CHAPTER - I

_I_N_T_R_O_D_U_C_T_I_O_N_

Haryana is a desiccated alluvial tract having no perenial river today. Of more than a dozen seasonal streams Ghaggar retains some water for a longer part of the year before it dries up near Hanumangarh in northern Rajasthan. But on literary, hydrographical and archaeological grounds it can be surmised that the region was anciently watered by the famous Sarasvati,[1] Drisadvati[2] and Yamuna[3] rivers perhaps forming an independent river system. Unfortunately these life giving streams dried up for reasons difficult to be explained and even their memory faded away except in the case of the holy Sarasvati, represented now by an insignificant nalla flowing past Kurukshetra and Pehova.

The area under study comprising the diried up Sarasvati, Drisadvati and the Yamuna Valleys forms the north-western part of Haryana and lies between 28°.40' and 30°.45' N. Lat. and 74°.35' and 77°.10' E. Long. The tract is bounded by the Siwaliks in the north, the Yamuna in the east, the semi-arid Ganga-nagar district of Rajasthan, Mahendargarh district and the Bhiwani Tehsil of Hissar district of Haryana in the south and the Ghaggar and Naiwal basins in the west. It mainly falls in the districts of Ambala, Karnal, Jind, Hissar and the north western parts of Rohtak.

A. Geophysical Features

The tract of the ancient Sarasvati, Drisadvati and Yamuna valleys forms the eastern part of the Indo-Gangetic alluvial plains, generally ~~between~~ below 300 meters above the mean sea level. It gently slopes from north-east to south-west for which reason all streams or nalas of the area drain into northern Rajasthan. The deposits of these plains comprise of the most recent sediments consisting of sand, silt and clay with occasional gravel beds brought by the rivers. This old alluvium is locally called Bangar. The new alluvium occurs only in the flood plains of the Yamuna and the Ghaggar and is locally called the Khadar. The Khadar is light coloured and arenaceous in nature. The lenticular beds of sand gravel and peat are encountered in the alluvium. The Bangar merges gradationally into the Khadar and can be assigned to upper pleistocene to recent age.[4]

In the south-eastern parts these valleys are encroached upon by the expanding Thar. The wind blown sand stands piled up in the form of sand dunes which are sometimes many feet high and go beyond miles in length. In this semi-arid part the only tracts useful for cultivation in this region are the dry beds of the rivers or the places where due to some reason sand does not collect. The latter places are locally called Tals.

In the south of the valleys a few hills appear in the Bhiwani Tehsil of the Hissar district and the Mahendragarh

districts. They are the parts of the Alwar series of the Delhi system of the Aravalli ranges and are formed of quartzite, grit, conglomerates and lime stones.[5]

Among the minerals Haryana yields calcareous consentrations, slates, foundary sands and salt peter besides the important minerals occuring only in Mahendragarh district such as iron eres, calcite, lime stone, asbestos, barytes, beryl, copper ores, comelian, garnet, mica etc.[6]

Although Haryana lies nearly 550 kilometers north of the Tropic of Cancer, its climate is more or less tropical. In the winter season, from November to February, Haryana remains under the influence of cool outblowing land winds throughout. The icy blasts from central Asia being checked the temperature remains low, the mean January temperature at Hissar being 56°F.[7] The general anticyclonic conditions of winter months are sometimes interrupted by the feable cyclones which give a little rainfall to the region. The summer months from March to early June experience hot weather with desicating hot winds (100) and occasional dust-storms. The climax of the season is reached in May and June. About the middle of July the monsoon clouds begin to appear and the humidity increases rapidly till a thunderstorm announces the advent of the rains.

The rainfall pattern of Haryana has been affected considerably by the regions continental location and nearness to the sub-tropical upper air high pressure of the Thar desert. This results in low rainfall and variation at different places. The maximum rainfall is about 85 inches occuring in the foothills in the north only and the minimum rainfall varies from

10-15 inches in southern part; average for the state being nearly 25 inches.[8] The rain is unevenly distributed during the year. About 80% of the over all rain fall in this region occurs between July and September. There is a pronounced rainfall peak in the months of July, August and September. There is a little amount of rain during the winter season by the cyclones. It is 3 to 4 inches in the upper parts and less than an inch in the lower ones.

The trees growing in the region include Kikar, Jand, Kair, Pilu and Beri, all natives of the semi arid zone and Neem, Pipal, Bada, Shisham, Gular, Jamuna and Mango. The mango has its favourite habitat in the submontanous Ambala district.

