavalry technology was not adopted by the Indians either, probably for similar reasons. Cavalrymen, like the infantry, were circumscribed by their society and their use of horses signified their status. Again relying on Arrian's descriptions, this time of the civilian customs in the Indus valley, he tells us,

> "They usually ride on camels, horses and asses; the richer man on elephants. For the elephant in India is a royal mount; then next in dignity is a four-horse chariot, and camels come third; to ride on a single horse is low."[18]

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[16]Kautilya, X. 5.

[17]Arr. Indika, 16. 10-11. It should be noted that the Macedonian cavalry also did not possess the saddle at this time.

[18]Arr. Indika, 17. 1-2.

Apparently only an ass constituted a lesser mount and a lower status. The stigma attached to civilians on horseback extended to mounted warriors. The cavalry horse could never achieve the same battlefield brilliance available in the west, for as a good warrior gained stature and wealth, he moved from the lowly horse to a chariot or elephant in combat and at home. It would seem that in India, a position in the cavalry, like a post in the infantry, was something to transcend, not improve.

3. Chariots:

If elephants were the primary weapon of King Porus's modernized Indian army, he still maintained a force of traditional chariots bearing the younger and lesser noble warriors. King Porus exercised overall control of the army from atop his elephant, but his son arrived at the head of a chariot formation to block Alexander's river crossing.[19] Although recently demoted to second rank, the chariot attack was not a weak thrust with an obsolete weapon. Rather King

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[19] Arrian cites Ptolemy as his source for including 2,000 cavalry in addition to the chariot force itself. This would be consistent with Indian usage as the horsemen would have been mounted retainers of the nobles riding the 150 chariots. This number averages a defensible thirteen horsemen per chariot, a total of the mounted retainers of the several nobles aboard the car. Arr. Anab. V. 14.3.

Curtius states Porus's brother, Spitaces, rather than Porus's son, commanded the chariot force. Either way, the leadership by Porus's close blood relative indicates that chariots as noble mounts had not lost even royal status at this time. Curt. VII. 14. 2.

Porus had decided to commit a major force element to obstruct what he perceived to be a serious incursion, diversion or raid, not Alexander's main assault.

The Indian chariot of this period was very different from the classical two wheeled light car of Egyptian, Assyrian, Homeric Greek, Persian or Roman design. These familiar Mediterranean and Near Eastern types carried a crew of two in battle, a driver and warrior. The Indian chariot might carry a crew of up to a dozen. Curtius lists two drivers doubling as men-at-arms, a pair of archers, and their shieldbearers.[20] The commander was presumably the senior of the two archers. It was likely that a chariot of this size contained two noble archers or senior warriors, both attended by the rest of the vehicle's crew of drivers and shieldbearers. Curtius' account finds general support from Kautilya, who lists a variety of sizes and types of chariots, some with as many as twelve warriors.[21] These vehicles must have more closely approximated wagons than the lighter Mediterranean-Near Eastern chariots if they could accommodate such a large crew with space for all to function effectively.

The classical Indian heavy chariot did have its advantages. The warriors aboard it arrived at the battlefield rested. Once the combat began, they were fighting from a position of elevation. Finally, the chariot enabled the

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[20]Curt. VIII. 14. 2.

[21]Kautilya, II. 33; and Chakravarti, pp. 31-32.

warrior to equip himself with a far larger stock of missiles and alternative weapons than could the average infantryman.[22] These were distinct enough advantages to keep the chariot on the Indian battlefield from the dim Vedic past to the time of Alexander's invasion, a span of well over a millennium.

With the advent of the elephant, and the later development of the fighting howdah capable of carrying the same number of warriors aboard an elephant as had manned a medium chariot, the cumbersome wheeled vehicles slowly became obsolete. This obsolescence was accelerated by the arrival in the next few centuries of large numbers of Eurasian horsemen, Scythians, Kushans, White Huns and others, who pragmatically demonstrated the superiority of mounted archers over chariot forces. Though Indian chariots are seldom mentioned after the first century B.C., some still appear in Indian inscriptions as late as A.D. 754.

King Porus certainly did not discount the effectiveness of the Indian chariot, but muddy terrain at the time of the battle hindered his forces. The chariots also faced a veteran foe which had learned to deal with the more mobile Persian scythed chariots, and to whom the Indian models must have appeared cumbersome and vulnerable by comparison.[23]

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[22] Chakravarti, p. 22.

[23] These weaknesses became apparent at the muddy Hydaspes beachhead, before the main battle formations had been determined. The experience gave Alexander good first hand evidence of the Indian chariot's capabilities on that day and under the prevailing conditions. These experiences

Like the elephant, the chariot was not an element of a first line western military establishment, but like the elephant, it was one of the mainstays of the Indian war machine. Both elephant and chariot were eventually discarded by western practitioners as inappropriate for most types of combat, too vulnerable to a coordinated heavy infantry and cavalry attack; but with the exception of Alexander's invasion, neither disciplined heavy infantry nor cavalry existed in India to threaten the place of chariot and elephant as the mounts of noble warriors.

4. Elephants:

King Porus went into battle astride an elephant, and this act marks a milestone in Indian warfare. Battles ended when one or the other king fell or was driven from the field, as is the case in chess.[24] The king's survival was therefore paramount, yet Porus rode on an elephant rather than aboard a traditional chariot. Porus had broken with the traditions of the Vedic past and committed himself and his

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allowed him to exploit the chariots' weaknesses even more effectively when he faced Porus.

[24]Chess was created as an analog for the very combat conditions herein discussed. However, its use as an extended explanatory analogy presupposes considerable special knowledge on the part of the reader, and will not be pursued. The chess player may find that the descriptions of Indian warfare add a new historical and conceptual dimension to the game.

kingdom's independence on the success of the war elephant as his paramount weapons system. This opening glimpse of elephant supremacy only heralded the animal's coming domination of Indian military thought.

This strategic preference for elephants may come as a surprise to students of western experience with the animals. Adcock is more generous than most in his assessment that, ". . . after giving them due credit for their occasional successes, we cannot assert with confidence that, from first to last, elephants pulled their weight."[25] Mediterranean battlefields presented too many alien dangers for this uniquely Indian weapons system, though the animals successfully dominated Indian battlefields for a millennium.

Chakravarti admits of three main defects in the use of war elephants, even in India; and notably they are all combat failings.[26] First, the animals attempted to escape at high speed when wounded. The primary objection here seems to be that the wounded animal carried the king from the field, thus accidentally forfeiting the battle. Secondarily, but closely linked, was the damage any runaway elephant might do to friendly forces, thus also forfeiting a battle. A third defect arose from the rider's height above the anonymity of the melee, ostensibly better to inspire his men, but he also became a conspicuous and exposed target for the deadly Indian archers. This vulnerability probably had been the

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[25]Adcock, p. 56.

[26]Chakravarti, pp. 50-51.

least heeded as it ran counter to the typical aristocratic warrior code of bravery in the face of danger.

Yet the elephant was becoming the mount of the Indian nobleman, in peace and in war, compatible with the overall customs and usages of the society. The elephant fit as naturally on the Indian battlefield as it did in a ceremonial procession, raising the nobleman high above the commoners, in a commanding position of visible authority, the rider's power tangibly present in the elephant itself. In battle the animal also raised the primary combatants above the physical level of the lesser chariot warriors, who were themselves elevated above the common soldiers. War is a social event, and in India, as elsewhere, it reflected the values and assumptions, the prejudices and realities of the society.

The average Indian war elephant went into battle with a driver, or ankusadhara, astride its neck and a platform, or howdah, on its back containing the warriors. Depending no doubt on the strength of the elephant, the platform could contain a variable number of warriors in addition to the driver. According to Chakravarti,[27] Megasthenes records three warriors as the complement, confirmed by sanskrit records, although the Sanchi sculptures, supported by other literary sources, show two. Agni Purana, a later military theorist, lists a crew of six warriors, though several of the weapons he lists, such as battle axes,

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[27]Chakravarti, pp. 52.

indicate that some of the six warriors may have ridden to the battle aboard the elephant and dismounted there to protect the animal in combat. This "weapons platform" method of utilizing elephants to carry a number of warriors in a howdah became the standard in India and equally was popular with the Hellenistic theorists.

King Porus appears, however, to have employed his animals quite differently at the Hydaspes. Surviving coins struck after the battle by the victors depict a different method, with the driver in his accustomed place on the animal's neck, but with only one warrior seated behind him, directly astride the animal's back.[28] The difference is dramatic conceptually, for this method employs the elephant as the ultimate cavalry mount for a mighty hero rather than as motive power for a three- or four-man heavy weapons platform.

Special factors may have made this technique necessary. First, the largest and strongest elephants came from the far eastern reaches of India, whereas those found in the northwest, in the Indus valley, are the smallest and least prized.[29] The surviving images on Alexander's commemorative coins portray elephants distinctly smaller in proportion to their riders than the war elephants shown bearing a howdah

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[28]Scullard, pp. 75-76 and Plates XI a & b; also Warry, John, Warfare in the Classical World (New York, St. Martin's Pr., 1980), p. 83.