Haryana is essentially an agricultural state. About nine-tenths of the entire population depends on agricultural pursuits for their existence. A little less than three fourths of the total land of the State is cultivated and about 41% is sown every year, 31% lying temporarily fallow. About 35% of the sown land is irrigated. The total yield of food grains is about 24,39,300 tons a year. The agriculture of the State is fast undergoing mechanisation. The main crops cultivated include wheat, barley, gram, bajra, rice, maize, sugarcane, cotton, mustard and pulses. Wheat, bajra and maize constitute the main staple food of the people, while Sugarcane, cotton and mustard comprise the commercial crops.

Agriculture is supplemented by cattle keeping. The region is known for its milch and drought cattle and produces

one of the finest breeds of cow and buffalo in the country.

There are at present 5,000 industrial units in the State producing goods worth Rs.112 crores per annum and providing employment to about one lakh persons. The important industries in the State are textiles, cement, paper, cycle and cycle-parts, sewing machines and parts, agricultural implements, steel rolling mills, machine tools, scientific instruments, wood working saw mills, woolen textile, hosiery goods etc. Of the total number of units in the State, 195 are large and medium scale units.[9]

Haryana is a small state which has an area of 44,056 square kilometers and a population of nearly 9,900,00 people. There are in all 61 towns and 6670 villages in the State. 82.3% of the population of the State lives in rural areas while 17.2% is in the towns. There are only ~~six~~ eight cities having a population more than 50,000 people.[10] There exist several religious sects. Among them more than 76 lakhs are Hindus, 5 Lakh Sikhs, 3 Lakh Muslims, 26 thousand Jains, 8,500 Christians and 700 Buddhists. Although castism dominates the society as elsewhere in the country, the people have developed a liberal outlook due to the influence of Arya Samaj. The people speak several dialects of Western and Rajasthani Hindi, the chief among which are Bangru, Bangri, Braja and Pawadhi. The people are generally tall, well built and handsome. They are distinguished for their excellent husbandsmanship and chivalrous spirit.

B. Hydrography

There are nearly a dozen seasonal streams in the Indo-Gangetic Divide, important among these from east to west include the Patharala, Somb, Chautang or Chitang (the ancient Drisadvati), Sarasuti (the ancient Sarasvati), Markanda, Tangri, Ghaggar, Patiala, Jainti Devi and Siswan nadis. Almost all of them, excepting the Chautang and the Sarsuti, originate in the outer Himalayas and passing through the submontanous districts of Ambala and Rupar are soon caught by the Yamuna, Sutlej or the Ghaggar. The Chautang and the Sarasuti are today no more than drains originating in the submontanous Jagadhari Tehsil of the Ambala District. They are not connected with any source in the hills though the tradition preserves the memory of atleast the hilly origin of the Sarasvati in an insignificant brook joining the Somb nadi at Ad Badri.

The Somb nadi after descending into the plains takes an acute turn to the east and later, being joined by the Patharala nala from the north, meets the Yamuna down of Tajewala in Ambala district. The Siswan nadi on the other hand passes by Manihpur Sharif, Rahon, Singh etc. and takes a north-westerly swing to join the Sutlej down of Rupar. The Sarasvati, Markanda, Tangri, Patiala and Jainti Devi nadis join the Ghaggar above of jakhal, a railway station on Delhi-Ferozpur section of the Northern Railway. The Ghaggar, thus fed by numerous streams, atains pre-eminence among the various nadis of the Divide and has replaced the name of

Sarasvati through the wide dry bed of which it flows beyond Ottu, 11 Kms. south-west of Sirsa, to Hanumangarh and beyond in northern Rajasthan. Mostly these rivulets have wide sandy beds in the submontanous region and remain dry for most part of the year. But during rains they cause havoc by floods and soil erosion.

Although the Sarasvati and Drisadvati are today represented by insignificant drains in northern Haryana having no source in the hills, the ancient Indian literature fully attests to their former glory as a mighty river system of the Indo-Gangetic Divide. Perhaps no river in India has excited greater interest than the Sarasvati. In the Rig Veda it has been given the epithet of Naditama[11], the river par excellence and is described as having flowed to the sea[12] alongwith its seven or six sister streams.[13] The other two important streams mentioned in the Rig-Veda between Yamuna and the Sutlej alongwith Sarasvati are Drisadvati and Apaya a Apaga,[14] the former of which has generally been identified with the present Chautang.[15] The Sarasvati retained its importance among the rivers and rivalled the Ganga in sanctity in the Epics[16] and the Puranas.[17] It was marked the traditional boundary between Madhyadesh and the Uttarapatha.[18] The land between the Sarasvati and Drisadvati has been called the Brahmavarta[19] a Kurukshetra,[20] is one of the holiest regions on the earth, the behavior of the people of which was recommended as an ideal for the mankind.[21] These streams once buzzed with the holy upavanas and prosperous cities and it was here that the basic tenets of the Aryan culture took shape.

The hydrographical and archaeological investigations by the author in this part of the country have corroborated and complemented the literary tradition that the Indo-Gangetic Divide was not a desiccated zone in the prehistoric times and was watered by the Sarasvati, Drisadvati and Yamuna.

(i) The Sarasvati

The Sarasvati takes its rise in the outer Himalayas and descends into the plains as an insignificant brook at Ad Badri in Ambala district where it meets the Somb nadi which joins the Yamuna today. In fact the gorge of the Somb is fairly wide here and the nadi contains some quantity of water also. The Sarasvati nala has no separate gorge for descending into the plains. It is, therefore, obvious to surmise that the Somb flowed into the Sarasvati bed in the plains anciently. The traditional course of the Sarasvati is represented by a drain dug south of Ad Badri at present. The course of the nadi is irregularly preserved untill it reaches Mustafabad, a railway station on Saharanpur-Ambala section of the Northern Railway. Then it follows a south-westerly course past Khairi, Pipli, Kurukshetra Pehova etc. in Karnal district and joins the Ghaggar near Shatrana in Patiala district of Panjab. At Arnaya, a little above of Pehova, the nadi was joined by the combined stream of Markanda, Run and Begna before the construction of the Markanda bund at Jalbehra a few years ago to divert these waters to the Ghaggar. The joint course of Ghaggar and Sarasvati then flows past Jakhal, Talwara, Kaulgarh and Theraj to Ottu dam 11 Kms. west of Sirsa, before it suddenly opens into

a two to three kilometer wide bed flanked by sand dunes. This wide course is traced by Stien[22] and Ghosh[23] in North Rajasthan along Hanumangarh, Suratgarh and Anupgarh, beyond which it crosses into the Bahawalpur territory of Pakistan and is locally called the Ghaggar or Nali. Near Hanumangarh the river bed is joined by the Naiwala channel from the west, identified with the old bed of the Sutlej, supposed to have been a part of the Sarasvati system in the past.[24] Another dried up stream, the ancient Drisadvati, joins the river bed from the east near Suratgarh.[25] Its further course in Pakistan territory and locally called Hakra, had also been traced by Sir Auril Stien over 240 Kms., past Fort Abbas, Marot Fort, Lurewala etc. down to its deltaic potion below Derawar.[26]

The author surveyed the upper course of the river from the Rajasthan border upto the Siwalik hills near Ad Badri in Ambala district. The explorations revealed that the wide river bed into which the narrow but deep Ghaggar or Nali descends ~~down of~~ at Ottu extended upwards in the north-east to Sirsa, Vanawali, Fatehabad, Chimun and beyond almost upto Jakhal where it divulges from the present Ghaggar Saraswati bed to the south (see map Fig.1) and is locally called Rangoi. The sand dunes extend along the Rangoi on either side in continuation from down of Ottu as far north east as Fatehabad, a tehsil Headquarter in Hissar district. The whole course is studded with prominent ancient mounds all along ranging back from the Kalibangan Sothi or culture.[27] It is interesting that the present Ghaggar bed further north-west of Rangoi also yielded remains

of Kalibangan I and subsequent cultures[28] suggesting thereby the independent existence of the two rivers in prehistoric times. The historical town of Sirsa, called after the name of the Saraswati nadi[29] on which it was situated, located as it is within the Rangoi bed, suggests beyond doubt the identification of the Rangoi bed with the ancient Sarasvati. That no stream other than the Sarasvati, much lauded as it is in early literature as the primary seat of culture and civilisation, could have a claim to the Rangoi bed is also borne out by its pre-eminent course and the recurrence of a number of prominent ancient sites along it. Furthermore the sites of the Painted Grey Ware, generally associated with the Mahabharata Aryans,[30] which occur in the Rangoi bed are absent from the corresponding Ghaggar bed.

But the extension of this wide bed of Sarasvati could not be traced upwards of Jakhal. It is not unlikely that the upper course of the river was obliterated by subsequent sedi-mentation and cultivation after it had gone dry. The absence of wind borne sand deposits, flanking the lower course, also seem to have left it without any distinctive feature.