[29]Chakravarti, pp. 54-55.

and crew.[30] This relationship may have been the result of the coin sculptor's artistic license, a choice to compress the animal to permit more detail on the enlarged riders, but the general size relationship between riders and animals may indicate the animals in Porus's elephant corps lacked the size to carry more than a driver and one warrior.[31]

The warrior's position, astride the animal's back, adds to the impression. The width of a large elephant's middle body makes riding astride it at least uncomfortable, and going into a full day of combat in that position would be debilitating.[32] Only animals falling at the smaller end of the scale are suitable for this riding style.

The decorations on Alexander's casket, as described by Scullard, included elephants with a driver in front in his accustomed place, and a single Macedonian warrior seated behind him.[33] This portrayal would argue for Macedonian familiarity with a cavalry style of elephant warfare in

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[30]Three coins of this issue have survived, probably struck by Alexander's orders at Babylon and sent to Susa. Scullard, Plates XII, and XIII a & b.

[31]Shortly after the Battle of the Hydaspes, Alexander's army finally and firmly refused to go any farther. It is tempting to speculate the Macedonians heard the honest truth that in the east the elephants were so big that they carried small forts full of soldiers on their backs. The prospect might have been a factor in their decision.

[32]The driver traditionally sits astride the animal's neck, which is narrower, and allows him to straddle large animals whose backs are prohibitively broad for a second person sitting astride, but ideal for a howdah.

[33]Scullard, p. 76.

northwest India, rather than the howdah style in use elsewhere. It also supports the presumed Macedonian acquisition of the smaller northwest Indian elephants which made the style possible.

In India, Kautilya enthusiastically advocated war elephants, proclaiming, "It is on elephants that the destruction of any enemy's army depends."[34] This represented the dominant military theory for the next thousand years. The elephant performed primarily as the mount of the great warrior. Beyond that role, Kautilya offers other reasons for employing elephants in the army.

> "Marching in the [vanguard]; preparing the roads, camping grounds and path for bringing water; protecting the sides; firm standing, fording and entering into water while crossing pools of water and ascending from them; forced entrance into impregnable places; setting or quenching the fire; the subjugation of one of the four constituents of the army; gathering the dispersed army; breaking a compact army; protection against dangers; trampling down (the enemy's army); frightening and driving it; magnificence; seizing, abandoning; destruction of walls, gates and towers; and carrying the treasury--these constitute the work of elephants."[35]

Many of the tasks have nothing to do with combat. In India the omnipresent elephant filled a wide variety of roles in everyday society, and only a few of its duties were purely military. It would be a mistake to compare the Hellenistic passion for war elephants-as-superweapons with the almost casual integration of the animals in all areas of Indian society.

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[34]Kautilya, VII 2, also II. 2.

[35]Kautilya, X. 4.

CHAPTER 4

ALEXANDER'S STRATEGIC & TACTICAL CONSIDERATIONS

A. Strategic Considerations in the Indian Campaign.

After a difficult campaign in Sogdiana, Alexander turned back through Bactria, perhaps the only time in his career he backtracked away from a challenge. His Macedonian heavy infantry were totally outclassed and out of their element on the Eurasian steppe, and he had the good sense to forego any thoughts of a campaign in that direction. Had he converted his military to a pure cavalry force, in the original Macedonian mold, he might have successfully conquered northward and then returned to Macedon on a reciprocal course across the Ukraine. In that event, the Hellenistic world would have assumed an entirely different shape and character.

The battles in Sogdiana had been some of the toughest fighting the army had encountered for the amount of territory gained. Only late in the campaign, after Alexander married the beautiful Roxanne (Rukhsana?), did Sogdian resistance finally subside. The marriage may have offended some Macedonians, but it served its military and political ends and made Alexander an exotic and powerful member of

Oxyartes' family rather than an alien invader.[1] While the marriage helped win the final stages of the conflict, Macedonian blood and sweat had paid most for the conquest, through a hard campaign against an elusive and determined foe.

Alexander's withdrawal to Bactria left behind hard won territory which required unusually powerful garrisons and tight Macedonian control. From Bactria, with a northern campaign out of the question, the only remaining direction available for a conquering army lay to the east, and Alexander already had an invitation of alliance from Taxiles, a primary king of the upper Indus.

Taxiles had apparently been aware of Alexander's approach for some time. During the final conquest of Persia, Barsaentes, a local ruler faithless to Darius, "fled to the Indians on this side of the river Indus,"[2] presumably to the city of Taxila. Barsaentes was sent back to Alexander for execution. Had Taxiles been so isolated as to have missed the fall of the neighboring Persian Empire, Barsaentes' arrival would have brought Alexander to Taxiles' attention. It is, at least, the first potential record of Taxiles and Alexander in contact, and from the beginning the relationship appears an amiable one, at least from Taxiles' end.

Alexander moved into the upper Indus valley in his

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[1]Malik, p. 88-89.

[2]Arr. Anab.; III. 25. 8.

usual manner, and crushed resistance or peacefully accepted submission depending on the choices of the local populations he encountered along the way. When he arrived at Taxila, Alexander accepted the submission of Taxiles, properly King Ambhi of Taxila, and only then bestowed upon him the title of "Taxiles". Alexander enlarged his lands, and set a Macedonian satrap to govern the area.

Like Oxyartes, Taxiles accompanied Alexander on the subsequent campaign. Both had substantial forces at their disposal, and in both cases their lands were recent acquisitions not yet settled to Macedonian rule. Yet neither could be easily removed from his throne, nor conveniently executed or exiled. Both served Alexander best as honored tributary monarchs.

Likewise, Alexander allowed the cream of Taxiles' army and a substantial contingent of Sogdian cavalry to accompany him. This tactic served multiple purposes. He had the most able allied Sogdian and Indian troops accompanying him on the march if needed. At the same time their presence precluded their participation in any potential rebellion. This must have been a consideration, as residual unrest forced Alexander to leave a large contingent of valuable Macedonians with Craterus in Sogdiana and more in Bactria, then another garrison at Taxila. These areas could not be allowed to rebel. Both areas held strategic priority for Alexander's operations in distant India, as the two areas dominated opposite ends of the

Hindu Kush passes back out of India.

Taxila was the keeper of the gateway to the Indian subcontinent. Taxiles' enemy to the east, King Porus, held the gateway to the Ganges valley and the riches of the Hindu heartland. If Alexander did not turn back into his conquered territory, Taxiles could expect he and Porus would be the next major monarchs to fall in any event, for Alexander's only potential campaign staged from Bactria lay eastward along the trade route to the Indus. He had conquered to the west and south, and had turned back from the northern campaign in Bactria and Sogdiana. The Indian king had apparently maximized his geographic advantage. He encountered Alexander before the Macedonian reached the Punjab and Taxiles' rival, King Porus, which allowed Taxiles the opportunity to ally himself with Alexander before Porus became aware of the potential danger of their combined forces. Taxiles had asked for a tributary alliance with Alexander to aid him against Porus while Alexander was still in Bactria.

King Porus ruled the kingdom of the Pauravas, which dominated the Punjab, and he would not relinquish his power and independence as peacefully as Taxiles had done. Certainly this warlike stand confirms the general impression of the Pauravas as resolute warriors, a view supported in part by Taxiles' appeal for aid in fighting them. To Alexander, they represented a major adversary blocking any forward progress into India, and after the hard fought

campaigns of Bactria and Sogdiana, determined foes with unfamiliar technology bore careful scrutiny before combat.

Whether the Pauravas constituted a warrior people, beyond the bounds of the Kshatriya warrior caste, is problematic, but would have been of importance to Alexander in his pre-battle evaluations. The modern inhabitants of the Punjab base much of their claim to the title on their ancestors' performance at the Battle of the Hydaspes. The Punjab, like European Poland or Moravia, lies at a topographic choke point where the terrain forms a natural invasion portal from one relatively isolated geographic area to another, in this case from the upper Indus valley to the upper Ganges valley. From a purely military standpoint, any people capable of maintaining a cultural identity while living for centuries in one of these invasion corridors may call themselves a martial race with some justification. It is unclear whether ancient Pauravas society reflected an overall military character similar to Sparta or Republican Rome, or whether later traditions derive from their Kshatrya warrior caste alone. Still, they constituted a society capable of fielding a force significantly larger than Alexander's.

To add to Alexander's numerical inferiority in an unknown and dangerous situation, Porus might have been counting on aid from his ally, King Abisares.[3] By the time

[3]Diodorus renders the name as King Embisarus, and his account alone records the alliance with Porus and the relief

Alexander faced Porus across the river Hydaspes, Diodorus argues, King Abisares was en route with a formidable army. If the two major Indian forces joined prior to the battle, their combined numerical superiority might overwhelm even the best Macedonian tactics and training. Abisares' advance created immediate pressures on Alexander for a quick and decisive victory. Porus, as the dominant king, had to be dealt with first, and in such a manner that any of his remaining forces would be either inducted into the Macedonian camp (as happened), or otherwise neutralized lest they later join Abisares for a second battle. Mere military victory was not sufficient. Alexander needed a full scale peace with Porus before his ally's arrival, and that meant conquering the belligerent Porus.

In the larger strategic sense, the formidable Pauravas army had to be defeated in battle before Alexander could further pursue his elusive eastern goal. By the time he faced Porus on the Hydaspes, Alexander certainly must have heard from his Hindu subjects of the existance of the vast and wealthy Hindu homeland in the Ganges valley.