When and why did the Sarasvati dry up requires detailed hydrographical studies. But there are some literary and archaeological clues to hint at these questions. The literary tradition avers that the Sarasvati was no more perenial river going to the sea in the Later Vedic period and had been lost at Vinasana[31] on account of the touch of the lowly Sudras and Abhiras,[32] marking the western boundary of Aryavarta. A hint to the disappearance of the river can perhaps be noticed in a Rig Vedic hymn where the Nadi is prayed not to deprive the singers of the life giving waters.[33]

The investigations revealed a number of pre-Harappan sites along this river in Haryana[34] as well as in Rajasthan[35] and Pakistan.[36] But it is interesting that while the Kalibangan and Harappan sites are located on the high banks above the flood plain both in Rajasthan[37] and in Hissar district of Haryana, the subsequent sites of the P.G.Ware, N.B.P.Ware and Rangmahal cultures are located within the flood plain[38] in this region suggesting that the river had already lost much of the volume of its waters by the P.G.Ware Period, precluding the chances of its rejuvenation periodically, supposed by Raikes.[39] The absence of Mitathal IIb (Late Harappa) sites in northern Rajasthan and down of Fatehabad in Hissar district along this course and their occurence in the upper valley almost to the foothills further suggests that the desiccation of the river had started already in the Harappan times, of course towards the later part, which forced them to desert their settlements in the lower valley down of Fatehabad and to shift upwards in search of better irrigated land in the upper valley.

Various factors have been suggested to be responsible for the drying up of the Sarasvati which are well summarised by Gurdev Singh.[39] The major factor , however, seems to be the hydrological changes in the Divide. The Somb nadi which once flowed into the Sarasvati providing it an almost perenial flow of water in the upper course was caught by Yamuna[40] atleast by the P.G.Ware Period as is indicated by the location of a P.G.Ware site at Hathnaur on the easterly joint course of Somb. The eastward drift of the Somb also snapped away the Patharala, perhaps representing the upper course of the Drisadvati if one considers the synonymous character of both and its location

inbetween Yamuna and Somb (Sarasvati). The Yamuna which perhaps joined the Sarasvati in prehistoric times either independently or in a combined course with Drisadvati[41] also drifted to an easterly course by Late Harappan times.[42] These changes in the water courses resulted in the desiccation of the Indo-Gangetic Divide. The suggestion by Gurdev Singh[43] that the upper course of the Ghaggar was obstructed by the rise of a range and its perenial waters fed by the Himalayan ice cap, diverted to Yamuna through the Giri nala in Himachal Pradesh, remains to be verified if it happened in sub recent times.

(ii) The Drisadvati

The present Chautang or Chitang nadi identified with the ancient Drisadvati takes its rise at present in the submontanous Ambala district to the south-east of the Sarasvati. It flows past east of Kapalmochana, Balchhappar and Mustafabad in Jagadhari Tehsil of Ambala district as an insignificant nala before entering the Karnal district. Further its bed is traced to the west of Ladua in a south-westerly course. It is further traced along Pujam, a small village about a mile to the north of Taraori where the Rakshi nala meets it from the east and then along Sitamai, Nisang and Dhatrath. The further course of the river can be traced past Jind, Hansi, Hissar and Siswal, all in Haryana, and beyond towards ~~upto~~ Bhadra, a north eastern town of Rajasthan, with Firuz Shah's Western Jamuna canal flowing largely through its valley.[44] Beyond Bhadra the nadi bed is traced along Sothi, Nohar, Rawatsar and ultimately joins the Sarasvati about three miles north of Suratgarh.[45]

The Chautang nalla today has no pretension of a stream of any importance. But on literary and archaeological grounds one can believe that Drisadvati was once a significant stream of the Indo-Gangetic Divide. In early literature it has been refered to form the south-western boundary of the Kurukshetra region.[46] The Rig Veda mentions it along with the Apaya and Sarasvati.[47] The explorations by the author[48] and Ghosh[49] along its dried up course revealed a large number of pre-historic sites going back to the Kalibangan I times, attesting to its being live having its source in the hills and justifying its name Drisadvati meaning 'stony'. The synonymous name and its location between the Yamuna and the Sarasvati as the only significant nalla to the east of the latter perhaps suggests a justification for identifying the Patharala nalla with the Drisadvati nadi.[50] It is significant that ~~although~~ the dried up Drisadvati is studed with Kalibangan Ware sites and its middle course has the important mature Harappan site of Rakhigarhi, while there are few Mitathal IIb or P.G.Ware sites on its lower course in the Hissar district down of Alipur Kharar (see map) or in Rajasthan. One can therefore, reasonably surmise that the Drisadvati had ceased to flow in its lower course to join Sarasvati by Late Harappan times. Perhaps the reason for the drying up of the Drisadvati, so closely sand witched between the Yamuna and the Sarasvati, specially in its upper course, to have been in a position to maintain an independent course over longer distances is not hard to explain. Its upper course seems to have been caught along with ~~by~~ Somb in its easterly drift to join the Yamuna atleast by the P.G. Ware times as refered above.