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force. Dio. XVII. 86. 1-2. Arrian lists Abisarus as a highland tribal leader, but asserts he submitted to Alexander at Taxila, when the Macedonians first entered the upper Indus valley. Arr. Anab., V. 8.3. Curtius lists Abisares as king of Kashmir in another account, but does not link him to Porus. Malik believes both Diodoris and Arrian, arguing that Abisares played a "double game" and submitted formally but also marched to support Porus. Malik; p. 99. Hammond indicates Alexander may not have been sure whether Abisares actually was on the march, and the uncertainty would have added to the complexity of his problem. Hammond; King; p. 204.

Taxiles and other local monarchs attended Alexander on campaign, he had the time to assimilate this direct information as well as more general data gathered by his intelligence corps. The invasion of the Punjab marked merely the first milestone along the established trade and invasion route to the Ganges.

After his victory at the Hydaspes, his army mutinied, however politely,[4] perhaps at the prospect of hazards and hardships ahead in conquering another civilization comparable to the Persian core in sophistication and extent. Or perhaps the soldiers had simply had enough war, as they argued, and wanted to go home. Alexander regretfully abandoned the larger Ganges campaign for the lesser conquest of the Indus valley, which carried him into fresh lands rather than simply retracing his steps back over the Hindu Kush.

It is easy to dismiss the Indus campaign as simply another territorial conquest by the perpetual conqueror, turning on the only free territory still within his ambitious grasp, as a consolation prize after the mutiny. However, logistics may have played a part as well, for his troops had spent several years in Bactria and Sogdiana, and knew of the generally inhospitable terrain. The Indus valley, by contrast, provided all the needs of the army, as had the Nile and the Tigris-Euphrates watersheds, and campaigning there would be simpler and pleasanter in many

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[4]Arr. Anab., V. 25. 2-28. 2.

respects than marching home through the Hindu Kush.

This interpretation presupposes, at very least, Alexander's ignorance of the difficulties presented by the Gedrosian desert, perhaps even his complete ignorance of its existance as a final barrier on his homeward journey. His reliable geographic knowledge may well have been limited to what could be learned locally.[5] It is doubtful that on the upper Indus he would have had the information available to foresee problems on the distant Lower Indus-to-Persian Gulf leg of the trip. Once he had reached the mouth of the Indus he would have learned much from travelers' tales, but then it would have been too late and too damaging to his reputation to reverse course the length of the Indus and slink back through the Hindu Kush passes to Bactria and northeast Persia.

The warm, hospitable fertility of the Indus valley therefore invited his conquest by providing the needs of the army, and offered favorable campaigning conditions. It had another attraction. Traditionally, soldiers spend some part of their wealth in local markets to ease the hardships of the march, and Bactria and Sogdiana had already been plundered. A march back the same way meant the soldiers' share would have been diminished by their expenses on the

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[5]Hammond points out that Alexander, at the time he invaded the Indus valley, believed the Indus to be the headwaters of the Nile, and therefore the movement down the Indus would have led back to a known destination, a misapprehension precluding any comprehension of the actual country to be crossed. Hammond, p. 217.

trip. The rich Indus valley promised a campaign against a wealthy and sophisticated culture in which every Hindu wore gold, and supported a craft economy which regularly produced prodigious quantities of silver- and goldware, much of it studded with precious and semi-precious gems. The conquest probably appealed to the troops as well as their leaders on grounds of both good campaigning conditions and the prospect of one last and best chance at acquiring substantial portable wealth.

Conquest no doubt motivated Alexander, and there is probably some accuracy in the view that the Indus campaign represented a logical last grasp at additional conquest. The most basic fact remains that a return by the same outbound route would have amassed nothing new. A return by any other route would not only consolidate the territory along that route, but the overall line of march would naturally circumscribe other areas to be included and consolidated later. The choice to return by the south Indus route constituted a second attempt to expand his empire by a considerable degree.

Alexander had conquered on a generally eastern line across the northern Persian empire, with enough detour to the north to convince him his fortunes lay elsewhere. In the upper Indus watershed, his army refused to go farther east. Whatever their reasons, renewed loyalty, plunder, or better conditions, the army willingly made a ninety degree turn to the south. The farther to the south they moved, the

larger would be the area contained in the triangle or trapezoid created by their return trip to their theoretical Babylonian starting point. It would seem likely that as Aristotle's young pupil, Alexander had already encountered this basic fact of plane geometry.

Neither the aborted Ganges river campaign nor the subsequent circumnavigation of Indo-Persia via the Indus could have taken place without a victory at the Hydaspes. So long as Porus remained a viable power, he potentially could gain control of Taxila and the passes to Persia and Bactria. Alexander could not have considered his campaign down the Indus with an independent Porus at his back, threatening him and his vital Indo-Bactrian lines of communications. He likewise could not have contemplated an attack on the Ganges valley by any other route than through the Punjab. Porus, as much as Taxiles, commanded the upper Indus watershed's invasion corridors, both into the Ganges and the Indus valleys, and his defeat remained the key to Alexander's entire Indian campaign.

B. Tactical Considerations at the Battle of the Hydaspes.

The season created a major consideration in the tactical planning of the battle. During the winter, Alexander's troops had been in quarters at Taxila and moved to the Hydaspes in early spring, while the river still flowed too

deep and swift for an easy crossing. Porus, alert to the Macedonian move, waited on the opposite bank to energetically oppose any attempt to cross. The flooded Hydaspes presented a far more difficult natural barrier than had the Granicus where Alexander had faced a similar river crossing in the face of the Persian Army. There he had been able to charge straight across and force a landing, but at the Hydaspes the river became too great an ally for Porus, and denied Alexander the same tactics a second time.

To Alexander's benefit, there existed several islands in the river near the proposed crossing point, and these might be considered as advanced points for defense of the crossing as well as aids in the crossing itself. Wooded, they created a screen which could be used to obscure troop movement.

The muddy condition of the vast expanse of relatively flat land around the river compounded the problem. Footing would be a consideration for the phalanx and cavalry, and the condition of the slopes on the far side of the river would necessarily play a part in the establishment of any beachhead. The same muddy conditions would hamper King Porus's army, particularly his heavy chariots, but overall it would work more mischief on the disciplined phalanx and compact Macedonian cavalry charge than on the more loosely organized Indian forces. Worse for Alexander, Kautilya asserts that muddy ground is the ideal environment for war elephants.

Ideal terrain or not, the elephants presented a problem because their unfamiliar smell and trumpeting caused panic among the cavalry horses. This fear could lose the battle and precious lives if the horses jumped from their floats before reaching shore, or otherwise refused to approach the strange enemy. The Indian heroes atop their elephants also had a height advantage on the Macedonians, another unprecedented disadvantage for the invaders. In essence, Alexander was forced to treat them as cavalry heavier than his own,, and against which he additionally dared not send his horsemen.

Open terrain, such as that along the Hydaspes, favors the side with the greatest numbers in most battles. In this case King Porus had far more forces at his disposal than Alexander could muster on the far side of the river. As the defender, Porus also chose the site for the battle, prepared his army, and await Alexander, should the Macedonians get across the river unchecked.

Alexander had not met a first line Indian military establishment until he faced Porus. Pre-battle calculations and estimates would have been complicated by a lack of information on large scale Indian warfare. It was one thing to inspect Taxiles' forces and make logical extrapolations, and it was quite another to face the reality of combat in an alien environment against potentially superior weapons systems.[6]

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[6]Curt. VIII. 14. 14.

CHAPTER 5

THE BATTLE OF THE HYDASPES

A. Location of the Crossing.

This author does not believe the exact site of the Macedonian crossing of the Hydaspes can be determined using modern topography and landmarks. In relatively flat terrain, swift rivers, prone to yearly flooding, regularly reshape their banks and obliterate or create islands. Such rivers do so in a relatively short time in comparison to the two millennia which have passed since Alexander's day. Ignoring this fact, many modern scholars have attempted to establish the exact location of the crossing site on the Hydaspes, and base their conclusions on the course and contours of the modern Jhelum River.

This practice leads N.G.L. Hammond to place the crossing point 27 kilometers (16.9 miles) from the battle site, where he finds modern land contours which match those described by the ancient authors.[1] Though the land contours may match, Hammond's distance estimate is impossible to support based upon human factors.

According to Arrian, the Macedonians first marched inland to escape detection, next marched to the crossing

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[1] Hammond, p. 204.

point, with a short march back to the riverbank. Then they stuffed their floats with straw and prepared for the crossing itself. An ongoing thunderstorm concealed but hampered efforts, and no doubt consumed additional time.[2] At this point, the Macedonians had already marched approximately nineteen miles.[3] Then they made the strenuous predawn river crossing, followed by the chariot battle somewhat later that morning. Another seventeen or so miles of marching would have been necessary, before going directly into a long and exhausting battle with Porus. This is a combined total of approximately thirty-six miles, much of it at night.

Engles reconstructs Alexander's slightly later daylight march rate to Malli, through the same general territory, as 30.5 miles per day,[4] done by a somewhat smaller but similarly constituted force. Since Alexander had reason to hurry to Malli, it is likely this figure represents a high but sustainable full day's march rate through the Indus watershed terrain. Even if the existing Hydaspes terrain had totally favored Alexander's march, Hammond's distances cannot be supported in marching terms, even if one does not include a river crossing and two battles in the day's activities.

Alexander accomplished the crossing and arrived at dawn.

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[2]Arr. Anab. V. 12. 2-4.

[3]The nineteen miles are computed as: 1? mile inland + 16.9 miles to the crossing point + 1? mile back to the river. No distance has been added for gathering straw or assembling and launching the rafts and thirty-oared ships.

[4]Engels, p. 154.

The distance to the battle site, based on Engel's march rate, must have consumed less than half the day and the troops' energy. The crossing point was likely within a few miles of the main camp, almost certainly ten or less and more likely near four or five miles from the battle site.

As stated above, this author does not believe the crossing site can be determined from existing topographical evidence. Attempts to do so may be misleading, and may generate patently unworkable figures such as Hammond's. March rates and general human parameters may allow a more general but more accurate assessment of the location of the crossing point.

B. Crossing the Hydaspes.

With Porus on the opposite side of the river, Alexander could not force a crossing, and turned to a ruse to enable him to cross relatively unhindered. The two forces remained on opposite banks of the swollen river for weeks, and in that time Alexander lulled the Pauravas with nightly maneuvers to blunt their watchfulness of large night troop movements. After the first futile chases up and down the river bank by night, the Indians relaxed their vigilance, enabling Alexander to move troops unobserved to the desired crossing point when the time came.[5] While the crossing was being staged, elaborate charades may have also been used to

[5]Arr. Anab., V. 9. 2-3.

assure Pauravas observers that Alexander himself still held the position on the opposite bank.[6]

Under cover of night and storm, with considerable difficulty, the force landed first on an intermediate island in the river, inadvertently thinking they had arrived at the opposite shore, and then made the final hazardous crossing to the far bank. Though Indian scouts had already galloped off to warn Porus, the force landed intact and had time to assemble in battle order before they faced a counter stroke from the Indians.[7] The Indian response came as a chariot attack.[8] Porus could not have known whether the landing marked Alexander's crossing or a raid in force. The crossing, at that point in Porus's calculations, was of unknown size and might have been designed to bring him running to that point while Alexander crossed unhindered behind him. Porus sent a close family member leading a force of some one hundred-fifty chariots and two thousand horsemen[9] to contest

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[6]Curt. VII. 8.20; also Hammond, p. 204.

[7]Arr. Anab., V. 12.1-13.4; and Curt., VIII.13.17-13.27.

[8]Curtius' account merges the chariot actions following the crossing and the chariot conflict on the left flank of the main battle into one muddy fight, and dispenses with the chariots on the Indian right flank of the battle altogether. Diodorus does not mention the crossing or subsequent chariot movements, but he does support Arrian's account of chariot deployment on both flanks of the Indian formation. For the above reasons, Arrian's version has played the central role in all reconstructions involving chariots.

[9]The version of events and troop strength chosen are from Ptolemy via Arrian. Ptolemy participated in the crossing and the subsequent battle. Arr. Anab., V.14.5-6.

the crossing, which indicates he had decided this constituted a diversionary raid in force, but not Alexander's primary crossing.

Ptolemy, as used by Arrian,[10] argued that the large number of chariots and cavalry sent with this force indicated Porus knew Alexander had landed. The alternative explanation is that he expected the powerful chariot corps to scatter a smaller force than they actually encountered, while Porus awaited Alexander's actual crossing in his own area. The piecemeal way in which the invaders crossed, and in particular the early departure of the Indian sentries, may have contributed to an underestimation of the size of the Macedonian force.[11] Also, at night, from a distance, there is little hope an Indian sentry could distinguish between a compact, elite Macedonian battle group and a large but undistinguished raiding party.

Porus clearly did not send all his chariots to oppose the crossing. Those which attacked immediately after the crossing were destroyed at that point, yet chariots appear prominantly on both wings during the main battle.[12] Porus appears to have sent a relatively small force against Alexander, rather than his total available chariot strength.[13]

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[10]Arr. Ibid.

[11]Arr. Anab., V. 12.4.

[12]Arr. Anab., V. 15.7. and Dio. XVII. 87.4.

[13]Although Diodorus' figures are suspect, Porus is reported to have had a thousand chariots available. If this

Porus's limited use of his most mobile force argues against Ptolemy's assertion that Porus believed from the outset that Alexander had crossed and sent a major force to block the landings. Arrian, speaking for himself, reconstructs Porus's later responses based on the assumption that only after the survivors of the chariot force returned did Porus believe Alexander had crossed the river. Only then did Porus immediately and prudently seek out high ground and deploy his remaining forces to meet Alexander.[14]

Porus had therefore made the first error when he underestimated the Macedonian force, and sent a force appropriate to deal with a diversion or a raid but not sufficient to contain the main Macedonian battle group. The 150 Indian chariots and 2,000 horsemen met a frontal assault from Alexander's 5,000 heavy and light cavalry, which overwhelmed the Indian force.[15] Therefore, the chariot corps arrived too late and with the wrong equipment for the task. The mud close to the river bogged down the chariots' charge and left them vulnerable to the Macedonians.[16] A large number of the

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figure were accepted, Porus's beachhead counter force chariot force would have constituted only fifteen percent of his available chariots. Dio. XVII. 87.2. Arrian offers a drastically lower figure of three hundred chariots available at the opening of battle, in which case the one hundred-fifty chariots Ptolemy recorded at the crossing still only account for one third of Porus's chariot force. Arr. Anab., V. 15.4.

[14]Arr. Anab., V. 15.5.

[15]Arr. Anab., V. 14.1-2.

[16]Arr. Anab., V. 12.1-2.

Indian cavalry were killed and the chariots and their crews taken out of action as they became mired. The survivors fled back to Porus with the news of the disaster, and the death of the monarch's son as he led the chariots. At this point Porus also knew that Alexander had crossed the river, and that battle approached.

C. Deployment.

An army's deployment is the formation in which it is arrayed to meet the enemy. At the Hydaspes, the Macedonian formation resulted from a combination of necessity and familiarity. Alexander relied on familiar doctrines and strengths and also on a fortuitous familiarity with the Indian deployment which faced him. Of the many unusual formations used in Indian warfare, Porus had chosen the one deployment which looked most familiar to the western general, and the one which was most vulnerable to Macedonian tactics.

Because Porus's army stood already arrayed for battle when Alexander's forces arrived, the Indian formation dictated the nature of the battle. It contained the four divisions in their expected pairs, with the heroes on elephants in a wide spaced line across the front.[17]

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[17]Arr. Anab., V. 15.5.

Between and behind them stood their attached infantry, ranged around the animals to form a continuous wall of foot soldiers supporting the nobles atop the elephants.[18] At either end of the line, less experienced or less trustworthy infantry, or those which had no noble to lead them, were grouped as blocks.[19] These flank infantry groups probably also included mercenaries hired for the occasion. Beyond the ends of the elephant-and-infantry formation Porus placed his chariots with their noble crews as the front of each mobile wing, and behind the cars came the mounted retainers. Like the infantry, the mounted retainers deployed behind their nobles, forming a single body backing the cars.

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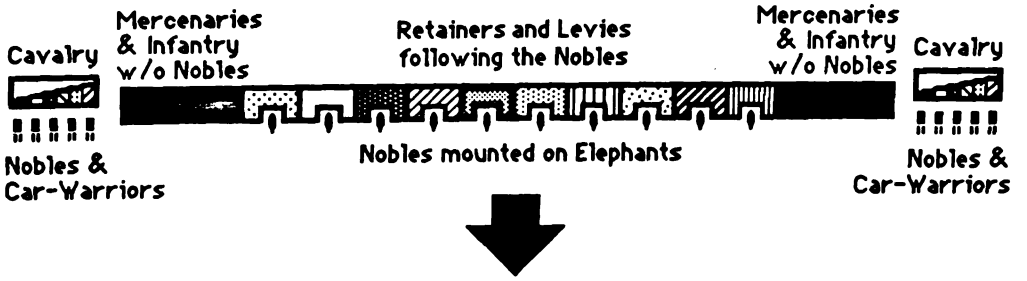
[18]Arrian and Curtius both describe the deployment of the Indian elephants and infantry as two distinct and separate groups arrayed in close proximity to each other. Diororus alone appears to have understood the Indian mix of elephants and infantry as cooperative units, with infantry directly supporting and protecting the elephants. "Between these beasts he placed the rest of his infantry, with the mission of helping them and preventing their being attacked with javelins from the side." Dio. Ibid. Although in error, most western scholars, such as N.G.L. Hammond, follow the tradition of Arrian and Curtius in their conceptualizations of the deployment. Hammond, pp. 207-208.

[19]Arr. Anab., V. 15.6-7.



The above diagram is the author's. Actual numbers are not represented.

Deployment of the Pauravas Army at the Hydaspes.

Figure 1.

The Indian deployment permitted the nobles aboard the elephants to carry the main brunt of the attack and defense. Kautilya describes the type formation Porus chose, the Danda, a linear symmetrical array similar in gross appearance to Mediterranean forms, as the Indian tactic best fitted to break the enemy's center.[20] Porus would have known less about Alexander's army than the reverse. Perhaps it came as a grim surprise to the Puravas nobility, but in this battle no comparable noble warriors confronted the Indian heroes, only a mass of faceless iron infantry behind a wall of shields and pike blades. The mobile chariot warriors and cavalry had the dubious honor of facing the mounted Macedonian aristocrats.