Although Drisadvati played significant role in the growth of civilisation in this part of the country it was perhaps never a formidable river as is indicated by a rather narrow flood plains, not exceeding half a kilometer, and by the moderate sizes ~~and location~~ of the Kalibangan as well as the later Mitathal IIb Ware sites and their location within the flood plain between Hansi and Hissar where it is best preserved.

(iii) The Yamuna

The Yamuna today forms a part of the Ganges system. Rising from the snow clad peaks of the middle Himalayas at Jamnotri at an elevation of 10,850 ft. it descends into the plains a little above of Tajewala and then taking a gentle curve along the eastern boundary of Haryana it passes to the east of the Aravalli ridge at Delhi to join the Ganges at Allahabad after traversing an independent course of nearly 1360 kilometers. The river meanders through a wide low-lying flood-plain locally called Khadar (old alluvium). The Bangar ridge running along Jagadhari, Indri, Karnal, Panipat, Sonepat etc. inbetween the Simla foot-hills and the Aravalli tip at Delhi constitutes the watershed between the Indus and the Ganges systems. The Khadar plain to the west of the river averages in width to about 10 kilometers and slopes to the south-east, while the adjacent extensive Bangar plain gently slopes to the south-west.

But it has been suggested by some geographers and geologists that the Yamuna flowed to the west in sub-recent times and that its present easterly course is of later

acquisition. Spate thinks that the wide bed of Ghaggar (called Hakra in Rajasthan) was fed by Sutlej or Yamuna in the past.[51] According to Fergusson Yamuna or the Sarasvati followed a westerly course to the sea in Vedic times through its present dry bed[52] (along Kurukshetra, Pehova etc. in Karnal and district, locally called Sarsuti). Wadia also believes that the Yamuna discharged into the Indus system in early historic times through the present neglected bed of the Sarasvati.[53] Writing on the death of Kalibangan by natural causes, Raikes has recently suggested that the Yamuna was alternately captured by the Indus and the Ganges systems in sub-recent times and that it divulged westward near Indri (a small town 25 kms. in the north of Karnal) to join the Ghaggar.[54] Although prophetic in their suggestions none of the scholars hinted the precise course followed by Yamuna while divulging westward to join Ghaggar or the Sarasvati. Suggestion by Raikes ~~by implication~~ that the Yamuna flowed through the wide bed of Sarasvati past Kalibangan having divulged westward near Indri, though commendable, is not borne out by the author's explorations. The drainage pattern of the region, and the existence of Chautang nala (identified with the ancient Drisadvati nadi) inbetween the Yamuna and the Sarasvati preclude any possibility of the Yamuna having joined the Sarasvati above of Kalibangan as the dry bed of Drisadvati itself meets the Sarasvati near Suratgarh down of Kalibangan.

While conducting the excavation at Mitathal, a protohistoric site near Bhiwani in Hissar district of Haryana in 1968, the writer observed a long shallow depression(locally called Dabar)[55] in the fields between the village and the site. The depression is about 400 meter wide and a meter deep with its banks being obliterated due to cultivation. The clayee soil in the depression yields bumper crop distinguished by its darker colour. According to a local tradition the depression is said to represent an old course of Yamuna. The writer traced this channel upto Indri in the north-east and near to Tosam in the south-west over a distance of nearly 180 kilometers. The channel seems to divulge from the Khadar of Yamuna near Naurta village about 5 kilometers to the south of Indri as indicated by the depression across Indri-Karnal road and runs along the course followed by the West Jumna Canal upto Munak and then along the Jind Branch upto Safidom in a meandering way. Between Safidom and Tosam the channel is traced along Urlana, Baghru, Karsola, Paoli, Farmana, Chang, Mitathal, Tigrana, etc. (see map). Although the old channel is obliterated by cultivation it is fairly well marked near Sinkh, Baghru, Karsola, Chang and Tigrana by the occurence of sand dunes along it. Between Karnal and Safidom the meandering course of the old channel can be distinguished by a regular band of fresh water vegetation in the course, a clear idea of which, was had by the writer by flying over it.[56]