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[20]Kautilya, X. 5.

Porus made his choice before Alexander arrived. He gambled on a powerful offensive formation designed to break the enemy's center, a choice revealed later as a brave but unlucky decision. His deployment forced him to drive his offensive strength straight at the strongest point in the Macedonian front, the anvil of the phalanx. Indian cavalry had less power, and Porus had no way to anticipate the frailty of his chariots and light horsemen in the path of the Macedonian cavalry hammer. His deployment placed his weak mounted forces against Alexander's heaviest attack, and blunted his own strike against Alexander's best armored troops.

Alexander's cavalry horses refused to approach the elephants[21] battling the phalanx, and so prohibited the traditional Macedonian strategy of the hammer striking its anvil with the enemy between. The problem with the cavalry horses complicated the situation considerably for Alexander, and appears to have been a major factor in his tactics during the battle. Throughout, he could attack detached chariots or cavalry at will, but the Companions could not close with the Indian elephant-infantry core. Much of the maneuver of the Companions and other mounted units created indirect pressures, but the familiar tactical finale of the Companions' charge against the enemy from the flank or rear could not even be comtemplated with such terrified mounts.

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[21]Arr. Anab., V. 16.

Ironically Porus appears not to have appreciated his advantage, coming as he did from a land where every horse knew the smell and sound of the ubiquitous elephant. Had Porus included a few elephants with the ill-fated chariot force, the animals may have transformed the chariot battle into a more chaotic and costly proposition for Alexander.

Facing Porus's balanced, linear Danda (staff) formation, Alexander formed his phalanx in the usual manner before the Indian line, with his heavy cavalry to the right in its accustomed place. Eurasian light cavalry, probably Sogdian or Dahaean horse archers, accompanied the traditional Companion heavy cavalry, to deal with the chariots on Porus's left flank. On Alexander's right, Coenus commanded the weak side horsemen in place of the late Perdiccas, the formation made up of his own and Demetrius' cavalry regiments. Their role, this time, extended far beyond the simple protection of the infantry's left flank, as shall be seen in more detail below. Their mission consisted of a specialized attack on the Indian cavalry facing them, in connection with the attack of the phalanx on Porus's center.

D. The Initial Cavalry Clash.

The attack began when Alexander's right flank Eurasian cavalry attacked the chariots of Porus's facing left flank. The mounted archers dispatched the Indian chariots, apparently with the same effectiveness that Macedonian

forces had exhibited at the river crossing, for there is no more mention of these chariots in the battle. The light archers thereby cleared the way for Alexander and the Companion cavalry to sweep through the chariot line and strike the cavalry behind.

At this point the Indian chariots and cavalry stationed on the far side of the Indian front moved to engage Alexander's thrust on the Indian left. Considerable debate has raged over the exact path of the Indian right flank cavalry (as the chariots are usually dismissed out of hand by western analysts). The simplest solution, offered by Ferrill,[22] conforms to Indian doctrines rather than western preconceptions of warfare.

As covered in more detail in the appropriate chapter, in an Indian melee, all elements moved freely on the battlefield in relation to all others. There were no prohibitions about where the nobles moved in relation to other combatants as long as they stayed on the battlefield. Additionally, this tactic should not be viewed as the movement of a single chariot formation. It was the charge of one hundred and fifty individual chariots, each vehicle acting independently of the others. A common understanding of their individual roles as noble chariot warriors unified their actions, not discipline and unit training. Indian military doctrine and cultural expectations precisely advocated these individuals

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[22]Ferrill, pp. 213-214.

cross the entire battlefield if necessary to seek out a worthy foe.

Ferrill reconstructs the movement as a straight path from their initial right flank position to where the Companions fought on the far flank.[23] The straight course across the front of the formation, between the two armies, would have been the most direct route to their chosen enemy. In Indian military and cultural terms it was the approved route, and therefore the most likely line of the chariots' attack.

Aware of the nature of Indian warfare, which Alexander had likely studied to some degree, he counted heavily on the Indian right flank chariots and cavalry moving decisively against the Companions.[24] From the Indian standpoint, the nobles of the right side chariot corps identified the worthiest foes as among the larger cavalry detachment, the Companions, and they went to fight them. From the moment they began to move they became an integral part of Alexander's plan to engage the phalanx while taking a minimum of casualties.

As the Indian cavalry and chariot corps passed across the battle front, between waiting Macedonian hoplites on one side and Indian elephants and archers on the other, Coenus

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[23] Ferrill, Ibid.

[24] Alexander had wintered his army in Taxila, and likely used the change to inspect the Indian forces and talk shop with his host, Taxiles. However abstract knowledge is not experience, and he had not faced these forces in battle.

moved to carry out orders given to him before the battle. He attacked the rear of the moving Indian cavalry formation as it trailed the chariots across the field. While the surviving Indian cavalry battled the Companions' on the Indian left, their right flank comrades became strung out in an attenuated mass between the battle lines. The chariots and cavalry at the head of the right flank formation engaged Alexander. The rear portion of their cavalry retainers separated to fight a delaying action against Coenus, thereby protecting their nobles in the chariots against this attack from the rear. The Indian response followed accepted doctrine, and since it was predictable, Alexander had used it to his advantage.

Prior to the battle, the main phalanx commanders had been given orders not to advance until Alexander had engaged the Indian cavalry, which would trigger the move of the Indian right flank chariots and their supporting cavalry. Based on the fact that Alexander's attack initiated the advance of the entire phalanx, it is safe to say the timing was important. The advance of the Macedonian center was predicated on the sequential cavalry movements, planned so ahead of time. It had to have been ordered beforehand, for by the time the phalanx move could be executed, Alexander would have been incommunicado somewhere in the swirling cavalry battle on the flank, both acting as bait for a trap and simultaneously leading a devastating attack on the Indian flank forces.

Why indeed would Alexander wish his phalanx to attack through a dispersed cavalry skirmish, extending from Alexander's position across to Coenus's trailing force? Perhaps so the Indian infantry would hesitate to fire into the crowd before them, hesitant of hitting their own horsemen, still wheeling between the waiting archers and the oncoming phalanx. Whether the Indian archers fired or not, the cavalry battle before them at least partially screened the Macedonian attack from direct fire during the critical distances where a bow is most effective and the marching pikeman most vulnerable.

Perhaps Alexander conceived the strategem to screen the phalanx from potential destruction should Porus's elephants go to full charge and attack ahead of their slower infantry. Had they done so, their charge would have been blocked by the wheeling cavalry. Like the Indian bows, the elephants represented an unknown quantity in battle, but their destructive power at full charge would have been easy to envision without having faced them beforehand. Therefore, Alexander likely intended the tactic to do both jobs,[25] to protect the phalanx from archers and elephants until it had approached to close range and could most

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[25]The two reasons offered here for Alexander's strategem are mercifully compatible. If pressed to select which lay uppermost in Alexander's mind, his instructions to Craterus about his river crossing with the reserves might be indicative. "It is only the elephants which are dangerous to disembarking horses; the rest of the force will not trouble them." Arr. Anab., V. 11.3.

effectively fight on its own terms.

The ancient authors agree the Indian horsemen ultimately fell back on their own line, fouling the advance of the elephants. The result is attributed to Alexander's cavalry charge. Alexander had carefully forced the survivors of the flanking battle back into the center to join those already engaged with Coenus' force.[26] The whole of the retreating Indian cavalry then sustained frontal pressure from the advancing phalanx which could indeed drive light cavalry before it, especially if the horsemen had no chance to gain speed before the encounter. The Indian cavalry survivors acted as human and equine shields, herded ahead of the advancing Macedonian phalanx for the last crucial distance, until the cavalry collided with the advancing Indian elephants. Doubtless the phalanx arrived shortly thereafter to ply its specialty at close quarters.

By the time the phalanx came close enough to the Indian lines effectively to use their sarissas and swords, the Indian bow had become much less effective and the elephants were still essentially immobilized. The phalanx did not encounter elephants at close range until the hoplites emerged from behind the cavalry, close and capable of directly attacking the Indian center. Curtius' lurid account of Indians trying to fit arrows to their long bows

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[26]Other cavalry survivors would have fallen back on their own flank, there to block the left flank elephants then beginning to move against Alexander, a development discussed in more detail below.

amid mud and the swift onslaught of Macedonian pikemen has about it a ring of underlying truth. It could signify the success of Alexander's strategem. The Macedonian infantry thereby arrived in close contact with the Indian archers before the bowmen could bring their devastating weapons to bear for more than a shot or two, and before the great warriors on their elephants could use their animals' speed, weight and maneuverability.

This author believes Alexander planned this tactic specifically to take advantage of the spontaneous and fluid nature of Indian warfare. He appears to have counted on a predictable response by the nobles of the right flank chariot corps and their retainers. He then used it to negate much of the offensive power of the Indian nobles, their elephants, and their bowmen.