That the above depression represented the old channel of Yamuna is also evidenced by the occurence of thick deposits of grey sand, typical of the Yamuna, occuring in the wells dug in this course at Mitathal, Paoli etc. at an average depth of two to four meters.[57] Besides, the writer discovered a chain of 24 pre-historic sites along the course(see map). Although the writer could not arrange borings across the channel, the above evidence in all probability points to Yamuna having followed a westerly course in pre-historic times.

Further course of Yamuna could not be traced in the absence of necessary technical aid and it is not possible at this stage of our knowledge to suggest whether the river ultimately joined the Sarasvati system or discharged into the Rajasthan sea[58] though the possibility of its joining the former seems quite great.

When did Yamuna shifted to its easterly course of Khadar along the east of Karnal, Panipat, Sonepat, and Delhi to form part of the Ganges system cannot be stated precisely. However, the archaeological evidence recorded along the westerly as well as the easterly courses of Yamuna throw a significant light on the question.

A neat sequence of pre-historic cultures along the lost westerly course of Yamuna is provided by the excavations at Mitathal.[59] The earliest occupation of the valley is represented by the occurence of the Siswal Ware at Mitathal-1. and other sites (see map). The second phase is marked by the

advent of the Harappans at Mitathal-IIa, Farmana 2 and Paoli (see map)and represents the most efflorescent stage in the history of the valley. The next phase of the valley is distinguished by an overall decline of the Harappa culture as noticed at Mitathal IIb and elsewhere (see map). This phase is also marked for its expansion north-eastwards. It is significant that the mature Painted Grey Ware, so common in the nearby Sarasvati Valley and the Ganga Yamuna Doab, is represented only at Seman on the westerly course of Yamuna and is conspicuous by its absence down of Seman. The explorations along the Bangar ridge of the easterly course of Yamuna revealed a number of ancient sites down of Indri viz. Panipat,[60] Gumad, Akbarpur Barotha ~~(see map)~~. Purana Qila at Delhi and Tilpat.,[61] the earliest levels of which belong to the Painted Grey Ware Culture, Explorations along the left bank of Yamuna in Meerut district of U.P. have also brought to light the Painted Grey Ware at Isapur Tanda, Kurdi and Baghpat representing the earliest archaeological data.[62]

The above archaeological evidence along the two courses of Yamuna leads to the following tentative conclusions:-

(i) that the Yamuna followed a westerly course in the Pre-Harappan/Siswal and Harappan periods.

(ii) that the river started shifting eastwards about the middle phase of the Harappa Culture leading to its decline and ultimate disappearance from the valley, and

(iii) that the easterly course of the river along Panipat, Sonepat, Delhi etc. was acquired by Yamuna atleast

by the early part of the Painted Grey Ware phase.

That the Yamuna did not divulge so suddenly to its eastern most course but rather drifted gradually is borne out by atleast two intermediary dry beds, (i) along Drain No.8 and (ii) along Kaloi, Kansala, Ismaila, Bhaproda, Bahadurgarh etc. ~~(see map)~~. In both the beds sufficient sweet sub-soil water is available to make the tube-wells successful. Several pre-historic sites have been discovered along these beds, the most common wares at which include the Mitathal IIb Ware and the Painted Grey Ware (see map.) Both the depressions attain conspicuous diamensions whenever they are lined by sand dunes. The tremendous amount of water these dried up beds are capable of carrying was amply demonstrated by the heavy floods which inundated Rohtak and the rural areas in 1961.