First, the chariot warriors on the right flank predictably responded to Alexander's Companions as their appropriate foes, for the Macedonian attack began with the heaviest and largest contingent, Alexander's main cavalry force. This match-up would have appeared especially attractive to the Indian nobles after Coenus and his regiments, located directly across from the Indian right flank chariots, hung back from the fray.[27] Culture and military doctrine

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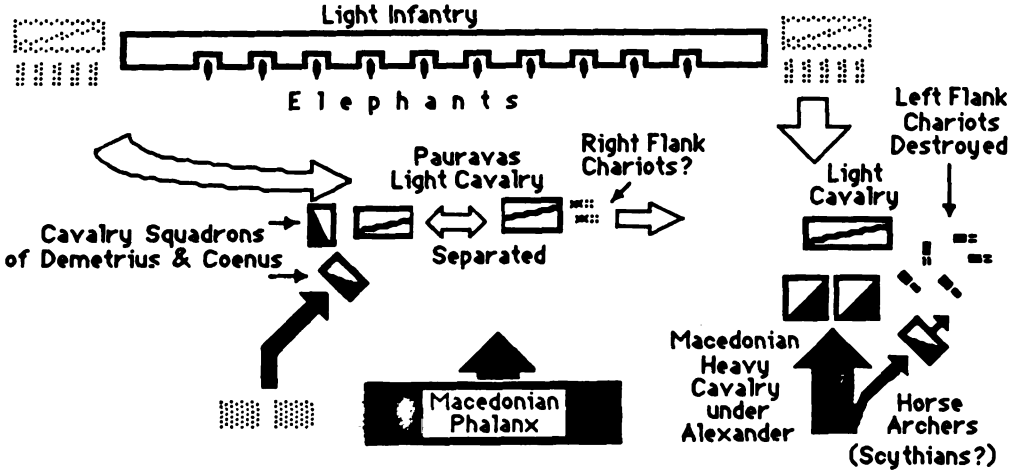
[27]Coenus had orders to respond to the Indian cavalry movement. The timing neatly made Coenus' force less attractive than the Companions as opponents. Then, Coenus' position at the rear, from the first Indian move, would begin the attenuation process fairly quickly after the Indians began, to cover the maximum amount of the battle front with this cavalry screen.

compelled the noble chariot warriors to attack the more honorable foe, in this case the visibly heroic Companions. They did so with their cavalry pounding along in their wake to make their attack in the most direct and bravest manner possible. They charged directly for their adversaries.



The above diagram is the author's reconstruction.

Initial movements: Development of Alexander's cavalry screen.

Figure 2.

Second, Coenus' attack then triggered another predictable response from the Indian cavalry escort. Attacked from behind, part of them fell back loyally to protect their nobles from an apparent cavalry ambush. The remainder of the escort continued on with the chariots, to be fed into the Macedonian war machine already consuming Indian horsemen and charioteers while effeciently crowding the survivors back into the arena between the armies.

Indian units were not disciplined to movements or

large cohesive formations in the western sense, and the Indian emphasis on individual initiative both indicated a running fight would spread across a wide span. The timing allowed the marching wall of Macedonian infantry, using heavy infantry skills unheard of in India, to apply the tactical coup de grace which even the Companions could not have administered, though they are credited with it. Only the phalanx could have forced the Indian horsemen back fully against their advancing elephants, for the Macedonian horses would not approach the elephants that closely.[28]

The Indian bow's armor piercing capability and the awesome power of the elephant corps make Alexander's careful planning of the strategem understandable. In the face of an advance against massed Indian archers, across open ground, the front ranks of the outnumbered phalanx might have been decimated and the relentless power of the formation stopped or broken. This would have left the survivors vulnerable to the unchecked depredations of the great warriors and their elephants, with the Macedonian cavalry unable to come to their aid. Once the phalanx met the enemy in close combat the advantages swung sharply to the heavily armed and armored Macedonians pitted against lightly armed and almost

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[28]While some Indian replacement mounts may have been acquired in Taxila, the elite units of Companion Cavalry accompanying Alexander would likely have been equipped with Macedonian horses, trained extensively as Mediterranean style cavalry mounts. Indian horses, familiar with elephants, would probably have been assigned to less prestigious units, which remained on the opposite side of the Hydaspes until the pursuit at the conclusion of the battle.

armorless Indian infantry.

Close combat presented a new danger, however, for up close the Macedonians faced the terrifying elephants for the first time. Carnage resulted on both sides, as the Macedonian hoplites fought desperately against the elephants, the nobles aboard them, and the numerically superior mass of Indian infantry which accompanied them.

E. The Main Battle.

Alexander's charge with the Companions triggered a complex sequence of moves, like the opening strategy of a chess master. The Indian nobles gravitated to the visible enemy. The Indian center, probably led by Porus, advanced on the phalanx. The Indian left flank nobles aboard their elephants may have begun moving toward the Companions, but at a slower rate, to arrive somewhat later. Their position in the deployment dictated that they move around the infantry-only formation stationed to their right, then push through the retreating cavalry between them and Alexander.[29] While Porus and the center charged the Phalanx,[30] the overall Indian line probably began to gravitate to its right almost immediately for the same reasons, and in the same manner, as the right flank chariots had done.

Indian confusion, a result of moving forces

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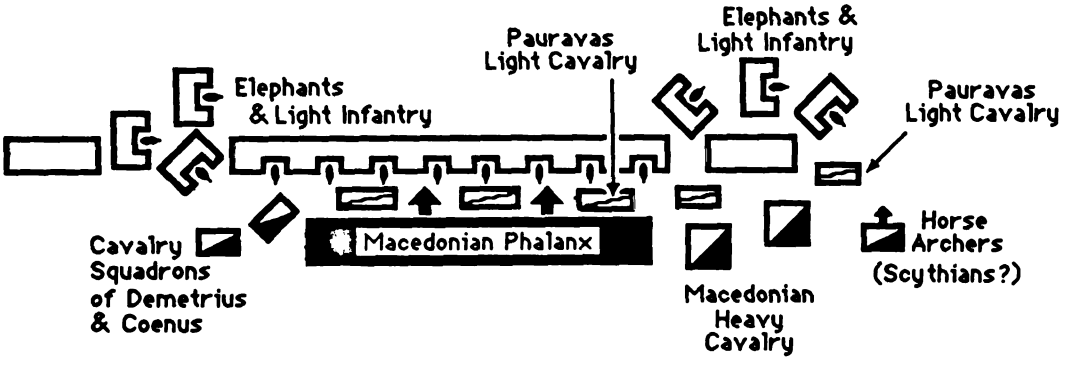
[29]Arr. Anab., V. 17.3.

[30]Arr. Ibid.

intersecting each other's lines of advance, would have been a heartening sign to the hard pressed Macedonians. It would have marked the beginning of the battlefield melee the Indians considered the natural course of combat. As Porus and his household nobles in the center engaged the phalanx advance, others, probably on the Indian right and left flanks, went in search of the Companion heroes.



The above diagram is the author's reconstruction.

Contact: Phalanx closes with the elephants.

Figure 3.

In the center, the charges of individual elephants into the phalanx must have been devastating; its repetition across the battle front a terrifying vista. Where the nobles and their elephants attacked, Macedonians died before their massive charge and the animals' training for independent melee combat. The Indian infantry did not fare so well, for they were ill equipped and severely disadvantaged at close range.

Like modern tanks stripped of their infantry, the

elephants then came under direct attack from foot soldiers too numerous and too omnipresent for effective self-defense, even by such a dominant weapons system as the noble-elephant-driver combination. The Macedonians began to use javelins, possibly axes, even special scyths, to cut down the big animals from the sides and flanks when the elephants drove into the Macedonian wall, stripped of their protective retainers. It would seem the standard sarissa would have acquitted itself well, allowing the hoplites to attack from a longer distance than the elephants could physically counter, but its use doesn't seem noteworthy by the ancient authors, who may have assumed its effectiveness from the outset.

By this point, on the engaged flank of the battle, the collected Macedonian cavalry had evaded the attack of the Indian left flank nobles and their elephants. More mobile, Alexander's cavalry were able to stay out of range, to prevent their horses from panicking. Once the pattern became clear, the charging Indian nobles likely turned their elephants back to the main conflict when the Companions would not close with them in honorable combat.

However, Arrian states the combined Macedonian horsemen then attacked the Indian ranks. To do so, they had to exploit their power at a point where there were no elephants. It would appear the Companions and auxiliaries therefore descended upon the left flank block of infantry which fought without nobles. Carnage resulted among the Indian

light infantry stuck by several thousand heavy cavalry at full charge. The second block of similar infantry originally posted on the opposite flank may have met a similar fate from the circling Macedonian horsemen.