What factors were responsible for the eastward drift of the Yamuna to join the Ganga is difficult to suggest in the present state of our knowledge. Raikes had postulated that low and almost indiscernible watershed between the two systems and the slow migration westward of the Yamuna across its flood plain under the influence of coriolis force (or deflection force due to the earth's rotation) would result inevitably in a right-bank avulsion somewhere near where Indri now stands.[63] According to him it might not even have required an exceptional flood to cause it. One may also agree with Mis-chel that the detritus brought by the rivers is sufficient to change the course of the rivers.[64]

C. Previous Work Done

Archaeological activities began in the region in the later half of the 19th century when Sir Alexander[65] Cunningham carried out explorations at Thanesar, Sugh etc., the important Buddhist sites, and indentified them with the important ancient towns of Sthanesvara and Srughna, respectively. A number of early historic coins were collected from various historical sites by Rodgers later.[66] Archaeological excavations began in early twenties of this century and excavations were conducted at Raja Karna Ka Qila,[67] Theh Polar,[68] Khokhrakot[69] and Agroha.[70] The excavations brought to light remains including coins, seals and terracottas of the early historic period. The fuller archaeological potential of the region, however, could not be appreciated due to lack of the scientific archaeological techniques and investigations in the historical periods continued to be the main interest till B.B. Lal picked up the Painted Grey Ware sherds from Raja Karna Ka Qila[71] Pehova, Panipat, Amin etc. in the early fiftees[72] A few P.G.Ware sites were also discovered by B.K.Thapar.

A systematic survey of the archaeological remains was initiated by the author in the region in 1961.[73] During 1962-63[74] and 1963-64[75] the author explored the submontanous Ambala district and placed on several Harappan Ware and Painted Grey Ware sites on the map of the region. An excavation was also conducted at Sugh during 1963-64[76] and 1965-66[77] by the writer which yielded a sequence of cultures ranging from circa 500 B.C. to A.D. 300.[78]

Further explorations carried out by the author in the region subsequently[79] only emphasized the vast archaeological potential of this part of the country going back to the Harappan times. The large number and diamensions of these mounds located along the dried up beds of the Sarasvati, Drisadvati and other affluents, in many a case rising to the imposing heights of 10 to 20 meters indicate that the region was bestowed with sufficient resources to sustain large population over thousands of years.

D. Aim and Scope:

The archaeological significance of the Sarasvati Valley had been revealed by the investigations carried by Sir Aural Stien[80] and A. Ghosh[81] respectively during the early forties and fifties. But the upper Sarasvati Basin, the 'protohistoric tri-junction' of Subbarao,[82] comprising the alluvial tracts under-study, remained largely a terra incognito as far as Prehistoric archaeology is concerned. The primary objective in undertaking the present work was, therefore, to investigate the Prehistoric remains in this part of the Sarasvati and Drisadvati Valleys and to establish a regional sequence by conducting limited excavations at the selected sites which could be correlated with the broad sequence of Prehistoric cultures obtained for North India by the excavations at Kalibangan, Rupar, Bara etc.

The work was aimed at throwing further light on the extent of the Sothi or the Kalibangan I culture, already traced to the south-western extremities of our region in North Rajasthan by A.Ghosh,[83] and the relationship of this culture with the Harappa cultu

first revealed
~~some of the important questions raised~~ by the excavations at
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Kalibangan.

The investigations were also expected to determine the nature and character of the Harappa culture particularly in its late phase, and its sequel in our region.

The scope of the dissertation is thus confined to the investigation of the prehistoric cultures particularly the Pre-Harappan, Harappan or their derivative cultures in the now dried up Sarasvati and Drisadvati Valleys in Haryana. The explorations have, however, been partly extended in the major affluents of the above nadis for a better understanding of the
85
picture. The lost westerly course of the Yamuna, discovered in course of investigations and which seemed to have formed part of the Sarasvati system, has also been included in the perview of the studies.

The study of the post-Harappan Painted Grey Ware culture, though no less rewarding, has been precluded from the scope of the present thesis.

E. Method of Work:

The field work included both explorations along the river beds and excavations. The explorations were conducted between 1967 and 1970 along the dried up Sarasvati and Drisadvati Valleys in Haryana, starting from Rajasthan border where Ghosh had left to the Siwalik foothills. In course of survey the lost or changed courses of the rivers were also explored viz the Rangoi bed in Hissar district, the bifurcated Drisadvati or

Chautang beds both along Daulatpur and Amin and Manak Majra and Pujam etc. in Karnal District and the depressions in Kaithal Tehsil along Pundri, Rajaund, Uchana etc. To the south of the Drisadvati explorations were conducted along the dried up bed of the westerly course of Yamuna between Tosham(Hissar district) and Indri (Karnal District), and along the western flank of the Khadar bed of Yamuna between the Siwalik foothills and Delhi. Limited explorations were also conducted along Drain No.8, indicating perhaps the intermediary channels left by the Yamuna while drifting eastward to the present course.