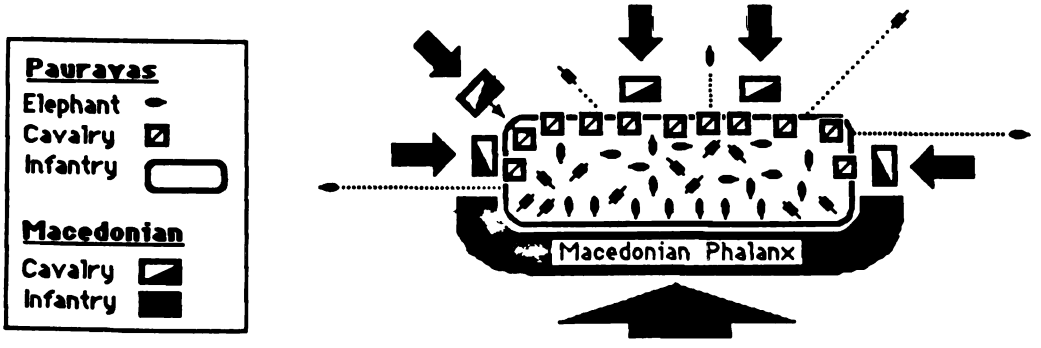
The battle settled down to a slowly contracting mass of Indian elephants and their supporting infantry, hemmed in and pressed by the Macedonians, both foot and horse. The situation must have been as chaotic as the ancient authors capture in their accounts, and as terrifying for phalanx warriors accustomed to more organized warfare. Slowly they mastered the art of fighting elephants, giving way to them, attacking from the sides and rear, maintaining the attack as the animals withdrew back into the protection of their own ranks.

As they had previously driven the light cavalry before them, slowly the Macedonians increased pressure on the contracting mass of the Indian elephants and infantry. The Indian cavalry remained trapped between this mass and the Macedonian horses encircled them. The heavier Macedonian horsemen whittled away at the Indian cavalry all day, the only enemy with which they could close, while the phalanx harassed the enemy in close.

Some elephants had no doubt lost their drivers by this time, and probably others had lost their nobles as well, and the loss of either would take an animal out of the front rank. The concentrated press of Indian infantry among the animals, loyal retainers to the end, frequently

died under the feet of the beasts. This must have happened with increasing frequency as the Indian core became more concentrated, as it shrank in response to Macedonian pressure.

The Battle of the Hydaspes, while chaotic, was fought to Macedonian rules, and the two sides remained distinct. Animals attempting to leave the battlefield encountered a ring of Macedonian steel and retreated back into the dubious safety of their own ranks.[31] This multiplied the damage a single elephant could wreak on its own forces as it repeatedly tried to leave the field. The result uniquely compounded the disaster in Indian terms. Then again compounding the disaster, the animal's destruction was concentrated almost exclusively among its friendly infantry.



The above diagram is the author's reconstruction.

Containment: Pauravas forces within the Macedonian attack.

Figure 4.

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[31]Arr. V. 18.1.

When a gap presented itself in the Macedonian cavalry ring, elephants without riders and infantry without nobles siezed the opportunity to extract themselves from the battle, in the traditional manner. The breakout succeeded,[32] but left Porus and the survivors to continue the fight alone. The menace of wounded or riderless elephants would have diminished as the animals finally fled. Balancing that positive effect, the retreat of the now leaderless infantry would have simultaneously reduced the number of soldiers available to hold back the phalanx.

King Porus's situation deteriorated rapidly from that point. Atop his elephant, he remained one of the signal targets on the battlefield, and no doubt drew more than his share of fire. Still, in his terms, the battle was not over until he had been killed or forced from the field. That time swiftly approached.

The ancient authors applaud Porus's courage for remaining with his troops.[33] Arrian specifically notes Porus remained with his surviving fighters rather than follow Darius' example in cowardly flight. The differences in the actions of the two monarchs originated in their conceptions of their roles and perceived best options. Darius, at least on one occasion, amassed another army from the vast

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[32]Arr. V. 18.2.

[33]Arr. V. 18.4.
Curt. 8.14.31.
Dio. XVII. 88. 4-6.

resources of the Persian empire to contest for his throne a second time. Porus staked everything on one battle, and fought on, with the fading hope Alexander would fall before he did, and so give him the victory despite the destruction of his own army. The plaudits for bravery should go to the nobles and retainers who stood with him to the bitter end, when, badly injured, he finally left the field in defeat.

The Battle of the Hydaspes had ended. Alexander's victory opened the door to India, but only after he had settled his power on the defeated Pauravas. With some difficulty, he did so almost immediately, but in the meantime another cross cultural conflict added still further losses to the decimated Indian survivors.

F. The Indian Retreat.

Political resolutions were the goal of Indian warfare. When Porus finally left the field, gravely wounded and suffering from loss of blood, the new political situation had its resolution. The survivors could go home and begin the healing process which would make the defeated kingdom a valued vassal of the victor. A retreating Indian army made no fighting withdrawal. It simply went home. The victors customarily detailed a few light cavalry to hurry their departure, but blood no longer needed to be shed. Their ruler, in this case King Porus, would customarily become the victor's tributary vassal, retaining his lands and

titles. The Macedonians handed Porus one last disaster, however.

On Alexander's order, Craterus waited until the Indian flight began in earnest, probably at the point that the breach appeared in the Macedonian enclosure, which began the breakout of the riderless elephants and leaderless infantry. When the exhausted Indian survivors began their stampede from the battlefield, Craterus crossed with the fresh reserves and attacked the routed army. To the Macedonians, the settlement of the political issue rested in the inability of the enemy to resist. Destroying the enemy's army represented standard Mediterranean battlefield procedure whenever possible, a tactic aimed at crushing the enemy's survivors and thereby the enemy's ability and will to continue resistance.

In the brutal logic of Mediterranean warfare, the more enemies who died on the battlefield, the fewer were left to reform and counterattack at dawn. The more enemies who were killed when the opportunity presented, such as during a retreat, the fewer of the victors would die fighting them in the next battle. Only the near total destruction of an army guaranteed both military victory and a secession of hostilities, but also assured the necessary preconditions for a settlement enforced by the victor, on any terms he chose.

The battle had been fought on Mediterranean terms, and the victory consolidated in the same uncompromising style, which left Alexander to dispose of the Pauravas kingdom in

any manner he wished. The retreating Indian forces, among them the injured Porus still aboard his elephant, had no cause for hope. Initially, in the manner in which he treated Taxiles, Alexander appeared a powerful but honorable warrior king in the Indian mode. The battle had dispelled such notions.

Alexander intentionally attacked the Indian nobles with his phalanx of commoners. The invading Macedonian heroes, the Companions, fought well against the lesser nobility of the chariots and lowly cavalry arm, but the same Macedonian nobles refused to face Porus and the worthier Pauravas. From the Indian perspective, the Macedonians probably did not fight honorably, nor did they fight "fair". The invaders even introduced fresh forces ignobly to exploit their victory, by senselessly slaying an army already vanquished. Salting the wound, Alexander allowed the Pauravas' old enemies, Taxiles and his Indian troops, the forbidden pleasure of attacking their hereditary enemies in this vulnerable condition. This action heaped humiliation at Taxiles' ignoble hands atop the ignominy of defeat by the barbarian king. Porus had little reason to expect the terms of the conquerer would be gracious, or even honorable, in light of Alexander's conduct of the battle.

G. <u>The Political Settlement</u>.

Curtius' interpretation[34] of the subsequent meeting

[34]Curt. VIII. 14.41-43. Diodorus does not mention

between Alexander and Porus has the same cloying nobility as the speeches he routinely places in Alexander's mouth. Therefore while the essence of his presentation fits Indian custom, the author's explanation does. Arrian's account[35] leaves more detailed evidence of a shrewd and culturally knowledgeable Alexander, capable of using the Indian system to gain his ends. If Arrian's is the truer account, the evidence indicates that here Alexander switched his persona from that of a ruthlessly efficient Mediterranean general, to the Lord of Asia, graciously and sensibly dealing with the inhabitants of his satrapies in the manner of their society.

During the final retreat, Alexander faced the problem of confronting Porus. The Indian king had headed home, and Alexander sent Taxiles, a monarch of equal rank, as his intermediary. The mission would have ended in Taxiles death had his horse not been nimbler than Porus's elephant, which kept Taxiles out of range of the weakened king's javelin attack. Undaunted, Alexander continued with a series of emissaries, until at last Meroes, a friend of Porus and Alexander's vassal, finally convinced the defeated king to return.

When they met, Alexander rendered him the honor of a meeting before the army, with only a few Companions in

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the political settlement after the battle.

[35]Arr. Anab., V. 18.1-4.

attendance. Arrian recounts an exchange containing several vital elements:

> "Then Alexander first addressing him bade him say what he desired to be done with him. Porus is said to have replied: 'Treat me, Alexander, like a king.' And Alexander, pleased with the reply, answered: 'It shall be as you desire, Porus, for my part; do you for your part ask what you desire.' He replied that everything was contained in this one request. Alexander, then, all the more pleased with this reply, gave back to Porus his sovereignty over the Indians of his realm, and added also other besides his former territory even greater in extent; thus did he treat as a king the brave man, and from then on found him in all things faithful."[36]

The outcome of the encounter fits Alexander's purpose and Porus's cultural expectations. It is dangerous, however, to trust the pure transmission of a battlefield exchange, from Alexander's lips down to Arrian. The most reliable conduit would have been Ptolemy, who might conceivably have been among the Companions present. Arrian may have relied upon Ptolemy's lost history of the campaign as a source. This creates the unlikely and infrequent possibility that the exchange has been recorded verbatim. Only in this unlikely case can analysis be undertaken for interpretations of original meanings in the exchange.

The transcript, if recorded closely, reveals the cultural niceties being observed, but with vital political undertones. First, Alexander asked Porus what was to be done with him. He answered, "Treat me . . . like a king." When asked to name his fate, Porus evoked an acceptable

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[36]Arr. Anab., V. 19.2-3.

tradition, and asked Alexander to deal with him as an Indian king, which included an implied offer of allegiance and fealty.[37]

Alexander countered with his own offer of honorable conduct, "It shall be [so] . . . for my part . . .", and then allowed Porus again to state his own desire.

Porus responded that "everything was contained in this one request," a reaffirmation of his original request, according to Arrian. He reiterated his offer of loyalty as a defeated tributary king. He acknowledged that he also accepted Alexander's word that the barbarian king would act honorably in the role of an Indian tributary lord.

Alexander thereby achieved the exact political outcome he sought in the Punjab, so it should come as no surprise that Arrian affirms Alexander's pleasure at the answer. Alexander then returned Porus to sovereignty in his land. Alexander had asked what Porus desired, and the defeated king had asked, in Indian terms, for his land and title in exchange for faithful service. Alexander agreed to equally binding customs as an overlord, and gave Porus the opportunity to decide if he believed him. Porus's answer showed his acceptance of the agreement. The final agreement had been forged in Indian terms, by the victor and the vanquished.

Arrian assures us in the same passage that Porus

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[37]Meroes' role as Alexander's intercessor in this may be underrated. Porus arrived offering fealty, indicating he had already been assured he could trust Alexander's word and mercy as a tributary lord.

proved an honorable man, in both Macedonian and Indian terms, confirming Alexander's decision to more than double the king's lands. This last act of generosity no doubt spoke well of becoming Alexander's vassal, as both Taxiles and Porus had emerged with more territory than before. No doubt the noble Porus deserved what he was awarded, but his settlement may also have influenced others to submit to the new overlord of the upper Indus. Alexander had demonstrated a strong preference for the continuation of existing political systems, even monarchs, in conquered territories. Alexander fit the cultural expectations of Indian rulers and warriors and as achieved his desired military and political outcomes.

CHAPTER 6

CONCLUSIONS

Alexander's invasion, though ephemeral in the long span of Indian history, began an enduring link between India and the Ancient Mediterranean world. The Brahmins and Greeks both recorded the other's cultural differences for posterity. Alexander's arrival is portrayed in Indian culture as the first major contact with the West. An Indian miniature depicts Alexander meeting Brahmin ascetics.[1] In the Indian manner, it records the essence of the Brahmin encounter with Western intellectual traditions. Arrian's Indika testified to a persistent Mediterranean interest in India as late as the mid-second century A.D. Both Indian and Mediterranean sources specifically record the remarkable differences in their cultures.

Exotic lands brought traders, and regular Indian-Mediterranean mercantile links lasted from the early Hellenistic Age into the late Roman Empire. Much of the lucrative trade resulted from the transformation of mundane commodities into exotic luxuries by transport to a remote market. Greek olive oil and Italian wine went to India in Egyptian ships, traded there for Indian pepper and cotton

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[1]Green, illust., p. 218.

cloth.[2] The profit in the trade relied upon the vast cultural differences and market values in the ancient Mediterranean and distant India, and that exotic quality kept the trade alive through the late Roman empire.

Certainly Alexander provided a new economic and intellectual stimulus for both the cosmopolitan Indian and Hellenistic worlds, but Alexander did not arrive at the head of a caravan or a band of scholars. He led the most effective professional army of its day against Porus and his state-of-the-art Indian defenders. The fragmentary evidence indicates the Indian method of making war had evolved a form and function as different from the Macedonian model as Hindu philosophy and black pepper were from Aristotle and olive oil.

The Battle of the Hydaspes would appear to have been a unique event of its type and scale in both military traditions, alien to both cultures, created by their collision. Alexander's disciplined, heavily armored phalanx and cavalry faced an enemy prepared for small unit melee tactics, eager to pit hero against hero. The Macedonians specialized in monolithic infantry and cavalry unit operations built on prearranged tactical coordination, the hammer and anvil. On the other side of the battlefield, the Indian nobles

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[2]The products listed are representative of the trade of the dominant Indian Ocean port at Barugaza, recorded by an anonymous Greco-Egyptian merchant, c. A.D. 50. The Periplus Maris Eythraei, tr. L. Casson (Princeton, Princeton U. Pr., 1989).

aboard their elephants and the lesser nobles in the chariots dominated Indian tactics. They were trained and equipped to seek out and combat worthy foes, to lead their retainers through a battlefield riotous with shifting forces.

The differences dictated the limitations and capabilities of each army in combat. The Macedonian cavalry horses would not close on the Indian elephants or on infantry supporting the strange animals. This limited Alexander's options, and forced him to pit his unsupported infantry against the most dangerous Indian warriors and their elephants. Likewise, the Indian archers threatened annihilation as the phalanx advanced within bowshot.

The combined dangers of elephants and archers forced Alexander to devise a unique strategem. In doing so, he elegantly solved the problem by using his cavalry indirectly to protect the infantry without bringing the horses in contact with the elephants. Coenus's cavalry regiments and his own Companions spread the Indian horsemen between the advancing elephants and the approaching phalanx as a living equestrian screen, also denying the Indian archers the necessary clear line-of-sight to the phalanx. Alexander could not eliminate all danger, and in close combat, despite all preparations, the elephants still ravaged the phalanx in new and unpleasant ways.

On the other side of the battlefield, the unified phalanx and the elusive Macedonian cavalry created unprecedented problems for King Porus. First, at close range the

hoplite infantry stripped the elephants of their retainers, which left the animals vulnerable to close attack. Then, once the animals took severe wounds or lost their riders, they charged back into their own infantry and remained there, and trampled more men as time passed. This was uncommon in Indian warfare because the usual melee left the animals free to flee the battlefield inflicting damage on only an unlucky random few on both sides.

Cultural differences led to more unexpected bloodshed in the aftermath of the battle, as the Macedonian reserves took their toll of the fleeing Indian survivors. Indian military custom permitted the vanquished to flee in relative peace. Macedonian doctrines had been forged in a more deadly theater of combat, where victory meant total destruction of the enemy's ability to resist. The result was continued slaughter of the Pauravas forces.

Porus's household troops and nobles stayed with their king to the end. True to a different definition of victory and defeat, in his turn, Porus bravely remained on the battlefield until overcome by his wounds. In his eyes, as king, the battle was not lost until he personally could fight no longer. Once the initial retreat had begun, his bravery and endurance only increased the losses among the loyal troops whose duty required them to remain with him.

Each king honorably fought the battle for which he had been trained, and for which his army was equipped. They both did what they could with the forces available, and

made war as they knew it. Colliding cultural expectations and values created a battle alien to both sides. In the event, the Macedonians dictated the terms of battle, Mediterranean style, with armies separated into two opposing forces. In Indian terms the separation gave a strange form to the conflict, and trapped wounded and riderless elephants destructively among friendly troops. Western sources accept the separation of forces as a fact of nature, but focus with fascination on the unfamiliar elephants.

Alexander had entered a different world, culturally, when he marched into the Indus valley. His campaign there required an understanding of Indian society and the Kshatriya caste. To develop his tactics, Alexander required more than an awareness of the likely Indian deployment. The task before him required an understanding of the Indian warrior mentality and Indian battlefield tactics. The knowledge allowed him to use his forces to best advantage in an alien combat environment, a situation new to both commanders. Alexander took the final victory in part through a superior appreciation of the culture and military system of his enemy.

It is difficult to determine how Alexander rated his victory at the Hydaspes. According to Curtius, Alexander believed that in Porus he faced his mightiest foe,[3] although the more reliable Arrian is silent. Scullard

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[3]Curt. VIII. 14.14.

implies there may be some numismatic evidence for Curtius' view. Speaking of three special commemorative decadrachms found at Susa, minted just before Alexander's death, Scullard speculates,

> "If they were meant to sum up his achievement one might expect the overthrow of the Persian empire to have been symbolically depicted: instead we find a heroic encounter between Alexander on his horse Bucephalus charging with his lance the great elephant on which sat Porus and the mahout."[4]

Ironically the coins portray the precise regal confrontation Porus sought, but which Alexander and the realities of battle denied to him.

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[4]Scullard, p. 75.

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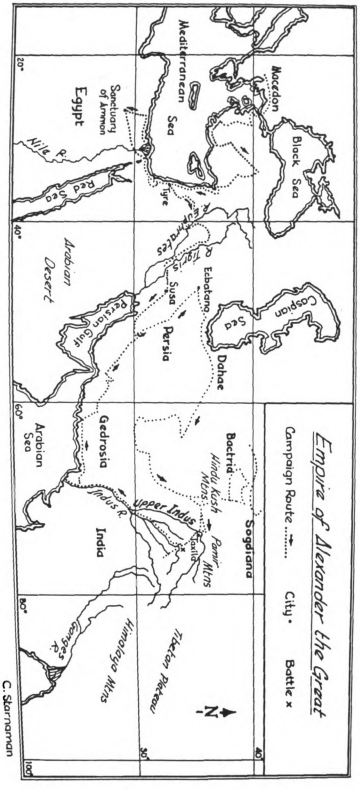

Map: Empire of Alexander the Great

Figure 5.