The stratified data from the excavated sites has been dealt separately from that obtained by surface exploration for the sake of clarity. The cultural classification at the excavation sites has been done on the basis of various cultural traits obtained, while at the explored sites our main guide was the typology of the ceramic industry. The distribution maps were made use of for determining the extent of cultures.

F. Summary of the Results:

As a result of the investigations, carried by the author in the Sarasvati, Drisadvati and the Yamuna (Westerly course) Valleys 97 Prehistoric sites were placed on the map The excavations were conducted at three of the selected sites viz. Mitathal, Daulatpur and Siswal which yielded the following sequence of cultures in the region (Fig. 2):

Period of Sequence	Cultures
Daulatpur II	Painted Grey Ware
Gap	-
Mitathal IIB (Daulatpur I)	Late Harappa
Mitathal IIA	Harappa
Siswal B (Mitathal I)	Late Siswal Culture
Siswal A	Kalibangan I

The Kalibangan I Culture (C.2300 - 2100 B.C.):

Siswal A marks the earliest phase of prehistoric colonisation of the region by the Kalibangan I culture people. The characteristic Siswal A pottery was recovered from 16 sites in the south-western parts of Haryana adjoining northern Rajasthan. It revealed the further extention of the Kalibangan I culture to as far north east as Jind and Paoli in Jind District of Haryana.

The Late Siswal Culture (C.2100 -2000 B.C.):

Siswal B or Mitathal I marked the survival of the Kalibangan I culture in this region, called here the Late Siswal culture and distinguished by an evolved rather devolved ceramic typology and Harappan contacts.

Siswal B ware was recovered from 32 sites in the region indicating the extention of the culture to Sarangpur near Chandigarh, under the Siwalik foothills in the north, Manak Majra near Karnal in the north east, Baliana near Rohtak in the east and Tigrana near Mitathel in the south and Bani in the south-west. Thus in the Late phase the Kalibangan I folks colo-

nised the whole alluvial tract of the Sarasvati Basin and extended upto the lost westerly course of Yamuna in the east.

The Harappa Culture (C.2100 - 1700 B.C.):

The sequence of Siswal is carried forward at Mitathal in Period IIA marking the advent of the fulfledged Harappan culture characterised by the classical elements viz. The twin mounds, extensive mud brick structures, chert blades, cubical stone weights beads and bangles of faience and steatite, terracotta triangular cakes, toy carts and the black on red pottery.

The cultural complex of the sub-period reveals a large element derived from the Late Siswal culture which survives all through the Harappa Period and is gradually assimilated by the Late Harappan times unlike at Kalibangan.[86]

The mature Harappan ware has been recovered only from nine sites in the basin. Of these Mitathal, Rakhigarhi and Vanawali, each with a twin mound, seem to be the important towns and respectively dominating the Yamuna, Drisadvati and the Sarasvati valleys. The Harappans were the younger contemporaries of the Kalibangan folks and seem to have come in their wake from northern Rajasthan and there does not appear to be any genetic relationship between the two cultures in our region, where both are colonisers. The mature Harappa culture seems to have been confined to the west of the Yamuna in its first phase of extention.

The Late Harappa Culture (C.1700 - 1500 B.C.):

Mitathal IIB marks the survival of the Harappa culture in a decadent phase corresponding to Lothal B, Rangpur IIB and IIC, Rajdi IB, Alamgirpur I and Baragaon. The Late Siswal tradition survives in the sub-period but it has largely lost its distinctive character.

A comparative study of the Mitathal IIB ware with that of Bara reveals unmistable affinities between the two collections in typology and decorations. The phase also shows parallels with the Cemetery H culture in pottery types, painted designs, grain bins etc. in the upper levels.

The typological affinities between the ceramic industry of Mitathal IIB and the OCP. of the Doab atleast of Group A and those reported from Panjab and Haryana suggest genetic relationship between the two. The occurence of Copper Harpoon and a ring from Mitathal, the typical Hoard types, further substantiate the association of the OCP. - Copper Hoard complex of the Doab with the Late Harappa culture complex of the Madhya Desha.

The Late Harappa culture was widely spread in our region and beyond to the Sutlej-Beas Doab in the west and the Ganga Valley in the east, to the Siwaliks in the north and upto Tigrana near Bhiwani in Hissar District in the south. It marks the second phase of the extention of the Harappa culture towards its late phase, forced by the desiccation of the Lower Sarasvati and Drisadvati valleys resulting from the hydrological changes in the Sarasvati Basin. The Late Harappa culture was succeeded by the Painted Grey Ware culture, with a break, at Daulatpur.

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